Ranchero Road Improvement Project
Noise Technical Report

Prepared for:

City of Hesperia

October 2011

Prepared by:

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Executive Summary

The purpose of this Noise Technical Report is to evaluate noise impacts and abatement measures for the Ranchero Road Widening Project under the requirements of the California Environmental Quality Act (CEQA). The City of Hesperia (City) proposes to widen Ranchero Road from about 2,200 feet east of Mariposa Road to Seventh Avenue. The proposed project would involve widening Ranchero Road from two lanes to a four-lane facility.

Consistent with CEQA guidelines, this report's impact evaluation incorporates City General Plan Noise Element standards as well as noise and vibration provisions from the City's Municipal Code and County of San Bernardino (County) Code. The study predicts operational noise impacts based on traffic noise modeling performed with the Traffic Noise Model (TNM) promulgated by the Federal Highway Administration (FHWA). It uses noise measurements performed within the study corridor to calibrate the modeling. For the Future Build case, it predicts noise levels for each of three prospective cruise speeds for vehicles along Ranchero Road, and for both national-average pavement conditions and open-graded asphaltic concrete (OGAC) pavement.

Where traffic noise impacts are predicted, this study considers the feasibility of soundwalls to abate those impacts. Noise abatement has been considered where traffic noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. The abatement analysis was conducted with soundwall heights ranging from 6 to 12 feet. Soundwall heights greater than 12 feet were not deemed appropriate for consideration as part of a local project to modify a local arterial roadway. Where an existing property wall is present, the lowest prospective future soundwall height considered was at least 2 feet taller than the existing wall.

Contingent on feasibility, two design alternatives were considered: Design A and Design B. Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Future Build conditions. Design A represents the minimum height required to reduce outdoor traffic noise exposure at such receivers to a CNEL below 65 dBA. Design B represents the minimum height required (subject to the previously-discussed height constraints) to provide five or more decibels of reduction in traffic noise exposure.

Table ES-1 provides summary statistics for the proposed soundwalls assuming national-average pavement conditions. Both noise impacts and abatement were evaluated based on each of three possible cruise speeds for the Future Build case – 50 mph, 45 mph, and 40 mph. If 45 mph or 40 mph speeds could be applied for Ranchero Road traffic under Future Build conditions, traffic noise levels at many of these receivers would be below Future No Build levels and fewer noise barriers would be required. Table ES-2 provides corresponding statistics assuming the use of OGAC. For any given average travel speed, OGAC would result in traffic noise levels approximately 1 to 2 decibels lower than corresponding levels assuming national-average pavement conditions.

Where traffic noise impacts were identified but could not be fully mitigated by soundwalls mainly due to the access issues, minimum outdoor-indoor level reduction (OILR) targets were developed that would help protect interior living spaces from traffic noise exposure. These OILR targets were based on the goal of keeping traffic noise levels below City standards within residential interiors. If and where reductions in cruise speeds are not sufficient to eliminate impacts, the City may consider changing windows to meet the interior noise limits. However, tests would need to be conducted to determine the OILR of the buildings before considering any possible improvements such as changing windows. If windows of these older houses have been upgraded then there may not be a need for testing or changing windows.

Construction noise and vibration impacts were evaluated based on reference noise and vibration levels for representative pieces of construction equipment. Mitigation strategies include some combination of:

- When/if warranted by proximity of sources to receivers, avoid extending construction activities beyond the hours exempt from the noise and vibration provisions of the Municipal and County Codes. When/if warranted by time period and/or proximity of sources to receivers, select equipment to assure compliance with the building-damage-related vibration threshold at any time.
- When/if warranted by time period and/or proximity of sources to receivers, select equipment to assure compliance with the human-disturbance-related vibration threshold outside of exempt hours.
- When/if warranted by time period and/or proximity of sources to receivers, monitor noise and/or vibration levels and provide for immediate modification or cessation of activities if they exceed applicable thresholds.

Table ES-1. Summary of Proposed Soundwalls for Each of Three Cruise Speed Scenarios: National-Average Pavement Conditions

Side of Roadway	50 mph			45 mph			40 mph		
	Number of Walls Proposed	Range in Wall Heights[1]	Number of Impacted Receivers That Can Be Protected[2]	Number of Walls Proposed[1]	Range in Wall Heights	Number of Impacted Receivers That Can Be Protected[2]	Number of Walls Proposed[1]	Range in Wall Heights	Number of Impacted Receivers That Can Be Protected[2]
Westbound	7	6 to 11 ft	11	6	6 to 9 ft	10	4	6 to 7 ft	6
Eastbound	15	6 to 12 ft	34	9	6 to 10 ft	18	4	6 to 9 ft	8
OVERALL	**22**	**6 to 12 ft**	**45**	**15**	**6 to 10 ft**	**28**	**8**	**6 to 9 ft**	**14**

Notes:

1 – Heights vary from one barrier location to the next, and (in some cases) between Soundwall Design A and Soundwall Design B at the same location.

2 – These are the number of impacted receivers where the goal for one or both soundwall designs can be met.

SOURCE: Parsons

Table ES-2. Summary of Proposed Soundwalls for Each of Three Cruise Speed Scenarios: OGAC Pavement

Side of Roadway	50 mph			45 mph			40 mph		
	Number of Walls Proposed	Range in Wall Heights[1]	Number of Impacted Receivers That Can Be Protected[2]	Number of Walls Proposed[1]	Range in Wall Heights	Number of Impacted Receivers That Can Be Protected[2]	Number of Walls Proposed[1]	Range in Wall Heights	Number of Impacted Receivers That Can Be Protected[2]
Westbound	4	6 to 10 ft	6	3	6 to 10 ft	5	0	--	0
Eastbound	8	6 to 12 ft	19	2	8 to 9 ft	4	0	--	0
OVERALL	**12**	**6 to 12 ft**	**25**	**5**	**6 to 10 ft**	**9**	**0**	**--**	**0**

Notes:

1 – Heights vary from one barrier location to the next, and (in some cases) between Soundwall Design A and Soundwall Design B at the same location.

2 – These are the number of impacted receivers where the goal for one or both soundwall designs can be met.

SOURCE: Parsons

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List of Abbreviated Terms

ADT	Average Daily Traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	Decibels
EIR	Environmental Impact Report
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
kHz	Kilohertz
I.L.	Insertion Loss
L_{dn}	Day-Night Level
L_{eq}	Equivalent Sound Level
L_{max}	Maximum Sound Level
LOS	Level of Service
L_n	Percentile-Exceeded Sound Level
µPa	micro Pascals
mph	miles per hour
OGAC	Open-graded asphaltic concrete pavement
OILR	Outdoor-Indoor Level Reduction
PPV	Peak Particle Velocity
RMS	Root Mean Square
SFR	Single-family residence
SOI	Sphere of Influence
SPL	Sound pressure level
TNM 2.5	FHWA Traffic Noise Model Version 2.5

Chapter 1. Introduction

The City of Hesperia (City) proposes to widen Ranchero Road from about 2,200 feet east of Mariposa Road to Seventh Avenue. Figure 1-1 shows the vicinity of the project. As shown in Figure 1-2, the project corridor is located both within the City and within unincorporated San Bernardino County. The project study area for purposes of this analysis is depicted in more detail in Figure 1-3. The proposed project would involve widening Ranchero Road from two lanes to a four-lane facility. The purpose of the proposed Ranchero Road project is to provide the City of Hesperia with an additional arterial level east-west access route across the City, consistent with the City's adopted 2001 Circulation Element update of the General Plan. The objective of the project is to promote economic development within the City.

The purpose of this Noise Technical Report is to evaluate noise impacts and possible abatement measures under the requirements of the California Environmental Quality Act (CEQA).

Figure 1-1. Vicinity Map

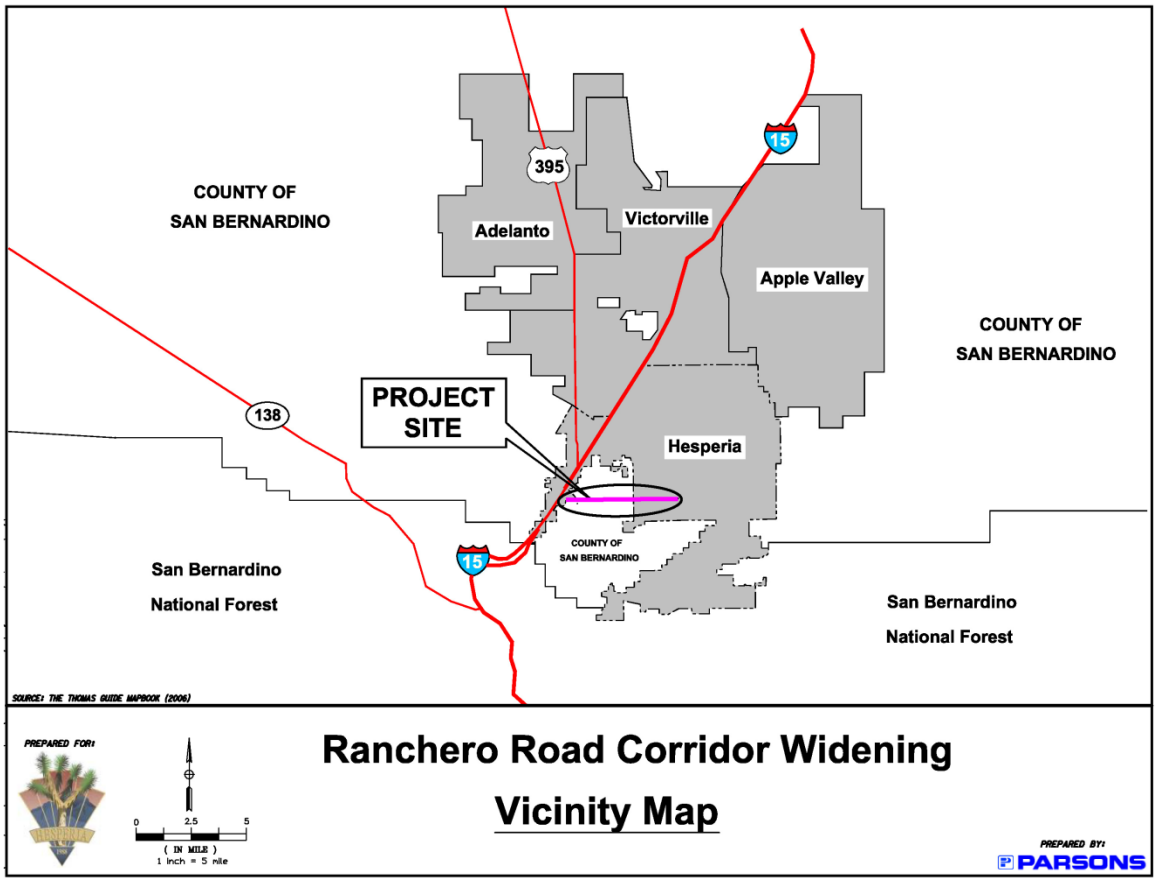


Figure 1-2. Project Location Map

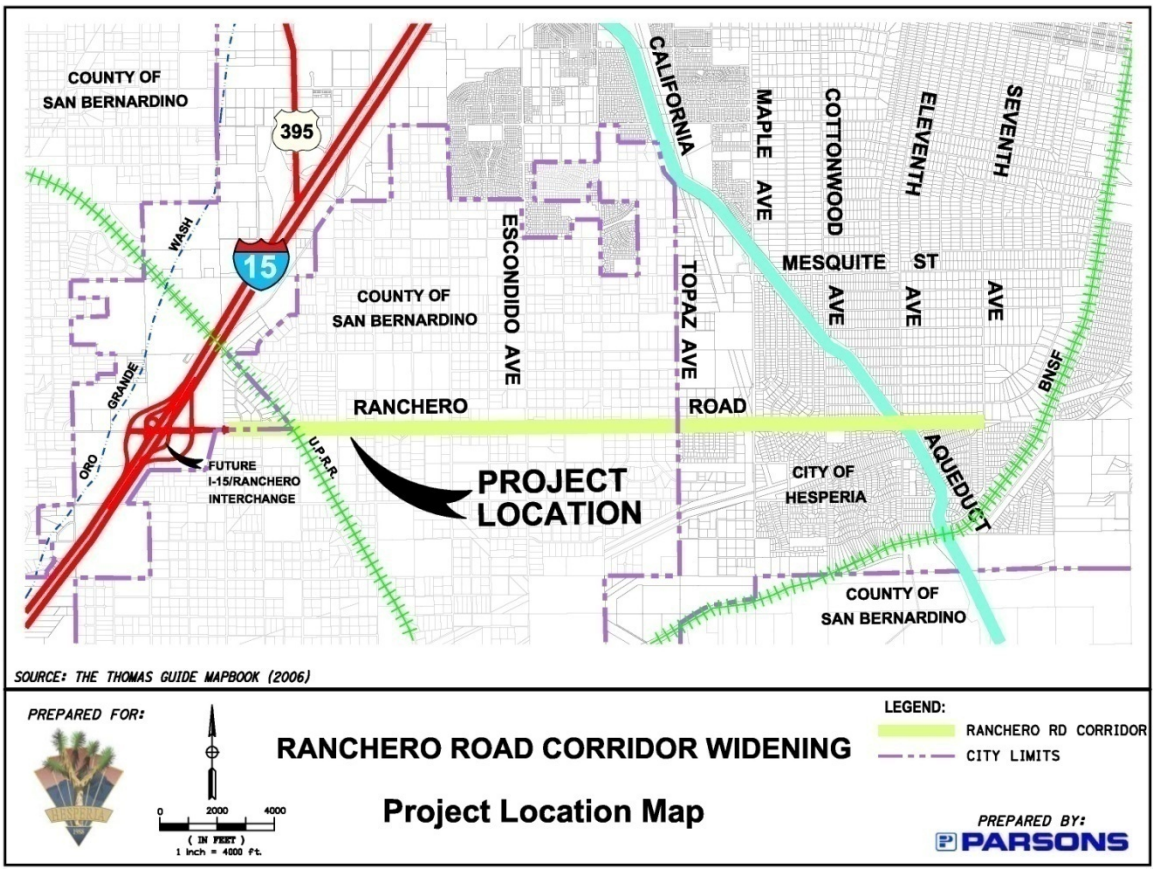
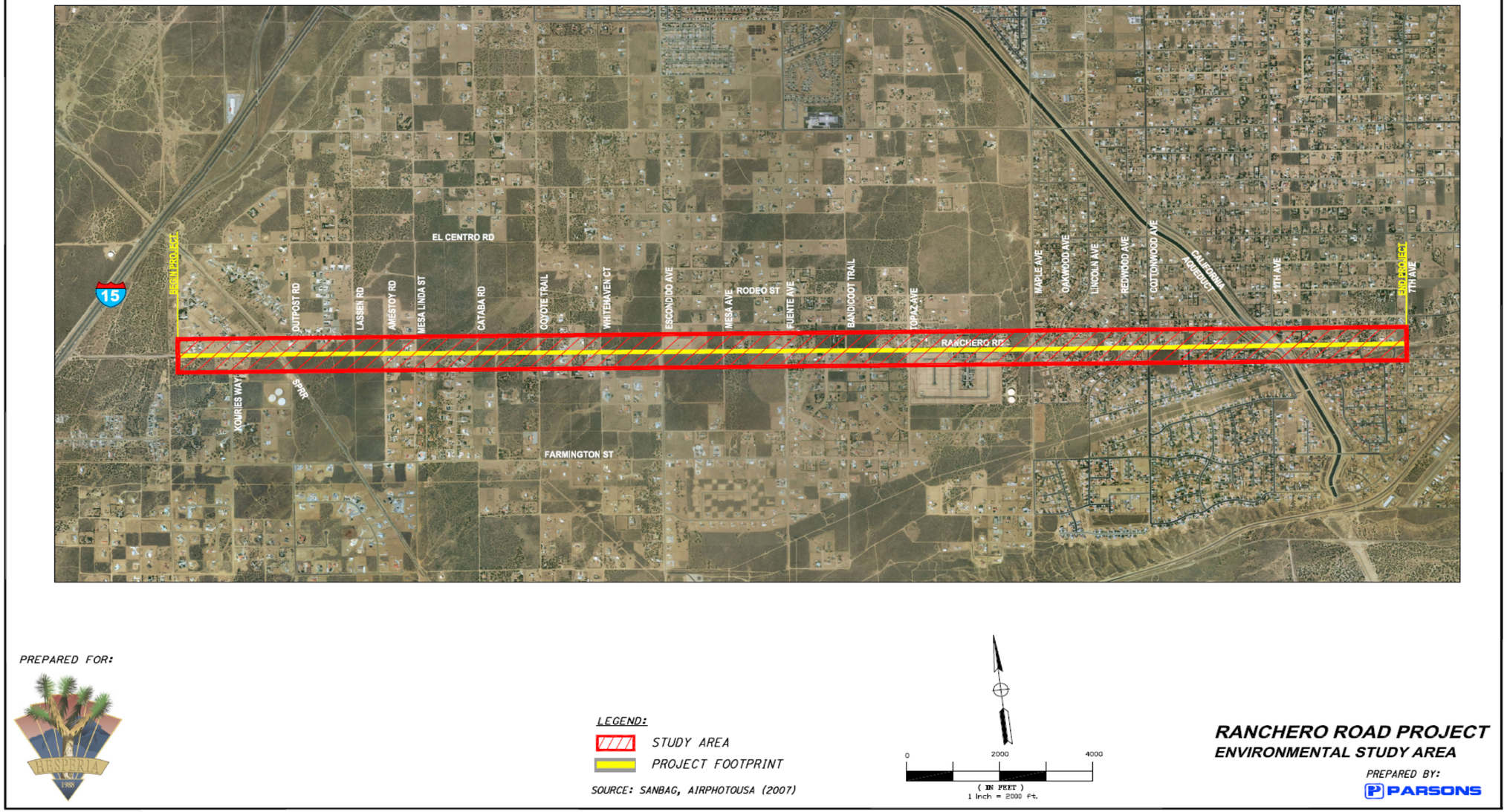


Figure 1-3. Project Corridor



SOURCE: Parsons, 2010

Chapter 2. Fundamentals of Traffic Noise

The following is a brief discussion of fundamental traffic noise concepts.

2.1. Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

2.2. Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

2.3. Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (µPa). One µPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 µPa. Because of this huge range of values, sound is rarely expressed in terms of µPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 µPa.

2.4. Addition of Decibels

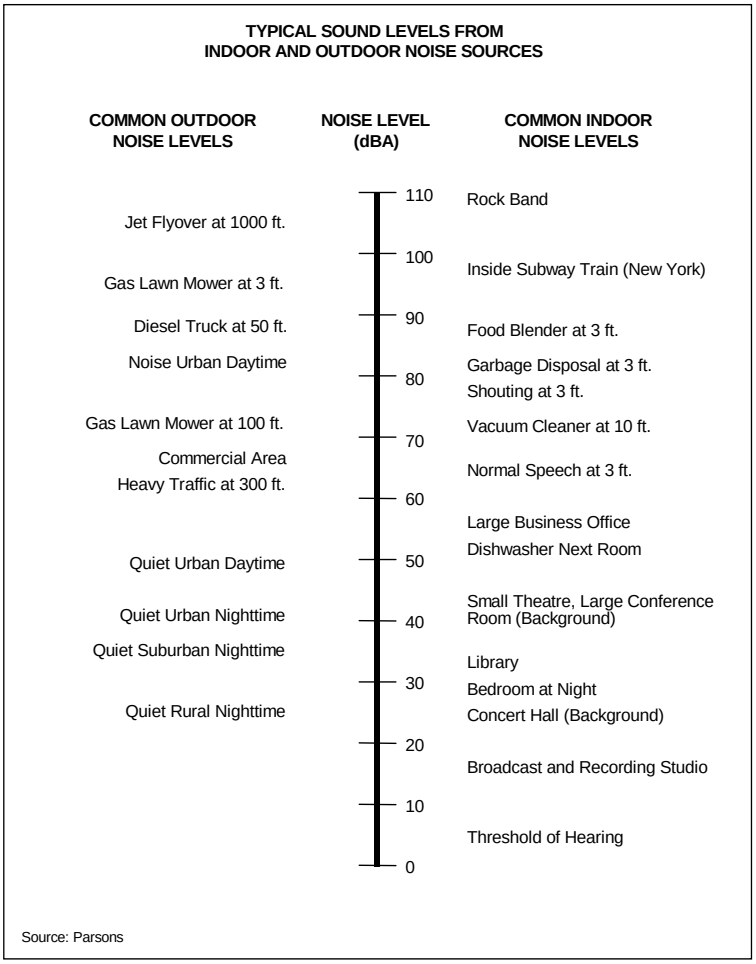
Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to

a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB — rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

2.5. A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear. Figure 2-1 describes typical A-weighted noise levels for various noise sources.

Figure 2-1. Typical A-weighted Noise Levels



Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those

frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-weighted levels of those sounds. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA.

2.6. Human Response to Changes in Noise Levels

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3 dB increase in sound, would generally be perceived as barely detectable.

2.7. Noise Descriptors

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis:

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period.

- **Percentile-Exceeded Sound Level (L_n):** L_n represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).

- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.

- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5 dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

2.8. Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

The propagation path of noise from a roadway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet.

For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receiver is rarely effective in reducing noise because it does not create a solid barrier.

2.9. Exterior-Source Noise Within Building Interiors: Outdoor-Indoor Level Reduction

Disturbance from traffic noise can also occur within the interiors of buildings such as residences. The building's exterior envelope influences the amount of exterior-source noise that penetrates into the building's interior. In most cases, the roadway-facing façade of a building is the primary path for transmission of traffic noise to interior spaces behind that façade. One measure of the noise reduction that occurs across such facades is outdoor-indoor level reduction (OILR). OILR is generally measured or otherwise specified in a series of specific frequency bands. In this report, OILR is specified as broadband values that represent minimum façade noise reduction requirements for traffic noise.

2.10. Vibration

Vibration is an oscillatory motion which can be described in terms of displacement, velocity, or acceleration. Displacement, in the case of a vibrating floor, is simply the distance that a point on the floor moves away from its static position. The velocity represents the instantaneous speed of the floor movement and acceleration is the rate of change of the speed. The response of humans, buildings, and equipment to vibration is normally described using velocity or acceleration. In this report, velocity will be used in describing ground-borne vibration.

Vibration amplitudes are usually expressed as either peak particle velocity (PPV) or the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second. The RMS of a signal is the average of the squared amplitude of the signal.

Chapter 3. Applicable Regulations and Policies

State and local guidelines and limits are applicable to the evaluation of traffic noise impacts from the proposed project.

3.1. State

The CEQA guidelines include an Environmental Checklist Form which includes one or more impact categories for each of several environmental factors. One such environmental factor is noise.

3.2. Local

The proposed project corridor is partially contained within City limits and is partially outside of City limits but within the City's Sphere of Influence (SOI). That portion within the SOI is currently under the County of San Bernardino's jurisdiction.

3.2.1. Planning Guidelines

3.2.1.1. CITY OF HESPERIA

Table NS-4 of the City's 2010 General Plan Noise Element (City of Hesperia, 2010) specifies interior and exterior noise standards. The exterior noise standard for residential and park uses is set at a CNEL of 65 dBA. The interior standard for single-family residences, school classrooms, and churches is set at CNEL of 45 dBA.

3.2.1.2. SAN BERNARDINO COUNTY

The County's 2007 General Plan Noise Element (San Bernardino County, 2007) refers to standards in Chapter 83.01 of the Development Code. The applicable Development Code standards are discussed below under "3.2.2. Code Provisions".

3.2.2. Code Provisions

3.2.2.1. CITY OF HESPERIA

Section 16.20.125 of the Municipal Code (City of Hesperia, 2010) includes noise standards that are reproduced in modified form in Table 3-1.

Table 3-1. City of Hesperia Noise Performance Standards

Affected Land Use (Receiving Noise)	Time Period	Maximum Noise Level (dBA) Allowable During any Given Hour, by Duration of Exposure and Associated Percentile Value				
		>30 minutes	>15 minutes	>5 minutes	>1 minute	Any Duration
		L_{50}	L_{25}	L_8	L_2	L_{max}
A-1, A-2, R-1, R-3 and RR Zone Districts	10:00 p.m. to 7:00 a.m.	55	60	65	70	75
	7:00 a.m. to 10:00 p.m.	60	65	70	75	80
C-1, C-2, C-3, C-4, C-R, AP, and P-I Zone Districts	Anytime	65	70	75	80	85

SOURCE: City of Hesperia, 2010

This code section exempts: "Temporary construction, repair or demolition activities between seven a.m. and seven p.m. except Sundays and federal holidays."

Municipal Code Section 16.20.130 states that: "No vibration shall be allowed which can be felt without the aid of instruments at or beyond the lot line; nor will any vibration be permitted which produces a particle velocity greater than or equal to 0.2 inches per second measured at or beyond the lot line." The same construction activity exemption applied to noise impacts is also applied to vibration impacts. In this study, the 0.2 inches per second particle velocity threshold will be applied as a peak particle velocity value to prevent possible cosmetic damage to buildings close to the proposed project. Accordingly, as a CEQA threshold it will be applied any time, not just outside periods when construction is exempt under the Municipal Code.

3.2.2.2. SAN BERNARDINO COUNTY

Table 83-3 of the County Development Code (San Bernardino County, 2010) provides standards for exposure to adjacent mobile noise sources that are similar to the aforementioned City Noise Element standards. Table 83-3 specifies an exterior noise standard of 60 dBA in terms of L_{dn} or CNEL, but…

"An exterior noise level of up to 65 dBA…shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dBA…with windows and doors closed."

Table 83-2 of the development code includes standards for stationary noise sources that -- for the purposes of this study -- are effectively identical to standards in Section 16.20.125 of the Municipal Code. Section 83.01.080 of the County Code includes the same construction activity exemption that the City provides. Section 83.01.090 specifies a vibration standard and construction activity exemption identical to the corresponding City provisions.

Chapter 4. Study Methods and Procedures

4.1. Field Measurement Procedures

Noise measurements were conducted at selected locations to evaluate the existing noise environment. The following are brief descriptions of the measurement procedures used for this project:

- Microphones for noise measurements were placed 5 feet above the ground. All the measurement sites were positioned more than 10 feet from any wall or building to prevent reflections or unrepresentative shielding of the noise.
- Sound level meters were calibrated before and after each set of measurements.
- Following initial calibration of equipment, a windscreen was placed over the microphone.
- Frequency weighting was set on "A" and the slow detector response was selected.
- Results of the short-term noise measurements were recorded on data sheets in the field. Long-term measured data were downloaded to the computer for tabulation and graphing.
- During the short-term noise measurements, noise sources contributing significantly to measured noise levels were noted.
- Wind speed, temperature, humidity, and sky conditions were observed and documented during the short-term noise measurements.

The instruments used for the noise measurements included the following:

- Sound Level Meters – Larson Davis models 820, 824, and 870.
- Microphone Systems:
  - Larson Davis 820 System – Larson Davis model PRM 828 microphone preamp; GRAS model 40AQ, ½-inch pressure microphone.
  - Larson Davis 824 System – Larson Davis model PRM 902 microphone preamp; PCB377A02, ½-inch pressure microphone.
  - Larson Davis 870 System – Larson Davis model 900B microphone preamp; Larson Davis model 2559, ½-inch pressure microphone.
- Acoustic Field Calibrators – Larson Davis model CA250 constant pressure microphone calibrator.
- Microphone cables; 4-inch diameter windscreens; and tripods.

- Wind Monitor/Temperature and Humidity Gauge – Kestrel 3000 Pocket Weather Meter.
- Radar Gun – Phantom Handheld

4.2. Prediction Methods

The Federal Highway Administration (FHWA) Traffic Noise Model (TNM) version 2.5 was used for the traffic noise computations (FHWA, 2004). TNM 2.5 input is based on a three-dimensional grid created for the study area to be modeled. All roadway, barrier, terrain lines, and receiver points are defined by their x, y, and z coordinates. Roadways, terrain lines, and barriers are coded into TNM 2.5 as line segments defined by their end points. Receivers, defined as single points, are typically located at frequent outdoor use areas such as residences, schools, and recreational areas. Receivers are modeled at a height of 5 feet above ground elevation.

In order to determine the noise levels generated by traffic, the TNM 2.5 computer program requires inputs of traffic volumes, speeds, and vehicle types. Table 4-1 summarizes the traffic inputs applied for this study. Three vehicle types were input into the model: cars, medium trucks, and heavy trucks. The propagation path between source and receiver is modeled in TNM 2.5 by specifying special terrain features, rows of houses or building structures, and existing walls. Propagation of noise can be further specified by selecting ground types such as hard soil, loose soil, pavement, lawn, and field grass. The lawn option was chosen as the overall ground type for this study due to TNM model anomalies associated with selection of the "loose soil" category as a default. All other natural obstructions that could affect the future predicted noise levels were also included in the input file.

Total estimated Existing and predicted Future Project ADT values were extracted from the *General Plan Transportation Technical Report* (KHA, 2009). Future No Project ADT values were derived from Future Project values by predicting the reduction in peak period traffic flow due to the lower roadway capacity under the Future No Project scenario.

Table 4-1. Modeled Traffic Volumes

Scenario	Description of Traffic Lane	Number of Lanes	Total Daily Traffic Volumes	Average Hourly Volumes by Vehicle Type and Time Period									
				Time Period	Cars			Medium Trucks			Heavy Trucks		
					Volume	%	Travel Speeds, mph	Volume	%	Travel Speeds, mph	Volume	%	Travel Speeds, mph
Existing	EB Lane	1	3,890	Day	224		50-55	7		50-55	3		50-55
				Night	40		50-55	1		50-55	1		50-55
	WB Lane	1	3,890	Day	224		50-55	7		50-55	3		50-55
				Night	40		50-55	1		50-55	1		50-55
	Overall	2	7,780			95.42%			3.12%			1.46%	
Future No Project[1]	EB Lane	1	16,250	Day	881		50	77		50	21		50
				Night	156		50	14		50	4		50
	WB Lane	1	16,250	Day	881		50	77		50	21		50
				Night	156		50	14		50	4		50
	Overall	2	32,500			90.00%			7.90%			2.10%	
Future Project[1,2]	EB Lane (Inner)	1	10,150	Day	563		50/45/40	48		50/45/40	0		50/45/40
				Night	100		50/45/40	9		50/45/40	0		50/45/40
	EB Lane (Outer)	1	10,150	Day	538		50/45/40	48		50/45/40	26		50/45/40
				Night	95		50/45/40	9		50/45/40	5		50/45/40
	WB Lane (Inner)	1	10,150	Day	563		50/45/40	48		50/45/40	0		50/45/40
				Night	100		50/45/40	9		50/45/40	0		50/45/40
	WB Lane (Outer)	1	10,150	Day	538		50/45/40	48		50/45/40	26		50/45/40
				Night	95		50/45/40	9		50/45/40	5		50/45/40
	Overall	4	40,600			90.00%			7.90%			2.10%	

Notes:
1 - Traffic volumes based on Year 2030 projections.
2 - Three different cruise speeds have been considered in this analysis.
SOURCES: Parsons, 2010; KHA, 2009

AM-peak-period intersection vehicle classification counts served as the basis for truck percentages applied to the Existing scenario. For the and Future No Project and Future Project scenarios, this report replicated truck percentage inputs applied in the *Traffic Noise Analysis for Ranchero Road Grade Separation Project* (Mestre Greve Associates, 2008). Those inputs were based on the assumption that the future Ranchero Road – with the planned I-15 interchange and BNSF undercrossing -- would bear truck traffic percentages comparable to existing truck percentages along Main Street.

To calculate traffic noise exposure in terms of CNEL, traffic volume assumptions must be distributed between daytime and nighttime hours. Table 3 from the City of Hesperia's General Plan Noise Element summarizes average traffic distribution by time of day and vehicle type. This Noise Technical Report applies the day/night distribution derived from Noise Element Table 3.

Once traffic volumes were distributed for the future No Build case, it was observed that due to the hourly traffic volumes the level of service would drop below the posted speed. Therefore, speeds were reduced in accordance to the anticipated traffic volumes. Table 4-2 presents speeds that were used for the No Build case traffic noise impact analysis. Such speed adjustments were not necessary for the Existing or the future Build cases because predicted traffic volumes would be less than then the level of service C, which means traffic speed can be assumed to be same as the posted speed limits.

4.3. Methods for Identifying Traffic Noise Impacts and Consideration of Abatement

4.3.1. Impacts

Traffic noise impacts were identified in a manner consistent with relevant items on the CEQA Environmental Checklist Form (CA Natural Resources Agency, 2010), as follows.

a) *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

   This study applies the City General Plan Noise Element exterior CNEL standard of 65 dBA. Where applicable, this study also applies the corresponding interior CNEL standard of 45 dBA. For temporary (construction) impacts, noise standards from the Municipal Code and County Code are applied as appropriate.

b) *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Table 4-2. Modeled Traffic Speeds for the Future No Build Case

Hour	Traffic Volumes		Speed, mph	
	EB	**WB**	**EB**	**WB**
00:00	66	86	50	50
01:00	66	86	50	50
02:00	59	61	50	50
03:00	90	66	50	50
04:00	147	108	50	50
05:00	394	244	50	50
06:00	886	681	35	50
07:00	934	935	25	25
08:00	942	904	25	35
09:00	952	944	25	25
10:00	974	984	25	25
11:00	686	755	50	50
12:00	764	760	50	50
13:00	901	769	35	50
14:00	918	849	35	50
15:00	1048	1235	20	15
16:00	1515	1374	15	15
17:00	1356	1381	15	15
18:00	1078	1172	20	15
19:00	794	1061	50	20
20:00	537	759	50	50
21:00	381	610	50	50
22:00	315	383	50	50
23:00	292	198	50	50

This study considers the potential for project construction activities to exceed the vibration thresholds established in the Municipal Code and County Code. This study applies 0.012 in/sec PPV as a threshold for human perception. It further assumes that vibration levels exceeding the 0.2 in/sec PPV threshold could be significant whether or not the vibration-producing activity occurs during the time periods for which construction activities are exempted. This study relies on reference vibration levels collected by Parsons.

c) *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

For the purposes of this analysis, a "substantial permanent increase" is defined as a 5 or more decibel increase in traffic noise levels under Future Build conditions relative to Future No Build conditions that results in a CNEL of 60 dBA or higher.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

The Municipal and County Code provisions referred to under "a)" also address this impact category.

e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

The nearest public or public use airport is the Hesperia Airport, which is about 2,300 feet southeast of the eastern terminus of the Project corridor. However, the Project is not a land development project and would not introduce noise-sensitive land uses that could be exposed to airport noise.

f) For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?

This impact category is not relevant to the project.

4.3.2. Mitigation Measures

For operational noise impacts, two soundwall design alternatives were considered: Design A and Design B. Design A was only considered where one or more receivers were predicted to experience a CNEL of 65 dBA or higher under Future Build conditions. It represents the minimum height required to reduce outdoor traffic noise exposure at such receivers to a CNEL below 65 dBA. Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure.

Where traffic noise impacts were identified but could not be fully mitigated by soundwalls, minimum OILR targets were developed that would help protect interior living spaces from traffic noise exposure.

For construction, mitigation measures considered included time limitations, equipment selection, continuous monitoring and/or avoidance where necessary.

Chapter 5. Existing Noise Environment

5.1. Existing Land Uses

A field investigation was conducted on March 1, 2010, to identify land uses and frequent human use areas that could be subject to traffic noise impacts from the proposed project. Single-family residences comprise the majority of noise-sensitive land uses along the project corridor. Other uses include a church and associated daycare facility, a stand-alone daycare facility, and playfields associated with a high school.

5.2. Noise Measurement Results

Noise measurements were taken at a total of 12 locations within the project limits on March 15 through 17, 2010. The primary objective of the measurements was to collect data for calibration of the traffic noise model and establish existing noise profiles. Noise monitoring was conducted at various measurement sites that are representative of these frequent outdoor use areas. Short-term measurements were conducted at a total of eight sites for a duration of 20 minutes each, and long-term measurements at four locations for at least 24 hours.

Results for the short-term and long-term measurements are presented in Tables 5-1 and 5-2, respectively. Also included in those tables is the land use type represented by each of the measurement sites. Figures in Appendix A present the measurement locations. Measurement site photographs are cataloged in Appendix B. Appendix C includes noise measurement data sheets recorded in the field, as well as the hourly L_{eq} graphs for the long-term measurements.

5.2.1. Short-term Monitoring

Table 5-1 indicates the specific location of the sound level meter's microphone. Measurement sites were generally constrained to outdoor locations outside of residential properties but acoustically comparable to outdoor frequent use areas of the houses.

The short-term measurement data shown in Table 5-1 demonstrate a wide range in L_{eq} values. Some of this variation relates to variation in observed traffic flow from one measurement to the next and some of it relates to variations in distances from the Ranchero Road centerline. However, differences in other noise exposure circumstances

Table 5-1. Short-Term Noise Measurement Results

Site No.[1]	Street Address of Nearest Parcel, City/Community	Represented Land Use[2]	Meter Location	Distance from Ranchero Road Centerline, ft	Measurement Date	Start Time	Measured L_{eq}, dBA[3]
ST1	11977 Amherst Court, Oak Hills	SFR	Vacant parcel	113	3/17/2010	10:40	55.4
ST2	12445 Ranchero Road, Oak Hills	SFR	Edge of cross-street	100	3/17/2010	11:20	63.3
ST3	13032 Ranchero Road, Oak Hills (Solid Rock Church)	CHR	Edge of cross-street	100	3/17/2010	12:40	62.3
ST4	7277 Fuente Avenue, Oak Hills	SFR	Edge of Fuente Avenue	100	3/17/2010	13:40	62.1
ST5	7271 Primrose Avenue, Hesperia	SFR	Water tank site	75	3/16/2010	06:40	65.8
ST6	14818 Ranchero Road, Hesperia	SFR	Edge of cross-street	100	3/17/2010	14:40	60.8
ST7	7339 11th Street, Hesperia	SFR	Next to California Aqueduct	100	3/17/2010	16:20	57.3
ST8	7237 Via Quintana Street, Hesperia	SFR	Property outside residential pad	118	3/17/2010	15:40	51.9

Notes:
1 - ST – Short-Term Measurements.
2 - Adjacent land uses represented by measurement site. CHR – Church; SFR – Single-Family Residence.
3 - Short-term measured noise levels were measured for a period of 20 minutes.
SOURCE: Parsons, 2010

Table 5-2. Long-Term Noise Measurement Results

Site No.[1]	Street Address, City/Community	Land Use[2]	Meter Location	Measurement Dates	Start Hour	Duration, hr	Measured CNEL, dBA
LT1	12115 Tierra Linda Lane, Oak Hills	SFR	Behind house	3/16/09 - 3/17/09	09:00	31	64.7[3]
LT2	7331 Topaz Avenue, Hesperia	SFR	Front yard	3/15/09 - 3/17/09	17:00	36	67.0
LT3	7284 Locust Avenue, Hesperia	SFR	Back yard	3/15/09 - 3/17/09	16:00	49	56.2[4]
LT4	15468 Ranchero Road, Hesperia	SFR	Front yard	3/15/09 - 3/17/09	14:00	50	62.3

Notes:
1 - LT – Long-Term Measurements.
2 - Land Use: SFR – Single-Family Residence.
3 - These results were influenced by noise effects during early morning hours that cannot be substantially explained by traffic noise under typical traffic flow conditions.
4 - These results exclude anomalous noise data.
SOURCE: Parsons, 2010

explain some of the largest variations. Measured L_{eq} values were lowest at Sites ST1 and ST8; both sites were positioned behind property walls. Site ST7 is located north of the Ranchero Road bridge across the California Aqueduct. Concrete at the base of the guard rail bounding the bridge obscured direct exposure to tire-pavement noise, reducing traffic noise levels experienced at the measurement site.

5.2.1. Long-Term Monitoring

Long-term measurements were conducted continuously for over 24 hours at each of four locations. The long-term measurements were conducted to sample CNEL and diurnal variations in community noise at representative locations. Table 5-2 summarizes long-term monitoring results and shows addresses of four monitoring locations. Appendix C includes field survey sheets and hourly L_{eq} graphs. At LT3, anomalous data have been excluded from the graph. At LT2, data collected during early morning hours could not be substantially explained by noise from typical AM peak period traffic flow.

Chapter 6. Future Noise Environment, Impacts, and Abatement

The following discussion focuses on the first four of the six noise impact categories considered in the CEQA Environmental Checklist Form. The fifth and sixth noise impact categories pertain to airport noise. The project corridor approaches within about 2,300 feet of the Hesperia Airport which is a small general aviation airport. However, the proposed project development is not noise-sensitive, so the fifth and sixth noise impact categories do not apply.

6.1. Operational (Permanent) Impacts

6.1.1. Applicable CEQA Impact Categories

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

6.1.2. Specific Significance Criteria

A significant project operational noise impact will be deemed to occur if predicted outdoor noise levels at noise-sensitive receivers under Future Build conditions either:

1) Are higher than predicted noise levels under Future No Build conditions and equal or exceed a CNEL of 65 dBA; or
2) Are at least 5 decibels higher than predicted noise levels under Future No Build conditions and equal or exceed a CNEL of 60 dBA.

The first criterion is drawn explicitly from Table NS-4 of the City's 2010 General Plan Noise Element. The second implements CEQA Environmental Checklist Noise Item "c)". The 60 dBA condition is influenced by the Land Use Compatibility Matrix presented in Exhibit NS-1 of the Noise Element. The matrix specifies 60 dBA as the transition between "Normally Acceptable" and "Conditionally Acceptable" environments for residential uses.

6.1.3. Impacts

This chapter considers two future operational scenarios:

- Future No Build
- Future Build

Future No Build conditions assume no physical change to Ranchero Road within the project footprint. These conditions also assume Ranchero Road traffic volumes that are constrained by a combination of limited peak period roadway capacity and the availability of alternative routes for area-wide vehicular travel.

Under both future scenarios, area-wide traffic demand is predicted to be substantially higher than existing levels. The proposed project would widen Ranchero Road from two to four lanes, increasing traffic capacity. As previously discussed, this project is being planned in conjunction with two other projects:

- Interstate 15 at Ranchero Road Interchange Project
- Ranchero Road from 7th Avenue to Danbury: Realign Road, Widen from Two to Four Lanes, and Construct Railroad Undercrossing

Under future conditions, these two other projects would be expected to enhance Ranchero Road not only as a general traffic corridor but also as a corridor for truck movement. Accordingly, truck percentages under both future scenarios are predicted to be higher than under existing conditions.

Impacts were predicted for several different scenarios. The posted speed is 50 mph; therefore, the base impact calculations have used 50 mph for predicting traffic noise impacts for the No build and Build Alternatives. Effects of reducing the speed limit to 40 and 45 mph were also analyzed. TNM has options of using different types of the roadway surfaces for predicting traffic noise impacts. First the "National Average" roadway surface was used for predicting traffic noise impacts. Then calculations were repeated for the three sets of speeds using the open-graded asphaltic concrete (OGAC) pavement.

The tables in Appendix D provide a detailed listing of predicted noise levels without and with noise abatement and specify impact determinations for each modeled receiver. These tables also indicate how many noise-sensitive land use units are represented by each modeled receiver. Tables D-1 and D-2 focus on results assuming a cruise speed of 50 mph for traffic along Ranchero Road. Table D-1 assumes national-average pavement conditions; Table D-2 assumes OGAC pavement. Tables D-3 and D-4 consider how results would vary for the three different assumed cruise speeds introduced under "4.2.

Prediction Methods"; again, one table assumes national-average pavement conditions and the other assumes OGAC pavement.

Table 6-1 summarizes the numbers of represented noise-sensitive units predicted to experience project-generated exterior noise impacts for two different types of the roadway surface and three different speeds.

Table 6-1. Summary of Impacted Areas

Roadway surface	Speed, mph	Single Family Houses	School	Church
National Average	50	110	1	1
	45	71	1	1
	40	15	--	--
OGAC	50	58	--	1
	45	10	--	--
	40	--	--	--

6.1.4. Abatement

Noise abatement measures have been considered where traffic noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. The abatement analysis was conducted with soundwall heights ranging from 6 to 12 feet. Soundwall heights greater than 12 feet were not deemed appropriate for consideration as part of a local project to modify a local arterial roadway. Where an existing property wall is present, the lowest prospective future soundwall height considered was at least 2 feet taller than the existing wall. The horizontal alignments of the proposed soundwalls are shown graphically on the figures in Appendix A. Tables D-1 through D-4 in Appendix D consider two different soundwall designs – Design A and Design B for two different types of roadway surfaces. These designs were introduced under "4.3.2. Mitigation Measures" earlier in this report.

Where project traffic noise impacts have been identified but effective soundwalls would not be feasible, interior noise levels have been considered. Specifically, the minimum building façade noise reduction has been calculated that would ensure traffic noise levels below a CNEL of 45 dBA (44 dBA when rounded to the nearest decibel) within noise-sensitive interiors. This information is provided in the rightmost columns of Tables D-1

through D-4 in Appendix D. Numerical values have only been provided where impacts have been identified, abatement from soundwalls is deemed infeasible, and noise reductions of greater than 25 dB to 30 dB would be required to meet interior noise targets. The 25 dB threshold is applied to houses that were constructed before 1980 and the 30 dB threshold is applied to newer houses. The higher noise reduction is assumed to be a byproduct of more energy-efficient design, such as new weather proofed double glazed windows. In all cases, homes along the project corridor identified as potentially vulnerable to interior noise impacts have been assumed to have air conditioning units which will allow occupants to keep operable windows closed and still receive adequate air circulation. The façade noise reductions used in this study assume closed windows.

6.1.4.1. AREAS WITH SOUNDWALLS

This subsection addresses the feasible soundwalls within the project area. Unless otherwise specified, they are proposed to be located at or near the roadway right-of-way. In some cases, the walls transition from the Ranchero Road right-of-way to the cross-street right-of-way before terminating, thereby providing more complete coverage. Tables 6-2 and 6-3 show the land uses as well as soundwall heights and lengths for soundwall Designs A and B separately. Tables 6-4 and 6-5 provide summary of the soundwalls.

In general, soundwalls were not considered feasible for providing comprehensive protection for residences that depend upon Ranchero Road for vehicular access. Large openings in barriers substantially diminish their effectiveness. Furthermore, access requirements constrained the extent of many soundwalls that were considered feasible, reducing the number of receivers they could benefit in some cases.

Both noise impacts and abatement were evaluated based on each of three possible cruise speeds for the Future Build case – 50 mph, 45 mph and 40 mph. The following discussion assumes a cruise speed of 50 mph for vehicles traveling along Ranchero Road. If lower cruise speeds could be assured for Ranchero Road traffic under Future Build conditions, traffic noise levels at many of these receivers would be below Future No Build levels and fewer noise barriers would be called for. The same is true if OGAC pavement was used, or some combination of OGAC pavement and reduced travel speeds were implemented.

Table 6-2. Proposed Soundwalls: National-Average Pavement Conditions

				Design A				Design B			
				Soundwall Height[3]			Type[4] and No. of Impacted Receivers That Are Benefited: Noise Level Reduced from at or Above CNEL of 65 dBA to CNEL Below 65 dBA	Soundwall Height[3]			Type[4] and No. of Impacted Receivers That Are Benefited: Noise Level Reduced by 5 or More dB
Side of Roadway	Barrier No.	Receiver No.	Barrier Length	50 mph	45 mph	40 mph		50 mph	45 mph	40 mph	
Westbound	S67	R1 and R2	370 ft	7 ft	--	--	1 SFR	11 ft	--	--	1 SFR
	S73	R3 to R5	740 ft	7 ft	7 ft	--	2 SFR	10 ft	10 ft	--	2 SFR
	S81	R6 to R8	960 ft	7 ft	7 ft	--	2 SFR	10 ft	10 ft	--	2 SFR
	S147	R18 and R19	350 ft	11 ft	9 ft	6 ft	1 SFR	6 ft	6 ft	6 ft	1 SFR
	S151	R20 to R22	550 ft	6 ft	6 ft	6 ft	1 SFR/ 1 Church	10 ft	10 ft	6 ft	1 SFR/ 1 Church
	S197	R26	310 ft	6 ft	6 ft	6 ft	2 SFR	6 ft	6 ft	6 ft	2 SFR
	S223	R29	340 ft	9 ft	8 ft	7 ft	1 SFR	6 ft	6 ft	6 ft	1 SFR
Eastbound	S74	R53	375 ft	6 ft	--	--	1 SFR	6 ft	--	--	1 SFR
	S80	R54 to R56	610 ft	6 ft	6 ft	--	1 SFR	6 ft	6 ft	--	1 SFR
	S114	R59	290 ft	12 ft	--	--	1 SFR	9 ft	--	--	1 SFR
	S122	R63	340 ft	6 ft	--	--	1 SFR	12 ft	--	--	1 SFR
	S126	R64	450 ft	11 ft	9 ft	--	1 SFR	12 ft	12 ft	--	1 SFR
	S148	R66	310 ft	10 ft	8 ft	6 ft	1 SFR	9 ft	9 ft	9 ft	1 SFR
	S198	R69	490 ft	6 ft	--	--	1 SFR	8 ft	--	--	1 SFR
	S208	R71	840 ft	9 ft	--	--	2 SFR	8 ft	--	--	2 SFR
	S226	R73 to R77	1415 ft	9 ft	8 ft	--	8 SFR	12 ft	12 ft	--	8 SFR
	S244	R81	450 ft	6 ft	--	--	1 SFR	12 ft	--	--	1 SFR
	S284	R90 and R91	360 ft	10 ft	9 ft	8 ft	3 SFR	10 ft	10 ft	11 ft	3 SFR
	S288	R92	380 ft	10 ft	10 ft	9 ft	1 SFR	7 ft	7 ft	8 ft	1 SFR
	S292	R93 and R93A	330 ft	12 ft	10 ft	9 ft	3 SFR	8 ft	8 ft	8 ft	3 SFR
	S306	R97 to R99	290 ft	8 ft	8 ft	--	1 SFR	8 ft	9 ft	--	1 SFR
	S314	R100 to R102	1050 ft	8 ft	7 ft	--	8 SFR	10 ft	10 ft	--	8 SFR

Notes:

1 - Design A was only considered where one or more receivers were predicted to experience a CNEL of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

2 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

3 - Dashed values for a given cruise speed scenario indicate that the listed receivers would not experience project impacts. Therefore, abatement was not considered, and no wall height is indicated.

4 - Land Use: SFR - single-family residence

SOURCE: Parsons

Table 6-3. Proposed Soundwalls: OGAC Pavement

Side of Roadway	Barrier No.	Receiver No.	Barrier Length	Design A				Design B			
				Soundwall Height[3]			Type[4] and No. of Impacted Receivers That Are Benefited: Noise Level Reduced from at or Above CNEL of 65 dBA to CNEL Below 65 dBA	Soundwall Height[3]			Type[4] and No. of Impacted Receivers That Are Benefited: Noise Level Reduced by 5 or More dB
				50 mph	45 mph	40 mph		50 mph	45 mph	40 mph	
Westbound	S73	R3 to R5	740 ft	7 ft	7 ft	--	2 SFR	10 ft	10 ft	--	2 SFR
	S147	R18 and R19	350 ft	9 ft	8 ft	--	1 SFR	6 ft	6 ft	--	1 SFR
	S151	R20 to R22	550 ft	6 ft	6 ft	--	1 SFR/ 1 Church	9 ft	6 ft	--	1 SFR/ 1 Church
	S223	R29	340 ft	8 ft	--	--	1 SFR	6 ft	--	--	1 SFR
Eastbound	S80	R54 to R56	610 ft	6 ft	--	--	1 SFR	6 ft	--	--	1 SFR
	S114	R59	290 ft	12 ft	--	--	1 SFR	9 ft	--	--	1 SFR
	S148	R66	310 ft	8 ft	--	--	1 SFR	9 ft	--	--	1 SFR
	S226	R73 to R77	1415 ft	8 ft	--	--	8 SFR	12 ft	--	--	8 SFR
	S284	R90 and R91	360 ft	9 ft	--	--	3 SFR	10 ft	--	--	3 SFR
	S288	R92	380 ft	10 ft	9 ft	--	1 SFR	8 ft	8 ft	--	1 SFR
	S292	R93 and R93A	330 ft	10 ft	9 ft	--	3 SFR	8 ft	8 ft	--	3 SFR
	S306	R97 to R99	290 ft	8 ft	--	--	1 SFR	8 ft	--	--	1 SFR

Notes:

1 - Design A was only considered where one or more receivers were predicted to experience a CNEL of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

2 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

3 - Dashed values for a given cruise speed scenario indicate that the listed receivers would not experience project impacts. Therefore, abatement was not considered, and no wall height is indicated.

4 - Land Use: SFR - single-family residence

SOURCE: Parsons

Table 6-4. Summary of Proposed Soundwalls for Each of Three Cruise Speed Scenarios: National-Average Pavement Conditions

Side of Roadway	50 mph			45 mph			40 mph		
	Number of Walls Proposed	Range in Wall Heights[1]	Number of Impacted Receivers That Can Be Protected[2]	Number of Walls Proposed[1]	Range in Wall Heights	Number of Impacted Receivers That Can Be Protected[2]	Number of Walls Proposed[1]	Range in Wall Heights	Number of Impacted Receivers That Can Be Protected[2]
Westbound	7	6 to 11 ft	11	6	6 to 9 ft	10	4	6 to 7 ft	6
Eastbound	15	6 to 12 ft	34	9	6 to 10 ft	18	4	6 to 9 ft	8
OVERALL	**22**	**6 to 12 ft**	**45**	**15**	**6 to 10 ft**	**28**	**8**	**6 to 9 ft**	**14**

Notes:

1 – Heights vary from one barrier location to the next, and (in some cases) between Soundwall Design A and Soundwall Design B at the same location.

2 – These are the number of impacted receivers where the goal for one or both soundwall designs can be met.

SOURCE: Parsons

Table 6-5. Summary of Proposed Soundwalls for Each of Three Cruise Speed Scenarios: OGAC Pavement

Side of Roadway	50 mph			45 mph			40 mph		
	Number of Walls Proposed	Range in Wall Heights[1]	Number of Impacted Receivers That Can Be Protected[2]	Number of Walls Proposed[1]	Range in Wall Heights	Number of Impacted Receivers That Can Be Protected[2]	Number of Walls Proposed[1]	Range in Wall Heights	Number of Impacted Receivers That Can Be Protected[2]
Westbound	4	6 to 10 ft	6	3	6 to 10 ft	5	0	--	0
Eastbound	8	6 to 12 ft	19	2	8 to 9 ft	4	0	--	0
OVERALL	**12**	**6 to 12 ft**	**25**	**5**	**6 to 10 ft**	**9**	**0**	**--**	**0**

Notes:

1 – Heights vary from one barrier location to the next, and (in some cases) between Soundwall Design A and Soundwall Design B at the same location.

2 – These are the number of impacted receivers where the goal for one or both soundwall designs can be met.

SOURCE: Parsons

Westbound (North) Side

- ***Soundwall S67.*** Soundwall S67 would be positioned in front of Receivers R1 and R2. Both Design A and Design B target Receiver R2 and both achieve their design goals at that receiver.
- ***Soundwall S73.*** Soundwall S73 would be positioned in front of Receivers R3 through R5. Both Design A and Design B target Receivers R3 and R5 and both achieve their design goals at both receivers.
- ***Soundwall S81.*** Soundwall S81 would be positioned in front of Receivers R6 through R8. Both Design A and Design B target Receivers R6 and R8 and both achieve their design goals at these receivers.
- ***Soundwall S147.*** Soundwall S147 would be positioned in front of Receivers R18 and R19. Both Design A and Design B target Receiver R19 and both can achieve their design goal at that receiver.
- ***Soundwall S151.*** Soundwall S151 would be positioned in front of Receivers R20 through R22. Both Design A and Design B target Receivers R21 and R22. Design A can only achieve its goal at R21; Design B can achieve its design goal at both R21 and R22.
- ***Soundwall S197.*** Soundwall S197 would be positioned in front of Receiver R26. Both Design A and Design B achieve their design goals.
- ***Soundwall S223.*** Soundwall S223 would be positioned in front of Receiver R29. Both Design A and Design B achieve their design goals.

Eastbound (South) Side

- ***Soundwall S74.*** Soundwall S74 would be positioned in front of Receiver R53. Both Design A and Design B achieve their design goals.
- ***Soundwall S80.*** Soundwall S80 would be positioned in front of Receivers R54 through R56. Both Design A and Design B target Receivers R54 and R56 (representing different portions of the same residential property) and achieve their design goals at both receivers.
- ***Soundwall S114.*** Soundwall S114 would be positioned in front of Receiver R59. Design A would approach but not meet the abatement goal for that design. Design B would achieve its goal.
- ***Soundwall S122.*** Soundwall S122 would be positioned in front of Receiver R63. Both Design A and Design B achieve their design goals.

- ***Soundwall S126.*** Soundwall S126 would be positioned in front of Receiver R64. Both Design A and Design B achieve their design goals.
- ***Soundwall S148.*** Soundwall S148 would be positioned in front of Receiver R66. Both Design A and Design B achieve their design goals.
- ***Soundwall S198.*** Soundwall S198 would be positioned in front of Receiver R69. Both Design A and Design B achieve their design goals.
- ***Soundwall S208.*** Soundwall S208 would be positioned in front of Receiver R71. Both Design A and Design B achieve their design goals.
- ***Soundwall S226***. Soundwall S226 would be positioned in front of Receivers R73 through R77. Both Design A and Design B target Receivers R73 and R77 and achieve their design goals.
- ***Soundwall S236***. Soundwall S236 would be positioned in front of Receiver R71. Both Design A and Design B target Receivers R78 and R80A and achieve their design goals.
- ***Soundwall S244.*** Soundwall S244 would be positioned in front of Receiver R81. Both Design A and Design B achieve their design goals.
- ***Soundwall S284.*** Soundwall S284 would be positioned in front of Receivers R90 and R91. Design A and Design B target both receivers and achieve their design goals.
- ***Soundwall S288.*** Soundwall S288 would be positioned in front of Receiver R92. Both Design A and Design B achieve their design goals.
- ***Soundwall S296.*** Soundwall S296 would be positioned in front of Receivers R93 through R96. Design A and Design B target Receivers R93 and R93A and achieve their design goals at these receivers.
- ***Soundwall S306.*** Soundwall S306 would be positioned in front of Receivers R97 through R99. Both Design A and Design B target Receiver R99 and achieve their design goals at this receiver.
- ***Soundwall S314.*** Soundwall S314 would be positioned in front of Receivers R100 through R102. Design A and Design B target all three receivers and achieve their design goals at these receivers.

If lower cruise speeds could be assured for Ranchero Road traffic under Future Build conditions, noise levels at many of the receivers behind these proposed soundwalls would be below Future No Project levels. Therefore, fewer noise impacts would occur, and fewer soundwalls would warrant consideration.

6.1.4.2. OUTDOOR TO INDOOR LEVEL REDUCTION EVALUATION

Most of the residential structures along the project corridor were built within the last 30 years or have yet to be built. Many of them were built within the last 10 years. Relatively new residential construction typically provides about 30 decibels or more of Outdoor-Indoor Level Reduction (OILR) across roadway-facing facades with windows and doors closed. It is reasonable to expect OILRs of at least 25 decibels for older homes. However, if windows of the older homes have been upgraded, then a minimum OILR of 30 dB rather than 25 dB can typically be achieved. It is appropriate to assume that the affected homes have mechanical ventilation, given the desert environment. This study considers the possibility that OILR could be as low as 30 dB for newer homes or 25 dB for older homes. Tables 6-6 and 6-7 provide the number of receivers with no recommended walls where OILR is deemed to be adequate versus ones where the adequacy of OILR might be checked by field testing to determine if mitigation will need to be applied. Soundwalls are not considered practical for these houses mainly due to the access requirements. Tables 6-8 and 6-9 provide addresses of older buildings where noise reduction may not be sufficient to meet the City's interior noise limits.

Table 6-6. Summary of Considered Building Insulation for Each of Three Cruise Speed Scenarios: National-Average Pavement Conditions

Residential Sound Insulation Status	Represented Noise-Sensitive Units Where Building Insulation Requirements Were Considered		
	50 mph	45 mph	40 mph
Current OILR is deemed to be adequate	68	43	6
It may be Appropriate to assure adequacy of OILR	7	2	0
SUM	**75**	**45**	**6**

SOURCE: Parsons

Table 6-7. Summary of Considered Building Insulation for Each of Three Cruise Speed Scenarios: OGAC Pavement

Residential Sound Insulation Status	Represented Noise-Sensitive Units Where Building Insulation Requirements Were Considered		
	50 mph	45 mph	40 mph
Current OILR is deemed to be adequate	34	--	--
It may be Appropriate to assure adequacy of OILR	2	--	--
SUM	**36**	**--**	**--**

SOURCE: Parsons

Table 6-8. Houses with Future Project Interior Traffic Noise Levels Possibly Above City Limits: National-Average Pavement Conditions

Receiver I.D.	Land Use	Addresses for Homes Where Adequacy of OILR is a Concern	Build Year	Minimum OILR to Avoid Interior Impact, by Assumed Vehicle Cruise Speed, dB		
				50 mph	45 mph	40 mph
R 38	SFR	14868 Ranchero Rd.	1978	26	--	--
R 40	SFR	14946 Ranchero Rd.	1956	27	--	--
		15006 Ranchero Rd.	1956	27	--	--
R 41	SFR	15094 Ranchero Rd.	1956	28	26	--
R 43	SFR	15190 Ranchero Rd.	1956	28	27	--
R 83	SFR	14645 Ranchero Rd.	1963	27	@	@
		14665 Ranchero Rd.	1963	27	@	@

Notes:

--: No impact

@: OILR requirement is 25 dB or less, and is assumed to be met.

SOURCE: Parsons

Table 6-9. Houses with Future Project Interior Traffic Noise Levels Possibly Above City Limits: OGAC Pavement

Receiver I.D.	Land Use	Addresses for Homes Where Adequacy of OILR is a Concern	Build Year	Minimum OILR to Avoid Interior Impact, by Assumed Vehicle Cruise Speed, dB		
				50 mph	45 mph	40 mph
R 41	SFR	15094 Ranchero Rd.	1956	26	--	--
R 43	SFR	15190 Ranchero Rd.	1956	26	--	--

Notes:

--: No impact

@: OILR requirement is 25 dB or less, and is assumed to be met.

SOURCE: Parsons

If and where reductions in cruise speeds are not sufficient to eliminate impacts, the City may consider changing windows to meet the interior noise limits. However, tests would need to be conducted to determine the OILR of the buildings before considering any possible improvements such as changing windows. If windows of these older houses have already been upgraded then there may not be a need for testing or changing windows.

6.2. Construction-Related (Temporary) Impacts

6.2.1. Applicable CEQA Impact Categories

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

6.2.2. Specific Significance Criteria

A significant construction-related noise impact will be deemed to occur if sensitive land uses would be exposed to construction-generated noise exceeding Municipal Code standards outside of exempted hours. A significant construction-related vibration impact will be deemed to occur if sensitive land uses would be exposed to detectable vibration levels outside of exempted hours or would be exposed to vibration levels posing a risk of building damage standards at any time. These vibration thresholds are based on Municipal and County code provisions.

6.2.3. Impacts

Construction noise and vibration impacts are potentially significant without mitigation.

6.2.3.1. NOISE

Table 6-11 summarizes reference maximum noise levels generated by individual pieces of selected construction equipment. If these maximum levels would be approached or equaled for periods totaling between 5 and 15 minutes in a given hour, a single piece of equipment could exceed the City's daytime noise limits at residential properties as far as about 125 to 300 feet away, depending upon the type of equipment. If these levels would be approached or equaled for more than 30 minutes in a given hour, the corresponding distances would be 300 to 700 feet. Such standards would apply between 7 and 10 p.m. on all days and between 7 a.m. and 7 p.m. on Sundays and federal holidays.

Between 10 p.m. and 7 a.m., nighttime limits would apply. Under these circumstances, a single piece of equipment generating near-maximum levels between 5 and 15 minutes in a given hour could exceed applicable limits as far as about 200 to 450 feet away. If these levels were approached or equaled for more than 30 minutes in a given hour, the corresponding distances would be 500 to 1,150 feet.

Table 6-11. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

SOURCE: FTA , 2006

These results suggest a high probability that the City's limits would be exceeded at nearby residences if heavy construction activities occurred outside the exempted hours.

6.2.3.2. VIBRATION

Table 6-12 summarizes reference vibration levels from operation of selected types of construction equipment.

Table 6-12. Construction Equipment Vibration

Equipment	Peak Particle Velocity, in/sec		
	25 ft	50 ft	100 ft
Grader	0.02	0.01	--
Crane	0.07	0.02	0.01
Dozer	0.16	0.06	0.02
Excavator	0.17	0.06	0.02
Loader	0.08	0.03	0.01
Vibratory Roller	0.22	0.08	0.03

SOURCE: Parsons, 2010

The vibratory roller is the construction equipment item likely to generate the highest vibration levels. As shown in Table 6-4, a representative vibratory roller could slightly exceed the 0.2 in/sec PPV threshold at a distance of 25 feet. Few if any built structures are located within 25 feet of the likely paths for vibratory rollers. The nearest residential structures of the Estates at Bella Rosa Ranch approach within about 30 feet of the roadway. However, paving along this segment of Ranchero Road is already sufficiently broad to accommodate the widened roadway, so no additional substantive construction activity will be required here. Along other segments of Ranchero Road, existing paving is not broad enough to accommodate the widened roadway. A few residential structures

along these other segments are nearly as close to the future paved area as the homes of the Estates at Bella Rosa Ranch – the residence at Receiver R8, for example. In these cases, use of a vibratory roller with particularly high compaction forces could pose some risk of superficial building damage. Residents could also be disturbed by the resulting vibration levels.

6.2.4. Mitigation

As previously discussed, construction-related noise and vibration is exempt from applicable City and County code provisions between 7 a.m. and 7 p.m. except Sundays and federal holidays. For any project construction activities that will occur outside of those periods, the City shall assure that noise and vibration impacts at adjacent residences remain below applicable thresholds. Furthermore, the 0.2 in/sec PPV vibration threshold shall not be exceeded at vibration-sensitive structures even during periods when construction is exempt from code enforcement. Compliance shall be assured as follows:

- Noise: Between 7 p.m. and 10 p.m. on all days and between 7 a.m. and 7 p.m. on Sundays and federal holidays, any construction activities occurring within 700 feet of noise-sensitive areas must be accompanied by noise monitoring to assure compliance with the applicable noise thresholds, and must immediately be modified to achieve compliance if necessary or ceased when/if compliance cannot be achieved. Between the hours of 10 p.m. and 7 a.m., the same provision applies when construction occurs within 1,150 feet of noise-sensitive areas.

- Vibration: Where vibratory rollers are used within 30 feet of existing building structures during exempted hours, rollers shall be selected based on compaction force to assure that the 0.2 in/sec PPV threshold is not exceeded at the structure. Whenever vibratory rollers are used within 30 feet of such building structures, continuous vibration monitoring should be performed and a plan should be in place to allow immediate modification or cessation of any vibratory roller activity that generates vibrations exceeding the applicable threshold. Outside of exempted hours, activity constraints would need to be applied for perceptibility thresholds, so the corresponding distance would be over 200 feet. As a practical matter, this would prevent the use of vibratory rollers on the project outside of the exempted hours.

- When other vibration-generating construction equipment is used outside of exempted hours, it shall only be done when compliance with the perceptibility

threshold can be verified through conservative vibration propagation modeling and/or continuous on-site vibration monitoring.

With implementation of these measures, the project's construction-related noise and vibration impacts would be reduced to a level below significance.

Chapter 7. List of Preparers and References

7.1. List of Preparers

Michael Weber, Senior Noise & Air Quality Specialist, B.S. Physiology, 19 years of experience, Lead Author.

Areg Gharabegian, P.E., Technical Director, B.S. and M.S. Mechanical Engineering, 32 years of experience, Reviewer.

7.2. References

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City of Hesperia, 2010. *General Plan Noise Element.*

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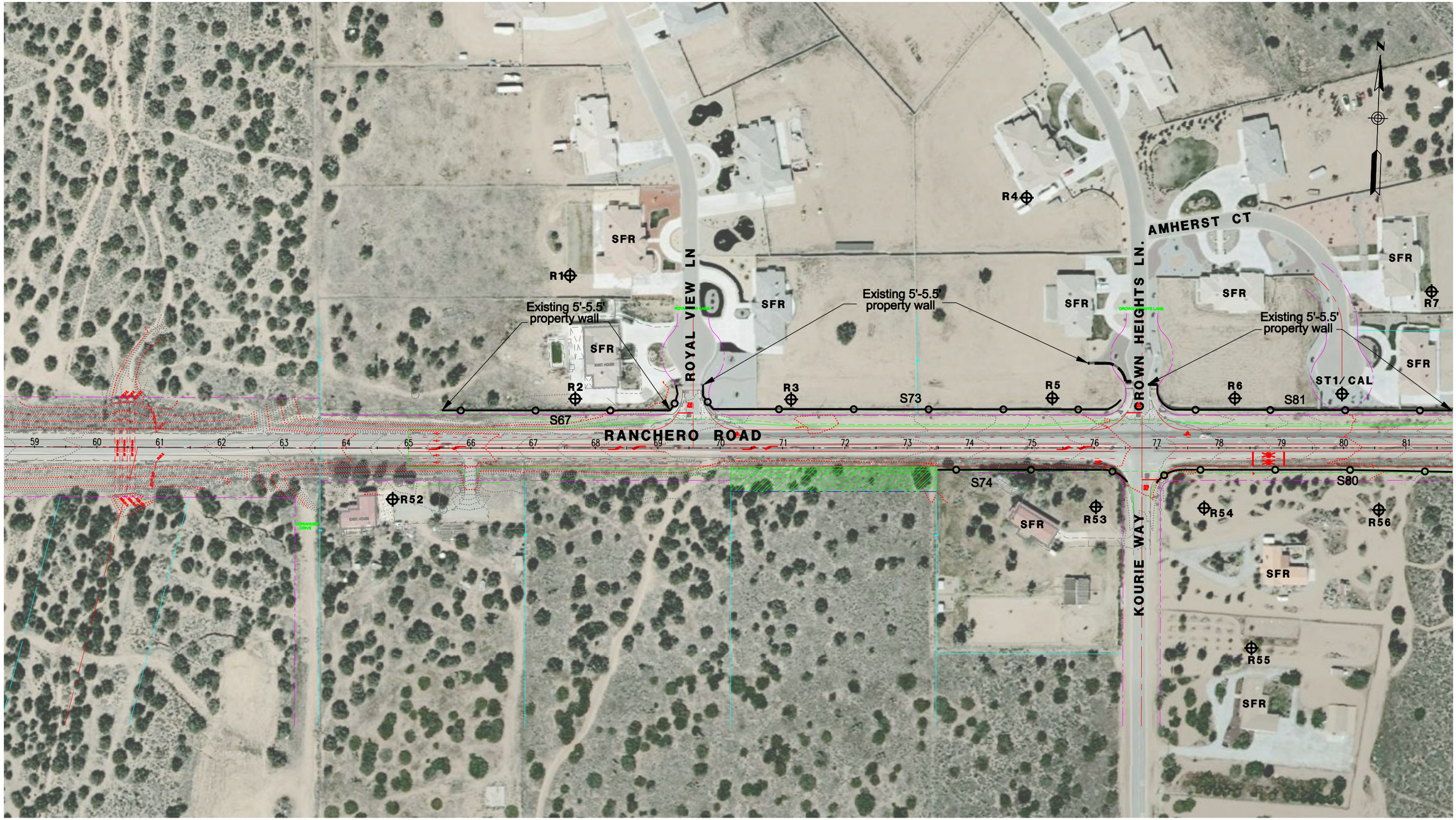
Appendix A Noise Receivers and Barrier Locations



LEGEND

- ⊕ Rxx – NOISE RECEIVERS SITE
- ⊕ ST – SHORTERM MEASUREMENT
- ⊕ LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – – – – · – EXISTING WALL
- –o–o– SOUNDWALL

1 : 150ft

75ft 225ft

0ft 150ft 300ft

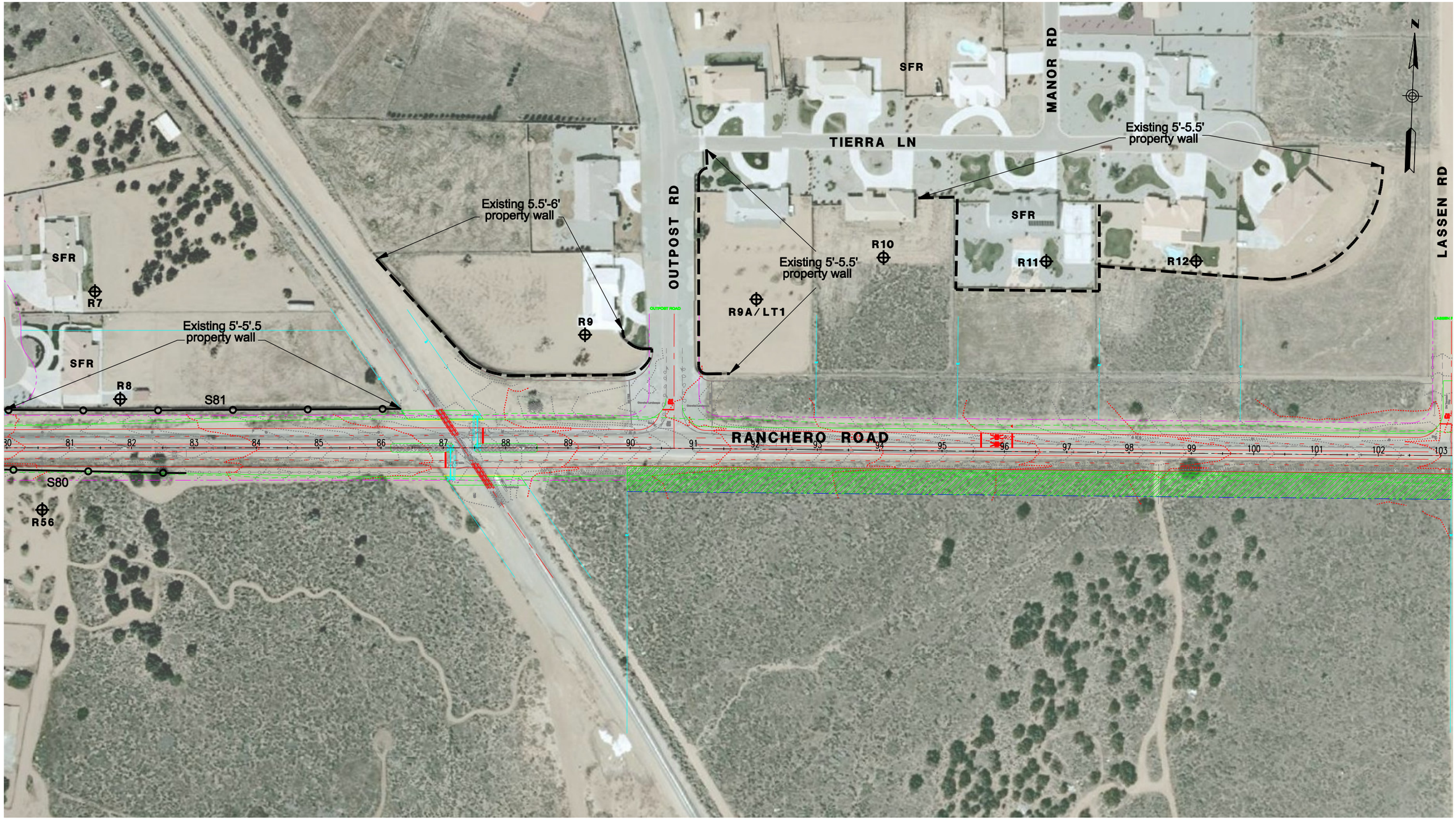
PARSONS

100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011

FIGURE 1



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- LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – EXISTING WALL
- – SOUNDWALL

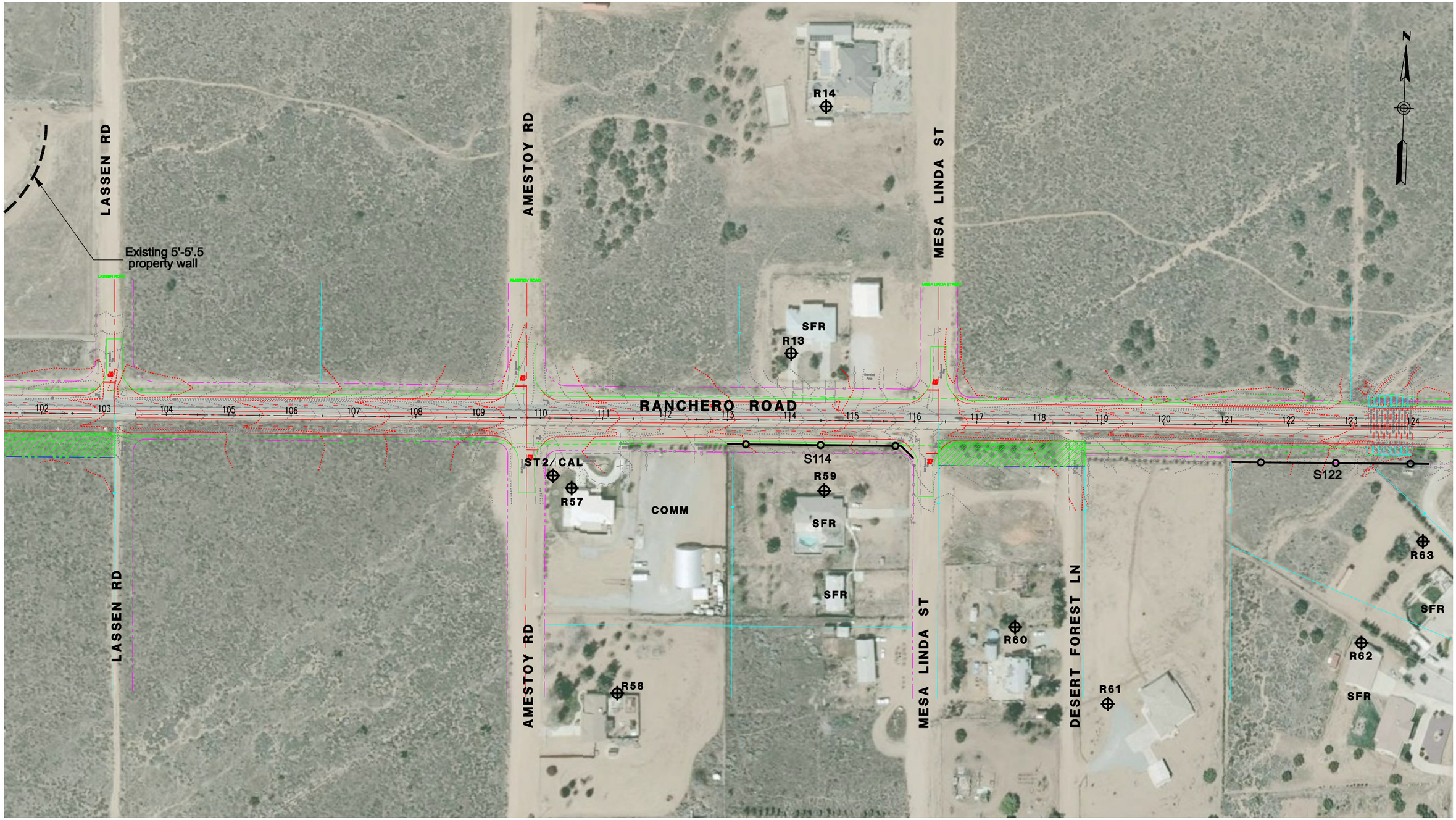
1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011 | FIGURE 2



LEGEND

- Rxx – NOISE RECEIVERS SITE
- ST – SHORTERM MEASUREMENT
- LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – – – – – EXISTING WALL
- SOUNDWALL

1 : 150ft

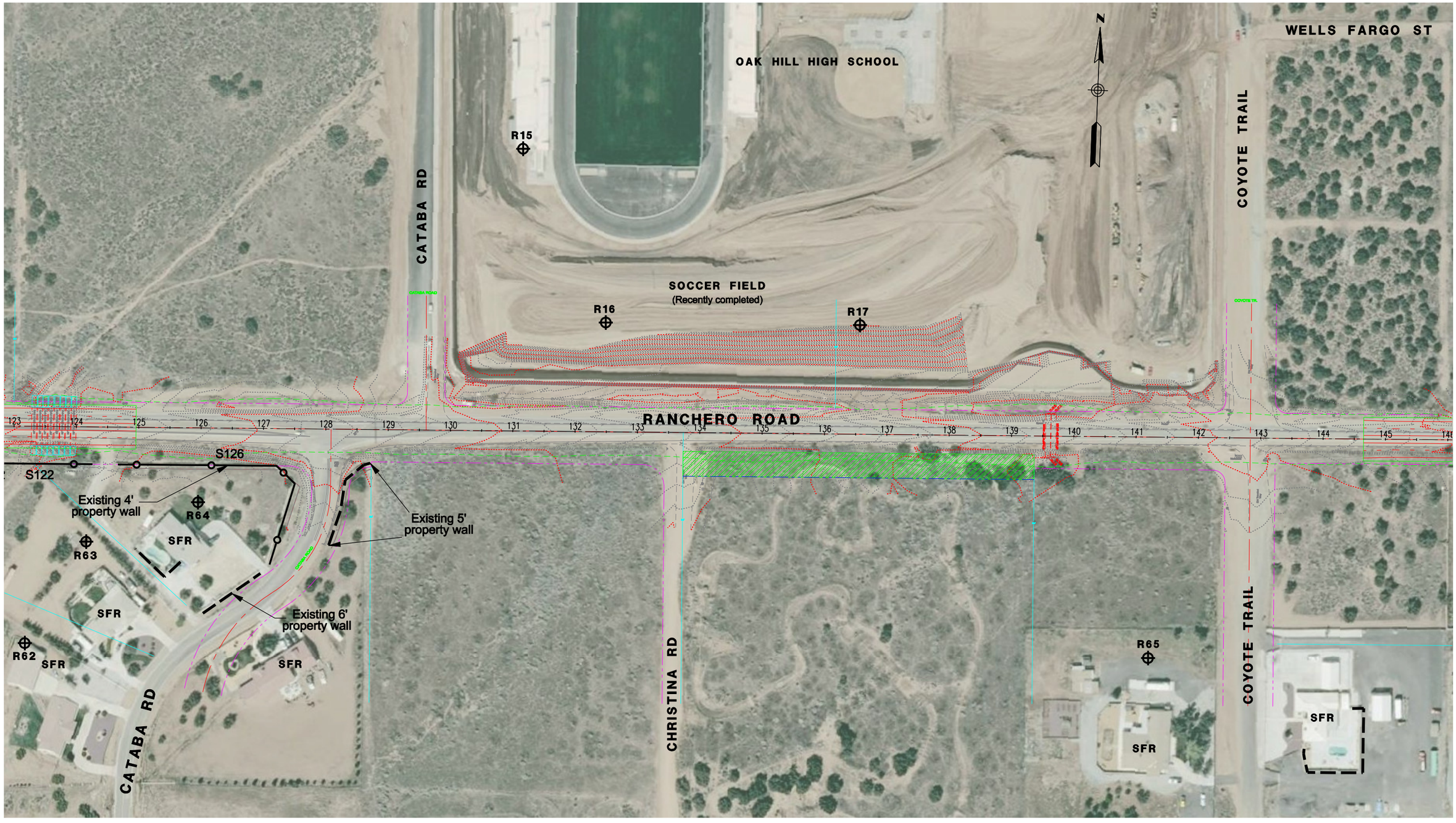
0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

RANCHERO ROAD WIDENING PROJECT NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011

FIGURE 3



LEGEND

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- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – – – – – EXISTING WALL
- SOUNDWALL

1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
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RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011

FIGURE 4

WELLS FARGO ST

WELLS FARGO ST

N

SFR

R18

THE SOLID ROCK
DAY CARE
CHURCH

R20

FOLEY RD

R21

SFR

SFR

R19

ST3/CAL

S147

S151

R22

RANCHERO ROAD

145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167

S148

R66

SFR

R67

SFR

R68

SFR

KUKI ST

FOLEY RD

Existing 5.75'
property wall

SFR

SFR

LEGEND

- Rxx – NOISE RECEIVERS SITE
- ST – SHORTERM MEASUREMENT
- LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
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- —o—o— SOUNDWALL

1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
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RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011

FIGURE 5

LEGEND

- Rxx – NOISE RECEIVERS SITE
- ST – SHORTERM MEASUREMENT
- LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – · – · – EXISTING WALL
- SOUNDWALL

1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
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RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011

FIGURE 6

LEGEND

- Rxx – NOISE RECEIVERS SITE
- ST – SHORTERM MEASUREMENT
- LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – EXISTING WALL
- – SOUNDWALL

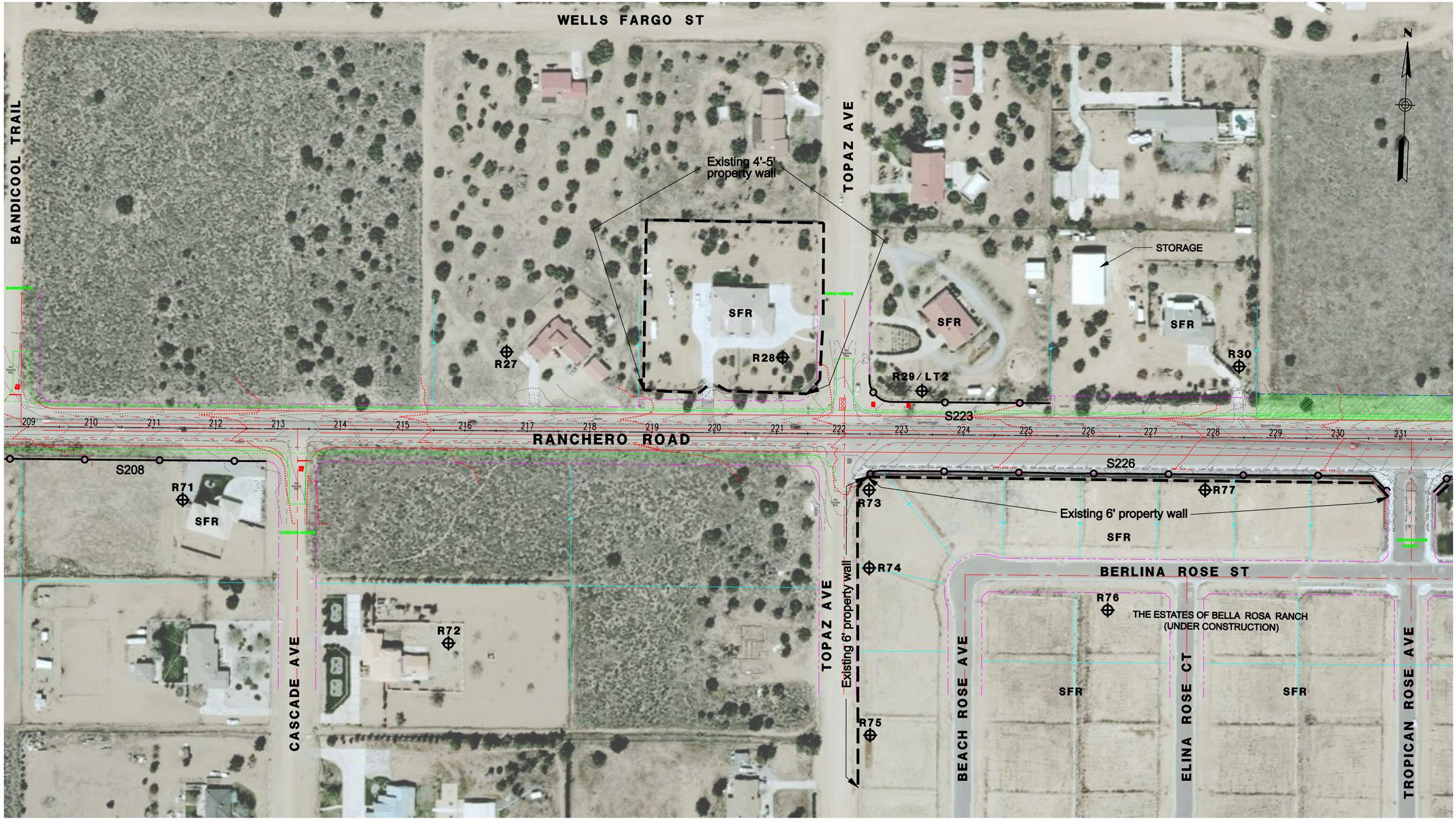
1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011 | FIGURE 7



LEGEND

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- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – – – – · – EXISTING WALL
- –o–o– SOUNDWALL

1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
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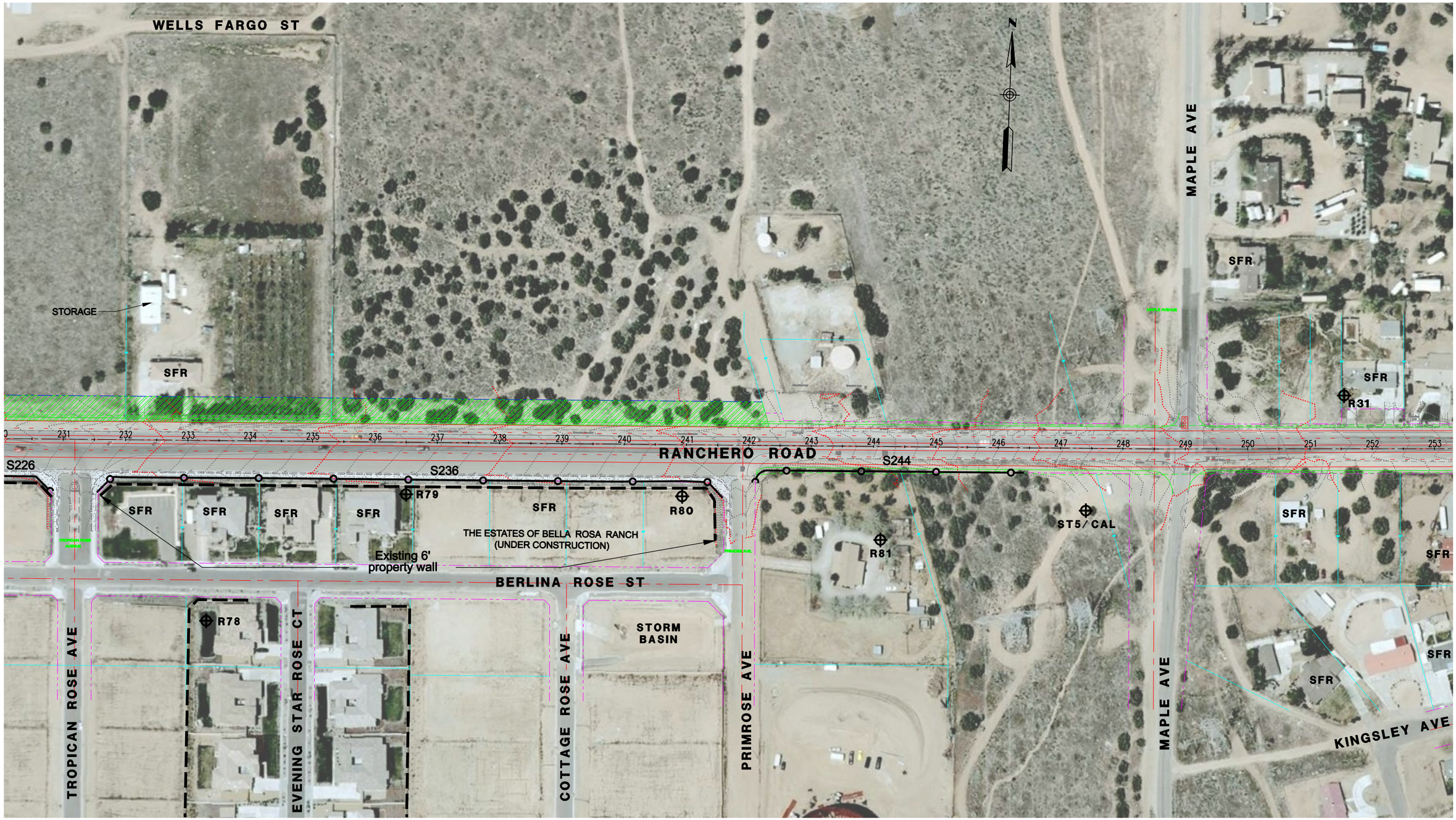
RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011 | FIGURE 8



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- COMM – COMMERCIAL
- – – – – – EXISTING WALL
- SOUNDWALL

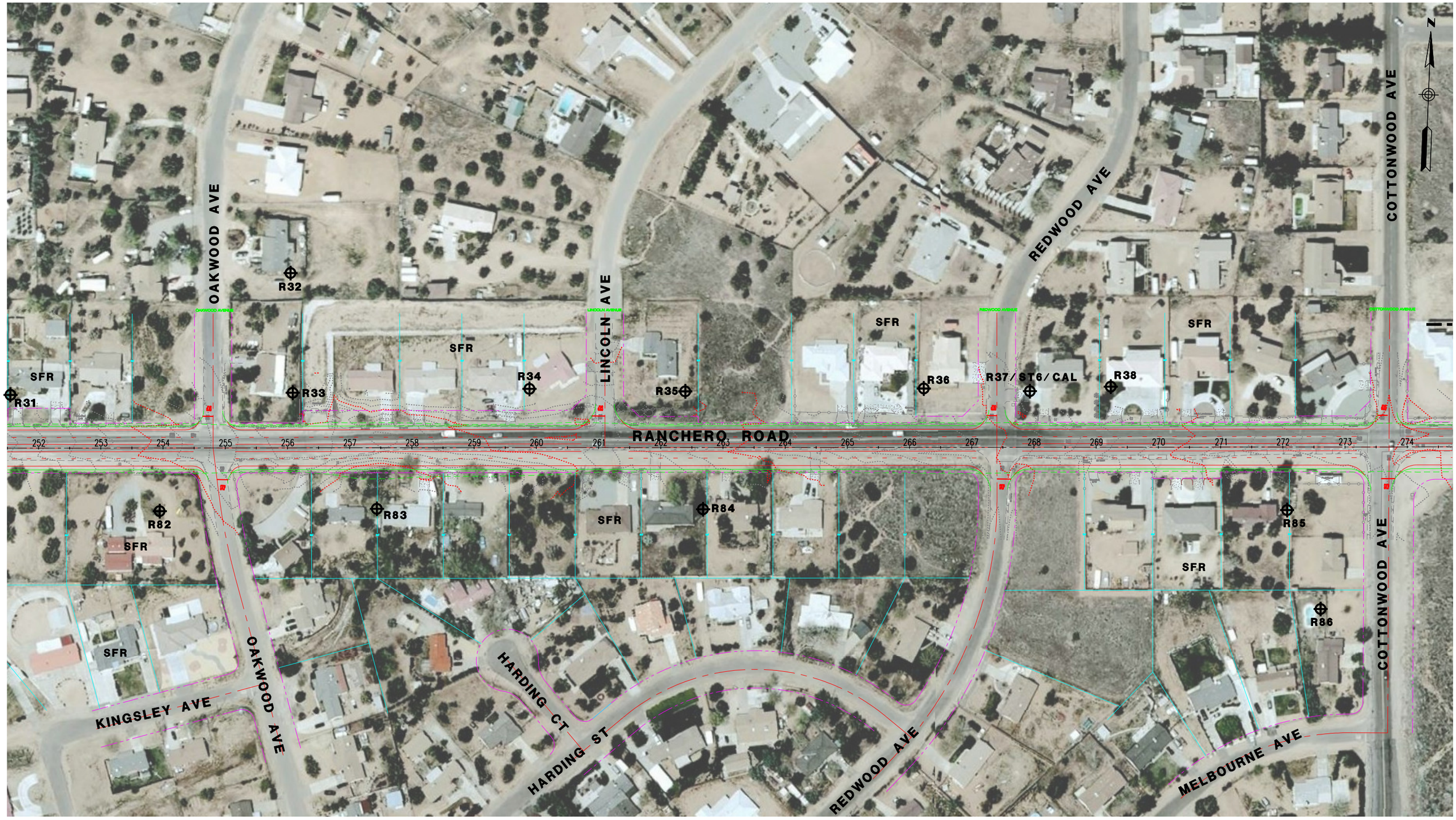
1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
(626) 440-6100

RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011 | FIGURE 9



LEGEND

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- ST – SHORTERM MEASUREMENT
- LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – – – – – EXISTING WALL
- —o—o— SOUNDWALL

1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
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RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011 | FIGURE 10

LEGEND

- ⊕Rxx – NOISE RECEIVERS SITE
- ⊕ST – SHORTERM MEASUREMENT
- ⊕LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – – – – EXISTING WALL
- ⊸—⊸ – SOUNDWALL

1 : 150ft

0ft 75ft 150ft 225ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
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RANCHERO ROAD WIDENING PROJECT NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011 | FIGURE 11

LEGEND

⌖ Rxx	– NOISE RECEIVERS SITE	SFR	– SINGLE FAMILY RESIDENTIAL
⌖ ST	– SHORTERM MEASUREMENT	COMM	– COMMERCIAL
⌖ LT	– LONGTERM MEASUREMENT	— — — -	– EXISTING WALL
		—o—o—	– SOUNDWALL

1 : 150ft

75ft 225ft

0ft 150ft 300ft

PARSONS

100 WEST WALNUT ST.
PASADENA, CA 91124
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RANCHERO ROAD WIDENING PROJECT NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011

FIGURE 12

LEGEND

- ⊕ Rxx – NOISE RECEIVERS SITE
- ⊕ ST – SHORTERM MEASUREMENT
- ⊕ LT – LONGTERM MEASUREMENT
- SFR – SINGLE FAMILY RESIDENTIAL
- COMM – COMMERCIAL
- – – – · – EXISTING WALL
- –o–o– SOUNDWALL

1 : 150ft

75ft 225ft

0ft 150ft 300ft

PARSONS
100 WEST WALNUT ST.
PASADENA, CA 91124
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RANCHERO ROAD WIDENING PROJECT
NOISE RECEIVERS AND BARRIER LOCATIONS

OCTOBER 21, 2011 | FIGURE 13

Appendix B Measurement Site Photographs

Long-Term Site LT1 (looking south)

Long-Term Site LT1 (looking north)

Long-Term Site LT2 (looking south)

Long-Term Site LT2 (looking northeast)

Long-Term Site LT3 (looking north)

Long-Term Site LT3 (looking northeast)

Long-Term Site LT4 (looking southeast)

Long-Term Site LT4 (looking north)

Short-Term Site ST1 (looking south)

Short-Term Site ST1 (looking northwest)

Short-Term Site ST2 (looking north)

Short-Term Site ST2 (looking southeast)

Short-Term Site ST3 (looking south)

Short-Term Site ST3 (looking east)

Short-Term Site ST4 (looking north)

Short-Term Site ST4 (looking east)

Short-Term Site ST5 (looking northwest)

Short-Term Site ST5 (looking east)

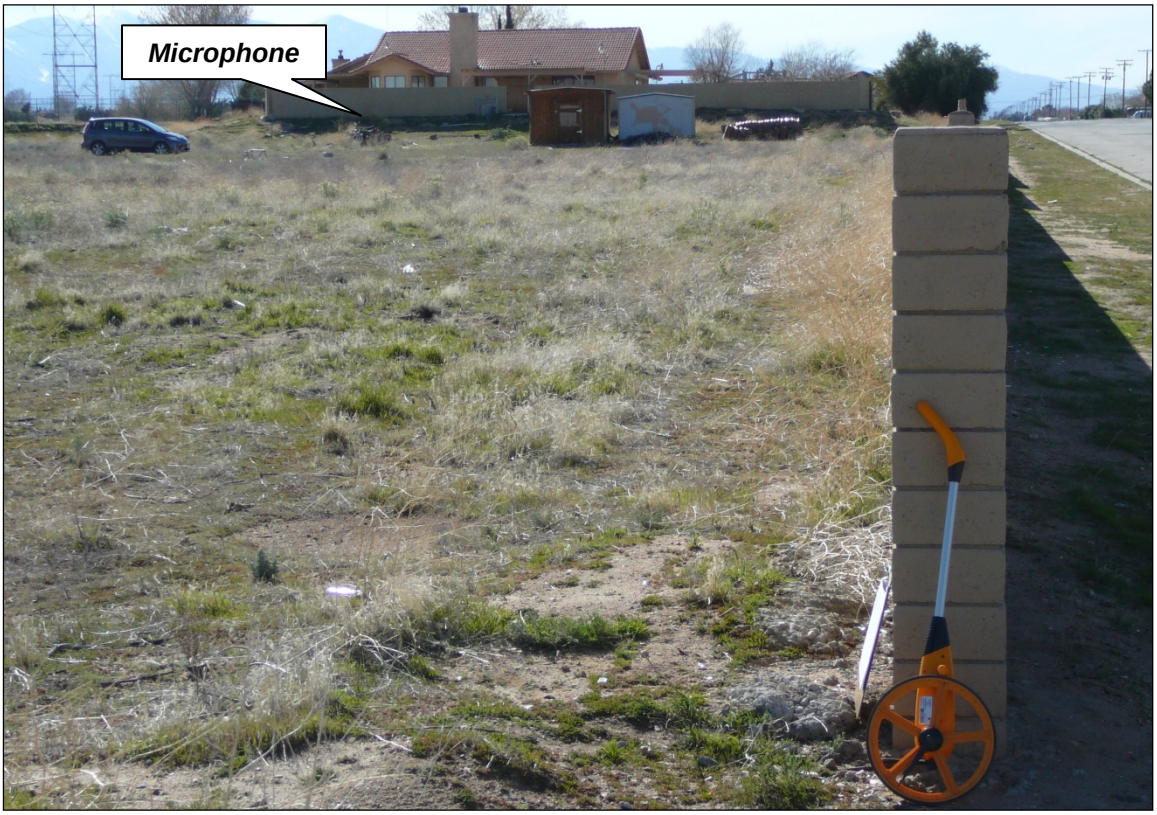
Short-Term Site ST6 (looking south)

Short-Term Site ST6 (looking east)

Short-Term Site ST7 (looking south)

Short-Term Site ST7 (looking northeast)

Short-Term Site ST8 (looking north)



Short-Term Site ST8 (looking west)

Appendix C Noise Measurement Data

FIELD SURVEY FORM

PROJECT: Ranchero Road Widening

ENGINEER: Michael Weber

DATE: 3/16/10

MEASUREMENT ADDRESS: 12115 Tierra Linda

CITY: Hesperia

☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial

SITE NO.: LT1

SOUND LEVEL METER:
☑ LD-870 ☐ LD-820
☐ LD-824 ☐ LD-812
☐ LD-2900 ☐ _____
SERIAL #: 0955

MICROPHONE: ☑ WIND SCREEN
☐ NON-POLAR ☐ POLARIZED
☑ 1/2-INCH ☐ FREEFIELD
☐ 1-INCH ☐ RANDOM
SERIAL #: LD2559 S/N 1785

PRE AMP:
☑ LD-900
☐ LD-828
☐ _____
SERIAL #: 3200

CALIBRATOR:
☑ LD CA250
☐ _____
S/N 2479
Freq, Hz.
☑ 250
☐ 1000
☐

CALIBRATION RECORD:
Input, dB / Reading, dB / Offset, dB / Time
△ Before 114.0 / 114.0 / 20.2 / 8:53
✓ After 114.0 / 114.0 / ____ / 18:06
3/17

METER SETTINGS:
☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

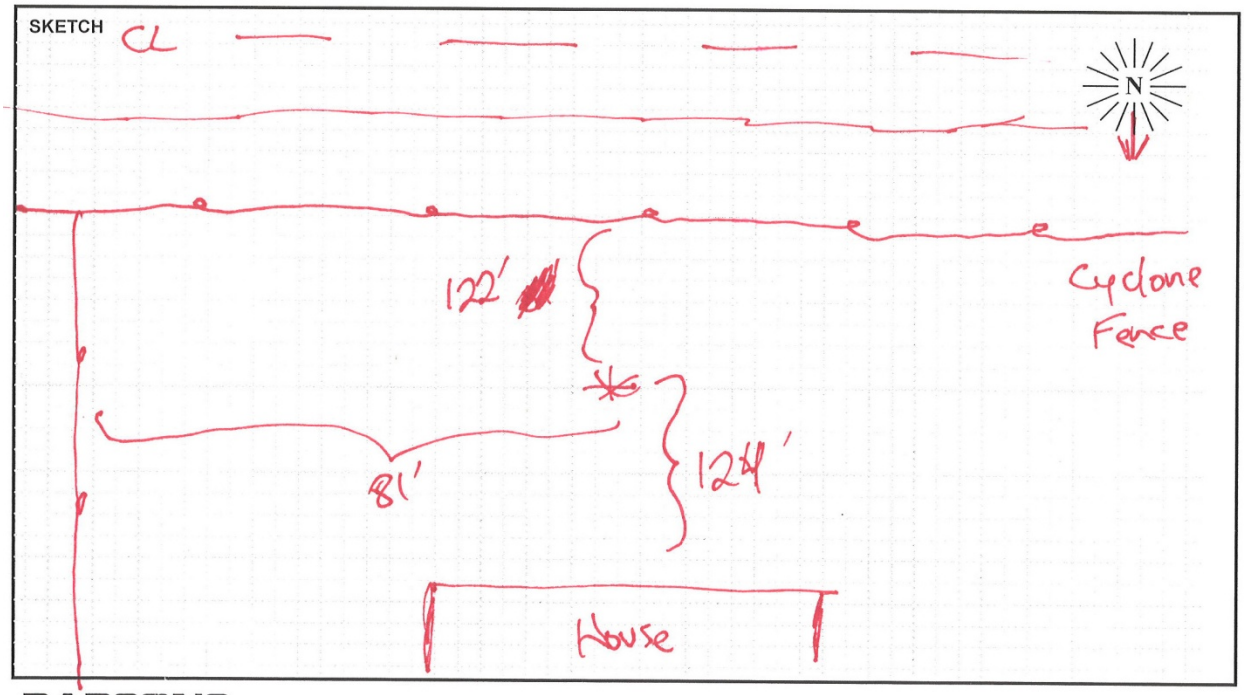
NOTES:
SYSTEM PWR: ☑ BAT ☐ AC
(observations at start of measurement)
TEMP: 55 °F R.H.: 40 %
WIND SPEED: 2-9 MPH
TOWARD (DIR): SE
SKIES: Partly cloudy
CAMERA _____
PHOTO NOs. _____

NOTES:
Dist. to Center of Nearest Lane _____
☐ Video ☐ Radar
Counts AT MT HT

MEAS. TYPE:
☑ Long Term
☐ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/15												

SKETCH



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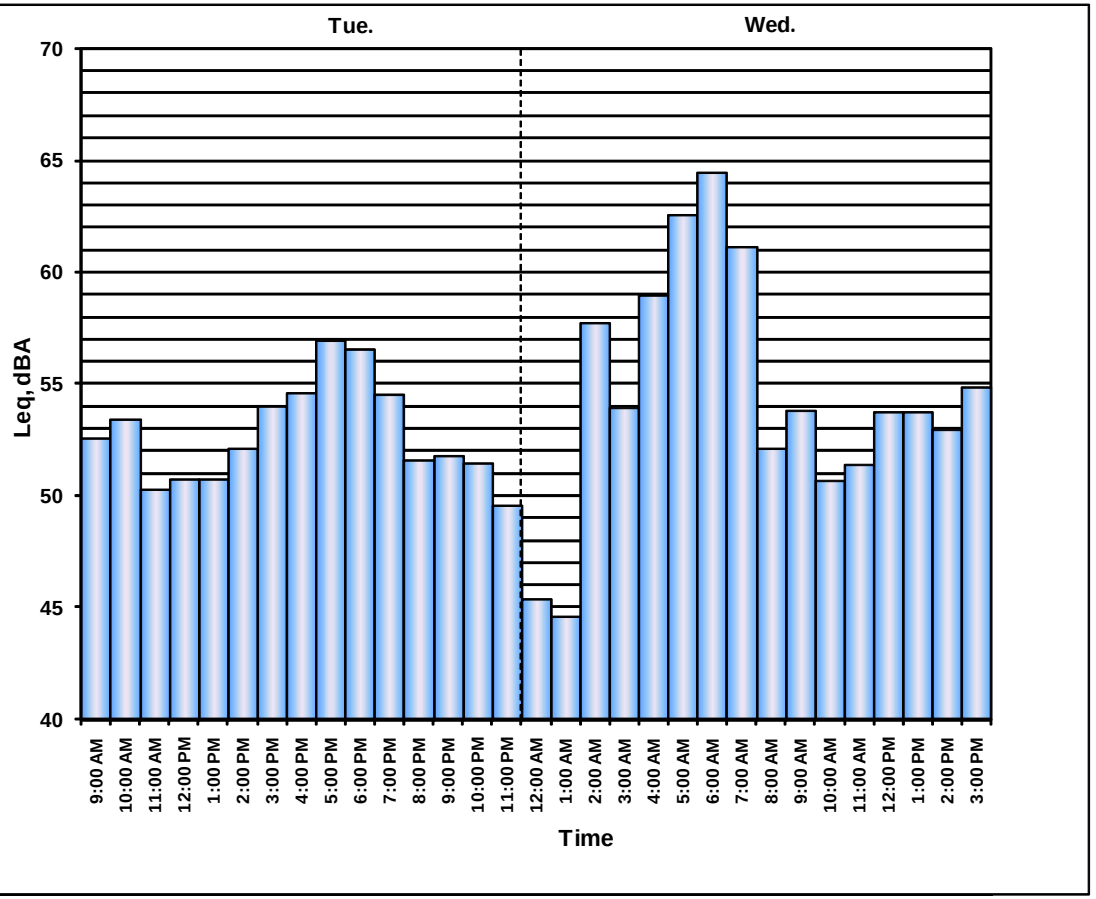
Site LT1 Noise Levels, $L_{eq}(h)$ and CNEL

Location: 12115 Tierra Linda Lane, Oak Hills
Position: Behind house
Sources: Ranchero Road traffic, unidentified localized sources
Date: 3/16-3/17/2010 **Notes:** See attached Noise Measurement Form.

TIME	3/16-3/17 $L_{eq(h)}$ dBA	3/17/2010 $L_{eq(h)}$ dBA
09:00 - 10:00 AM	53	54
10:00 - 11:00 AM	53	51
11:00 - 12:00 PM	50	51
12:00 - 01:00 PM	51	54
01:00 - 02:00 PM	51	54
02:00 - 03:00 PM	52	53
03:00 - 04:00 PM	54	55
04:00 - 05:00 PM	55	--
05:00 - 06:00 PM	57	--
06:00 - 07:00 PM	57	--
07:00 - 08:00 PM	55	--
08:00 - 09:00 PM	52	--
09:00 - 10:00 PM	52	--
10:00 - 11:00 PM	51	--
11:00 - 12:00 AM	50	--
12:00 - 01:00 AM	45	--
01:00 - 02:00 AM	45	--
02:00 - 03:00 AM	58	--
03:00 - 04:00 AM	54	--
04:00 - 05:00 AM	59	--
05:00 - 06:00 AM	63	--
06:00 - 07:00 AM	64	--
07:00 - 08:00 AM	61	--
08:00 - 09:00 AM	52	--
CNEL, dBA:	64.7	



FIELD SURVEY FORM

PROJECT: Ranchero Road Widening		ENGINEER: Michael Weber	DATE: 3/15/10
MEASUREMENT ADDRESS: 7331 Topaz Ave.	CITY: Hesperia	☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial	SITE NO.: LT2

SOUND LEVEL METER:	MICROPHONE:	PRE AMP:	NOTES:
☑ LD-870 ☐ LD-820	☐ WIND SCREEN		
☐ LD-824 ☐ LD-812	☑ NON-POLAR ☐ POLARIZED	☑ LD-900	SYSTEM PWR: ☑ BAT ☐ AC
☐ LD-2900 ☐ _____	☑ 1/2-INCH ☐ FREEFIELD	☐ LD-828	
SERIAL #: 0128	☐ 1-INCH ☐ RANDOM	☐ _____	(observations at start of measurement)
	SERIAL #: LD 2559, SV 2313	SERIAL #: 271	TEMP: 70 °F R.H.: 20 %

CALIBRATOR:	CALIBRATION RECORD:	
☑ LD CA250	Input, dB / Reading, dB / Offset, dB / Time	WIND SPEED: 1-5 MPH
☐ _____ Freq, Hz.	Before 114.0 / 114.0 / 22.6 / 15:5[illegible]	TOWARD (DIR): ~ S-W
S/N 2479 ☑ 250 ☐ 1000	After 114.0 / 113.9 / _____ / 17:07	SKIES: Partly cloudy
☐		CAMERA _____

METER SETTINGS:
☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 3/17 - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

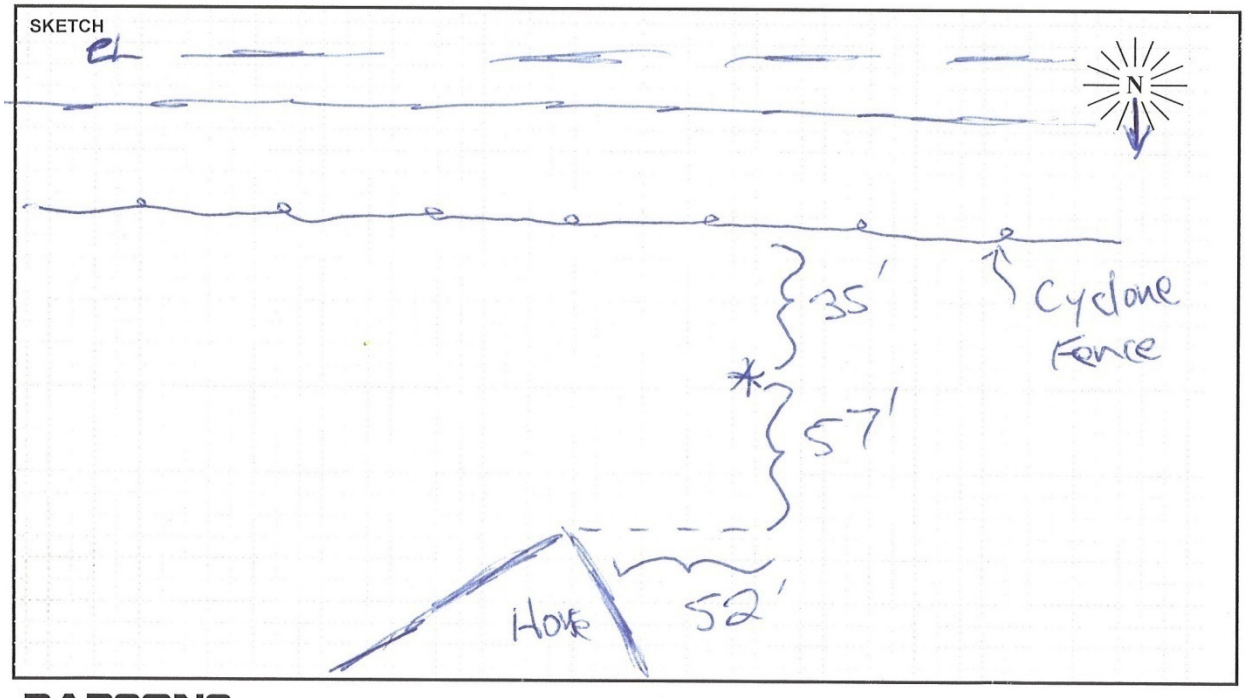
PHOTO NOs. _____

NOTES: Dist. to Center of Nearest Lane _____ ☐ Video ☐ Radar Counts AT MT HT

MEAS. TYPE: ☑ Long Term ☐ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/15												

SKETCH

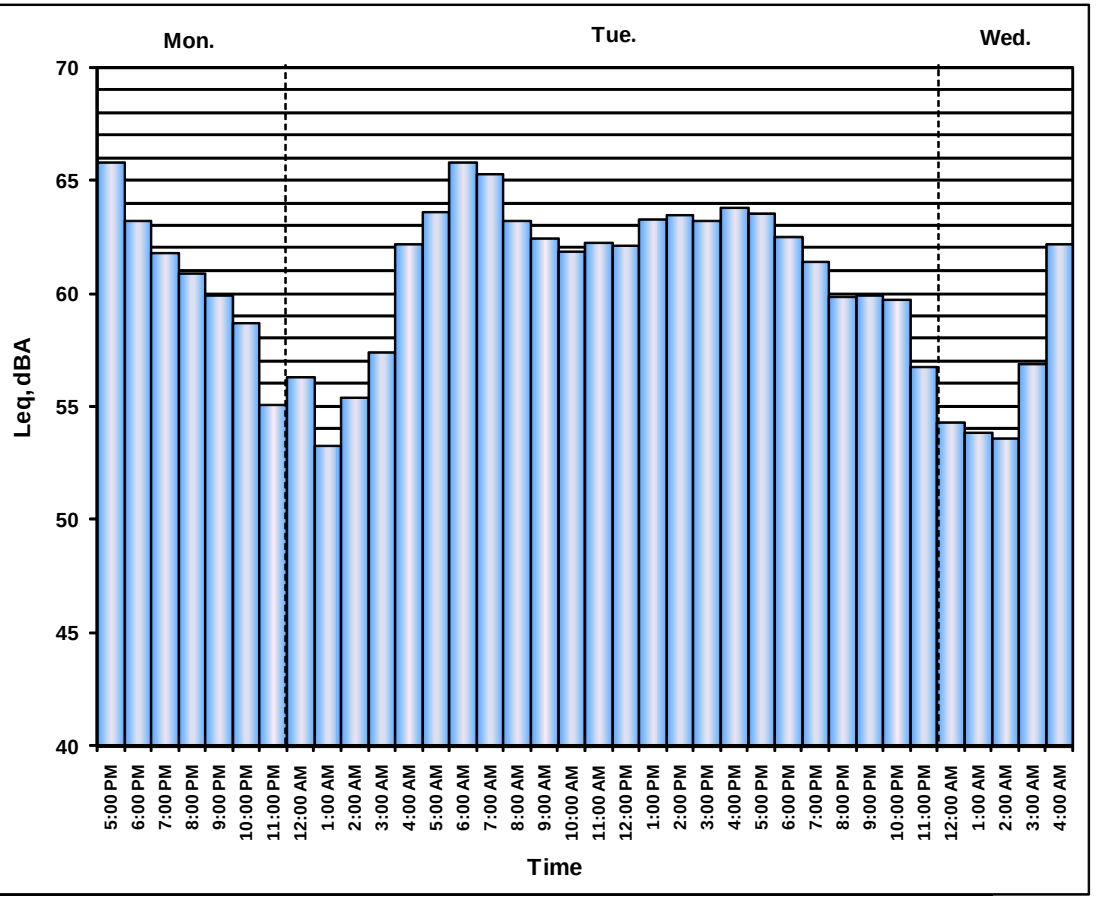


PARSONS

Site LT2 Noise Levels, L_{eq}(h) and CNEL

Location: 73331 Topaz Avenue, Hesperia
Position: Front yard
Sources: Ranchero Road traffic
Date: 3/15-3/17/2010 **Notes:** See attached Noise Measurement Form.

TIME	3/15-3/16 $L_{eq(h)}$ dBA	3/16-3/17 $L_{eq(h)}$ dBA
05:00 - 06:00 PM	66	64
06:00 - 07:00 PM	63	63
07:00 - 08:00 PM	62	61
08:00 - 09:00 PM	61	60
09:00 - 10:00 PM	60	60
10:00 - 11:00 PM	59	60
11:00 - 12:00 AM	55	57
12:00 - 01:00 AM	56	54
01:00 - 02:00 AM	53	54
02:00 - 03:00 AM	55	54
03:00 - 04:00 AM	57	57
04:00 - 05:00 AM	62	62
05:00 - 06:00 AM	64	--
06:00 - 07:00 AM	66	--
07:00 - 08:00 AM	65	--
08:00 - 09:00 AM	63	--
09:00 - 10:00 AM	62	--
10:00 - 11:00 AM	62	--
11:00 - 12:00 PM	62	--
12:00 - 01:00 PM	62	--
01:00 - 02:00 PM	63	--
02:00 - 03:00 PM	64	--
03:00 - 04:00 PM	63	--
04:00 - 05:00 PM	64	--
CNEL, dBA:	67.0	



FIELD SURVEY FORM

PROJECT: Ranchero Road Widening		ENGINEER: Michael Weber	DATE: 3/15/10
MEASUREMENT ADDRESS: 7284 Lowest Ave.	CITY: Hesperia	☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial	SITE NO.: LT3

SOUND LEVEL METER: ☐ LD-870 ☑ LD-820 ☐ LD-824 ☐ LD-812 ☐ LD-2900 ☐ _____	MICROPHONE: ☐ WIND SCREEN ☐ NON-POLAR ☑ POLARIZED ☑ 1/2-INCH ☐ FREEFIELD ☐ 1-INCH ☐ RANDOM	PRE AMP: ☐ LD-900 ☑ LD-828 ☐ _____	NOTES: SYSTEM PWR: ☑ BAT ☐ AC (observations at start of measurement) TEMP: 67 °F R.H.: 26 % WIND SPEED: 3-6 MPH TOWARD (DIR): ~S SKIES: Partly cloudy CAMERA _____ PHOTO NOs. _____
SERIAL #: 1177	SERIAL #: GRAS 40AQ, SU16967	SERIAL #: 1629	

CALIBRATOR: ☑ LD CA250 ☐ _____ S/N 2479

Freq, Hz. ☑ 250 ☐ 1000 ☐

CALIBRATION RECORD: Input, dB / Reading, dB / Offset, dB / Time

Before 114.0, 114.0, 7.8, 14:41

After 114.0, 113.9, _____, 15:35

METER SETTINGS:

☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 3/17 - MINUTE

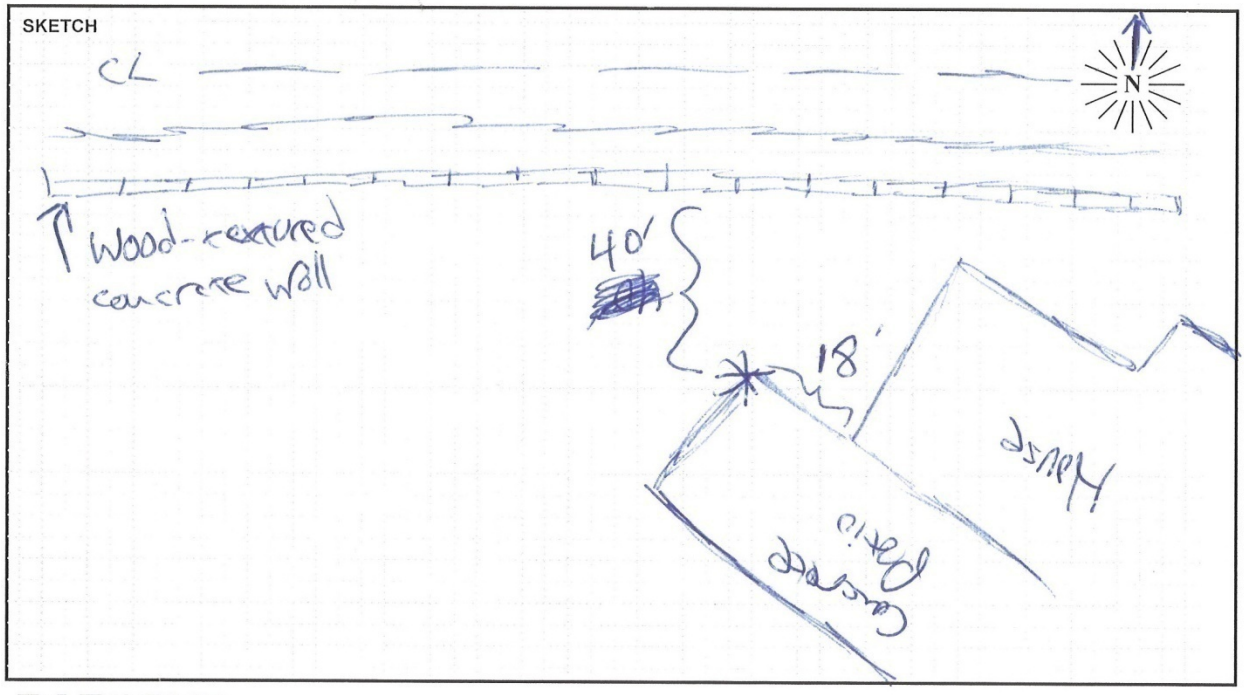
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

NOTES: Dist. to Center of Nearest Lane _____ ☐ Video ☐ Radar Counts AT MT HT

MEAS. TYPE: ☑ Long Term ☐ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/15												

SKETCH

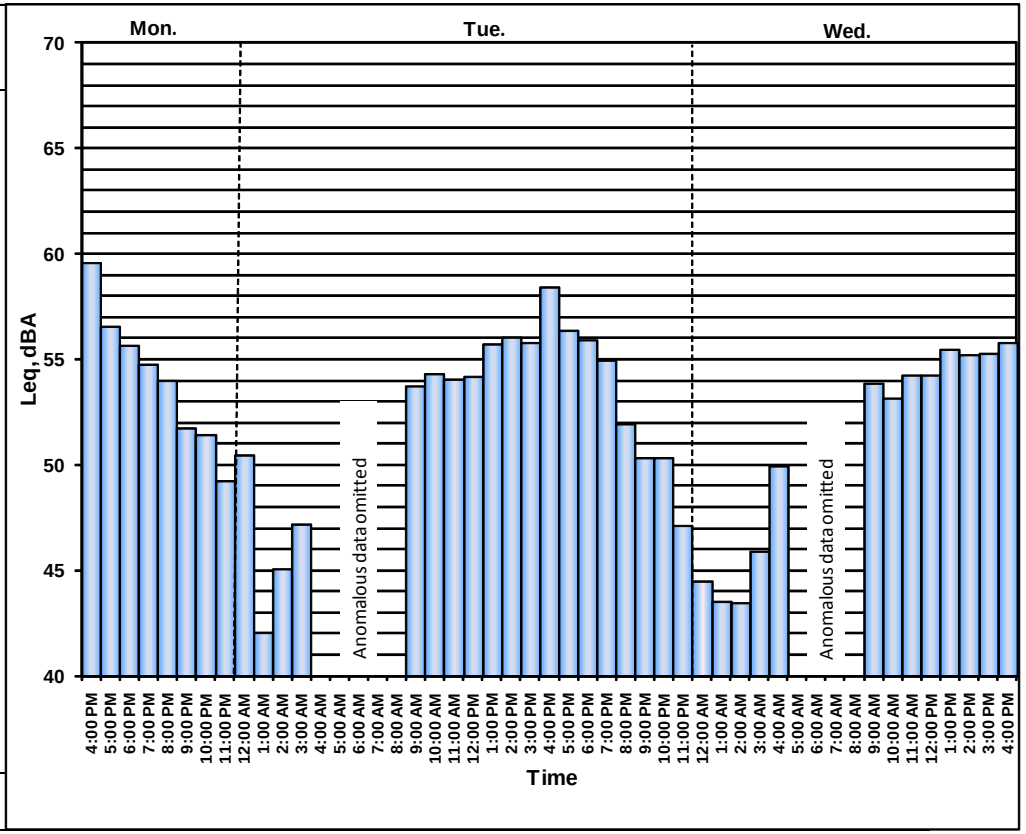


PARSONS

Site LT3 Noise Levels, L_{eq}(h) and CNEL

Location: 7284 Locust Avenue, Hesperia
Position: Back yard
Sources: Ranchero Road traffic, unidentified localized sources
Date: 3/15-3/17/2010 **Notes:** See attached Noise Measurement Form.

TIME	3/15-3/16 Leq(h) dBA	3/16-3/17 Leq(h) dBA	3/17/2010 Leq(h) dBA
04:00 - 05:00 PM	60	58	56
05:00 - 06:00 PM	57	56	0
06:00 - 07:00 PM	56	56	0
07:00 - 08:00 PM	55	55	0
08:00 - 09:00 PM	54	52	0
09:00 - 10:00 PM	52	50	0
10:00 - 11:00 PM	51	50	0
11:00 - 12:00 AM	49	47	0
12:00 - 01:00 AM	50	44	0
01:00 - 02:00 AM	42	44	0
02:00 - 03:00 AM	45	43	0
03:00 - 04:00 AM	47	46	0
04:00 - 05:00 AM	0	50	0
05:00 - 06:00 AM	0	0	0
06:00 - 07:00 AM	0	0	0
07:00 - 08:00 AM	0	0	0
08:00 - 09:00 AM	0	0	0
09:00 - 10:00 AM	54	54	0
10:00 - 11:00 AM	54	53	0
11:00 - 12:00 PM	54	54	0
12:00 - 01:00 PM	54	54	0
01:00 - 02:00 PM	56	55	0
02:00 - 03:00 PM	56	55	0
03:00 - 04:00 PM	56	55	0
CNEL, dBA:	56.2		



FIELD SURVEY FORM

PROJECT: Ranchero Road Widening	ENGINEER: Michael Weber	DATE: 3/15/10
MEASUREMENT ADDRESS: 15468 Ranchero Rd.	CITY: Hesperia	☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial — SITE NO.: LT4

SOUND LEVEL METER:	MICROPHONE:	PRE AMP:	NOTES:
☑ LD-870 ☐ LD-820	☑ NON-POLAR ☐ POLARIZED	☑ LD-900 B	SYSTEM PWR: ☑ BAT ☐ AC
☐ LD-824 ☐ LD-812	☑ 1/2-INCH ☐ FREEFIELD	☐ LD-828	(observations at start of measurement)
☐ LD-2900 ☐ _____	☐ 1-INCH ☐ RANDOM	☐ _____	TEMP: 65 °F R.H.: 40 %
SERIAL #: 0344	SERIAL #: LD259 SN2206 ☐ WIND SCREEN	SERIAL #: 3095	WIND SPEED: 1-7 MPH

CALIBRATOR: ☑ LD CA250 ☐ _____ S/N 2479

Freq, Hz.: ☑ 250 ☐ 1000 ☐

CALIBRATION RECORD:

Input, dB / Reading, dB / Offset, dB / Time

Before 114.0 / 114.0 / 23.1 / 13:33

After 114.0 / 114.0 / _____ / 16:49

TOWARD (DIR): S ⇔ W

SKIES: Partly cloudy

CAMERA _____

PHOTO NOs. _____

METER SETTINGS:

☑ A-WTD ☐ LINEAR ☐ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 3/17 - MINUTE

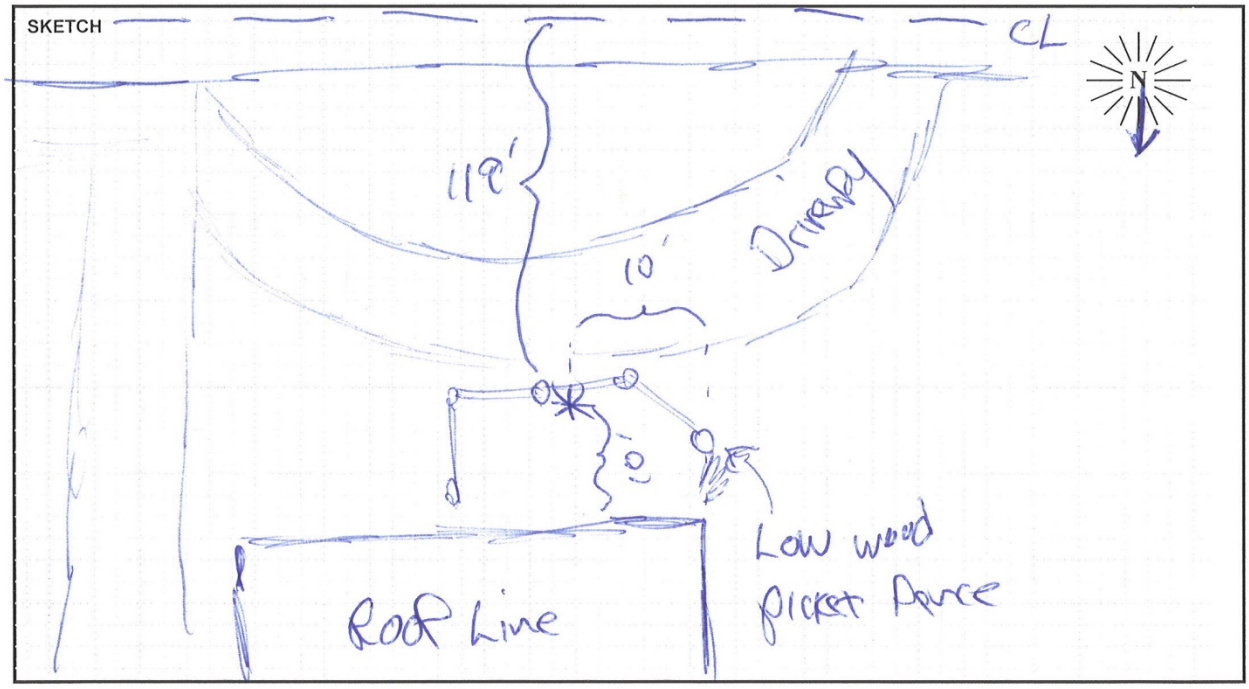
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☐ L_N PERCENTILE VALUES

NOTES: Dist. to Center of Nearest Lane _____ ☐ Video ☐ Radar Counts AT MT HT

MEAS. TYPE: ☑ Long Term ☐ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/15												

SKETCH



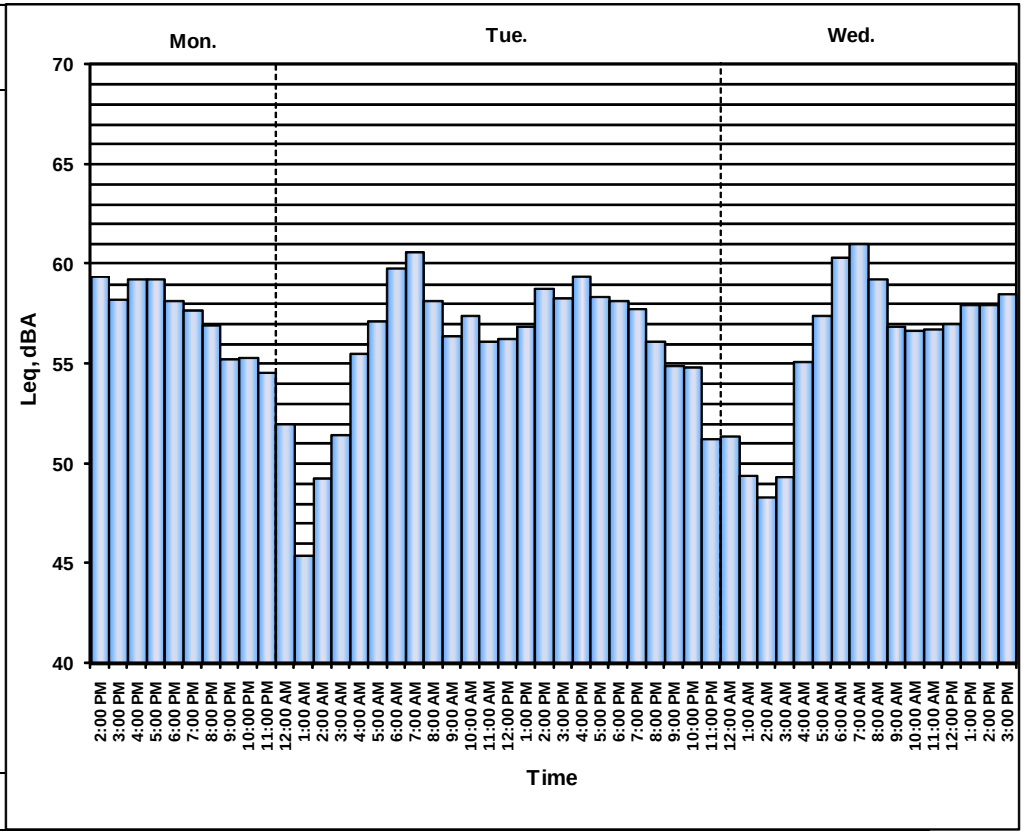
PARSONS

Site LT4 Noise Levels, L_{eq}(h) and CNEL

Location: 15468 Ranchero Road, Hesperia
Position: Front yard
Sources: Ranchero Road traffic
Date: 3/15-3/17/2010

Notes: See attached Noise Measurement Form.

TIME	3/15-3/16 Leq(h) dBA	3/16-3/17 Leq(h) dBA	3/17/2010 Leq(h) dBA
02:00 - 03:00 PM	59	59	58
03:00 - 04:00 PM	58	58	58
04:00 - 05:00 PM	59	59	0
05:00 - 06:00 PM	59	58	0
06:00 - 07:00 PM	58	58	0
07:00 - 08:00 PM	58	58	0
08:00 - 09:00 PM	57	56	0
09:00 - 10:00 PM	55	55	0
10:00 - 11:00 PM	55	55	0
11:00 - 12:00 AM	55	51	0
12:00 - 01:00 AM	52	51	0
01:00 - 02:00 AM	45	49	0
02:00 - 03:00 AM	49	48	0
03:00 - 04:00 AM	51	49	0
04:00 - 05:00 AM	56	55	0
05:00 - 06:00 AM	57	57	0
06:00 - 07:00 AM	60	60	0
07:00 - 08:00 AM	61	61	0
08:00 - 09:00 AM	58	59	0
09:00 - 10:00 AM	56	57	0
10:00 - 11:00 AM	57	57	0
11:00 - 12:00 PM	56	57	0
12:00 - 01:00 PM	56	57	0
01:00 - 02:00 PM	57	58	0
CNEL, dBA:	62.3		



FIELD SURVEY FORM

PROJECT: Ranchero Road Widening		ENGINEER: Michael Weber	DATE: 3/17/10
MEASUREMENT ADDRESS: Adjacent to 11977 Amherst	CITY: Hesperia	☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial	SITE NO.: ST1

SOUND LEVEL METER:	MICROPHONE:	PRE AMP:	NOTES:
☐ LD-870 ☐ LD-820	☑ WIND SCREEN	☐ LD-900	SYSTEM PWR: ☑ BAT ☐ AC
☑ LD-824 ☐ LD-812	☐ NON-POLAR ☐ POLARIZED	☐ LD-828	(observations at start of measurement)
☐ LD-2900 ☐ _____	☑ 1/2-INCH ☐ FREEFIELD	☑ LD-902	TEMP: 66 °F R.H.: 29 %
SERIAL #: B24A3119	☐ 1-INCH ☐ RANDOM	SERIAL #: 3274	WIND SPEED: 1-4 MPH
	SERIAL #: PCB 377A42, SN 52820		TOWARD (DIR): S-W

CALIBRATOR:	CALIBRATION RECORD:	
☑ LD CA250	Freq, Hz.	Input, dB / Reading, dB / Offset, dB / Time
☐ _____	☑ 250	Before 114.0, 114.1, _____, 10:26
S/N 2479	☐ 1000	After 114.0, 114.1, _____, 11:03
	☐	

SKIES: Clear

CAMERA _____

PHOTO NOs. _____

METER SETTINGS:
☐ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

NOTES:
~10:56: Loud pickup EB
~10:58: Loud pickup WB
In general, large proportion of pickups

Dist. to Center of Nearest Lane _____

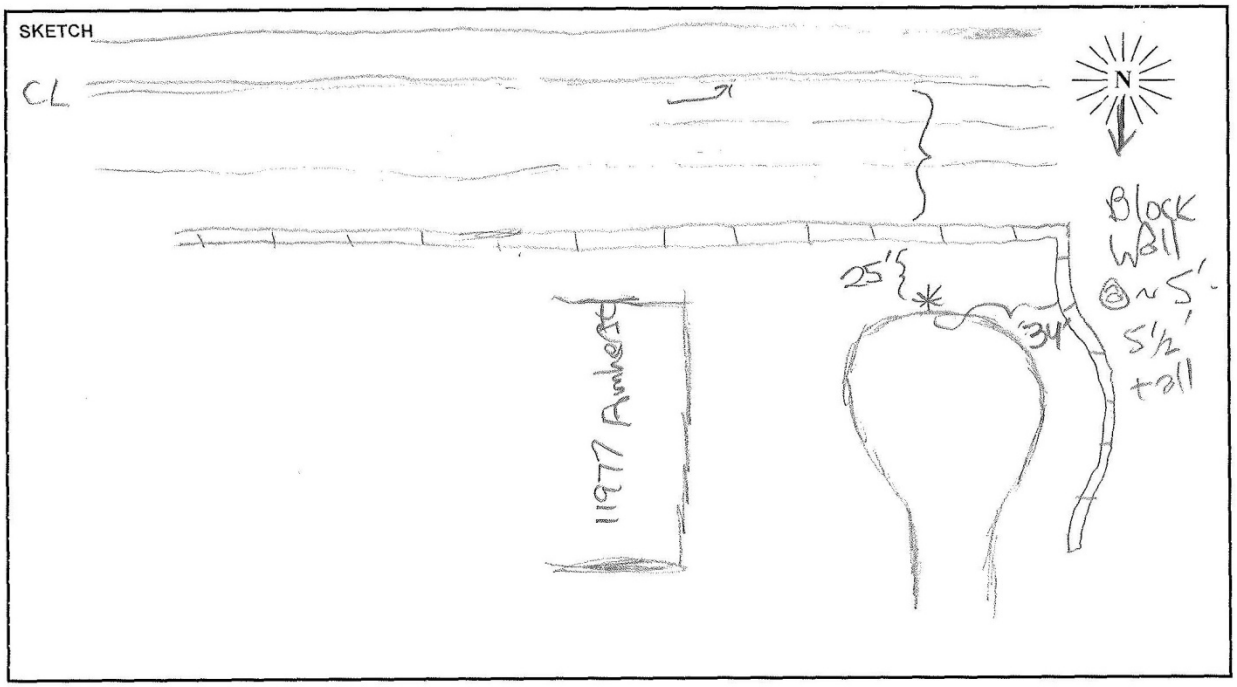
☐ Video ☐ Radar

Counts	AT	MT	HT
EB	52	1	2
WB	78	2	1

MEAS. TYPE:
☐ Long Term
☑ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/17	10:40	11:00	35.9	36.7	40.6	51.1	55.8	59.5	64.7	68.3	55.4	

SKETCH



PARSONS

FIELD SURVEY FORM

PROJECT: Ranchero Road Widening		ENGINEER: Michael Weber	DATE: 3/17/10
MEASUREMENT ADDRESS: Adjacent to 12445 Ranchero	CITY: Hesperia	☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial	SITE NO.: 552

SOUND LEVEL METER: ☐ LD-870 ☐ LD-820 ☑ LD-824 ☐ LD-812 ☐ LD-2900 ☐ _____	MICROPHONE: ☑ WIND SCREEN ☐ NON-POLAR ☐ POLARIZED ☑ 1/2-INCH ☐ FREEFIELD ☐ 1-INCH ☐ RANDOM	PRE AMP: ☐ LD-900 ☐ LD-828 ☑ LD-902	NOTES: SYSTEM PWR: ☑ BAT ☐ AC (observations at start of measurement) TEMP: 72 °F R.H.: 24 % WIND SPEED: 2-5 MPH TOWARD (DIR): W-S SKIES: clear CAMERA _____ PHOTO NOs. _____
SERIAL #: 824A3119	SERIAL #: PCB 377A02, SN52820	SERIAL #: 3274	

CALIBRATOR: ☑ LD CA250 ☐ _____ S/N 2479 Freq, Hz. ☑ 250 ☐ 1000 ☐

CALIBRATION RECORD: Input, dB / Reading, dB / Offset, dB / Time
Before 114.0 / _____ / _____ / 11:19
After 114.0 / 113.6 / _____ / 11:47

METER SETTINGS:
☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

NOTES: ~ 11:34: 4 wheel box truck NB: negligible influence on Leq. ~ 11:39: 2 small box trucks SB: Minor

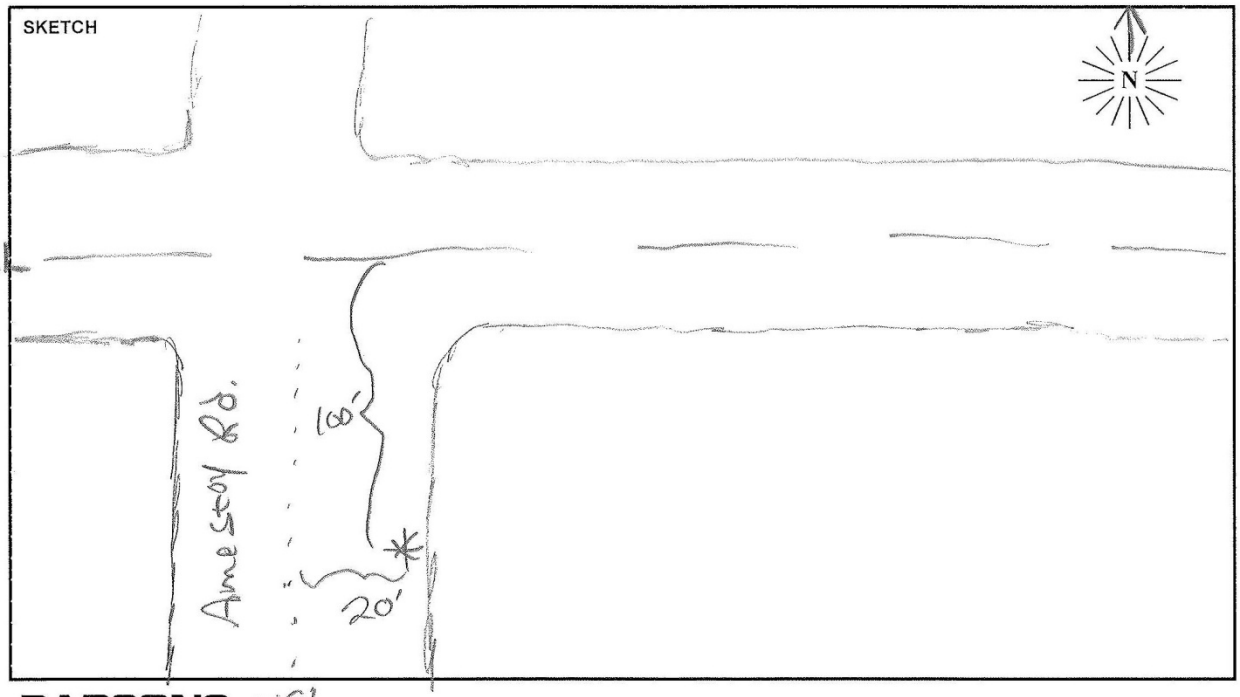
Dist. to Center of Nearest Lane _____ ☐ Video ☐ Radar

Counts	AT	MT	HT
EB	58	2	1
WB	58	0	1

MEAS. TYPE: ☐ Long Term ☑ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/17	11:20	11:40	32.7	33.4	40.2	56.3	64.4	67.7	72.9	78.3	63.3	

SKETCH



PARSONS

FIELD SURVEY FORM

PROJECT: Ranchero Road Widening		ENGINEER: Michael Weber ☑ Church/☐ Daycare	DATE: 3/17/10
MEASUREMENT ADDRESS: Adjacent to Solid Rock Church	CITY: 13032 Ranchero Hesperia	☐ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial	SITE NO.: ST3

SOUND LEVEL METER: ☐ LD-870 ☐ LD-820 ☑ LD-824 ☐ LD-812 ☐ LD-2900 ☐ _____	MICROPHONE: ☑ WIND SCREEN ☐ NON-POLAR ☐ POLARIZED ☑ 1/2-INCH ☐ FREEFIELD ☐ 1-INCH ☐ RANDOM	PRE AMP: ☐ LD-900 ☐ LD-828 ☑ LD-902	NOTES: SYSTEM PWR: ☑ BAT ☐ AC (observations at start of measurement) TEMP: 73 °F R.H.: 22 % WIND SPEED: 4-7 MPH TOWARD (DIR): S-W SKIES: clear CAMERA _____ PHOTO NOs. _____
SERIAL #: 824A3119	SERIAL #: PCB 377A02, SN52820	SERIAL #: 3274	

CALIBRATOR: ☑ LD CA250 ☐ _____ S/N 2479	Freq, Hz. ☑ 250 ☐ 1000 ☐	CALIBRATION RECORD: Input, dB / Reading, dB / Offset, dB / Time Before 114.0, 113.5, _____, 12:36 After 114.0, 114.0, _____, 13:14

METER SETTINGS:
☐ A-WTD ☐ LINEAR ☐ SLOW ☐ 1/1 OCT ☐ INTERVALS _____ - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☐ L_N PERCENTILE VALUES

NOTES:

Dist. to Center of Nearest Lane _____

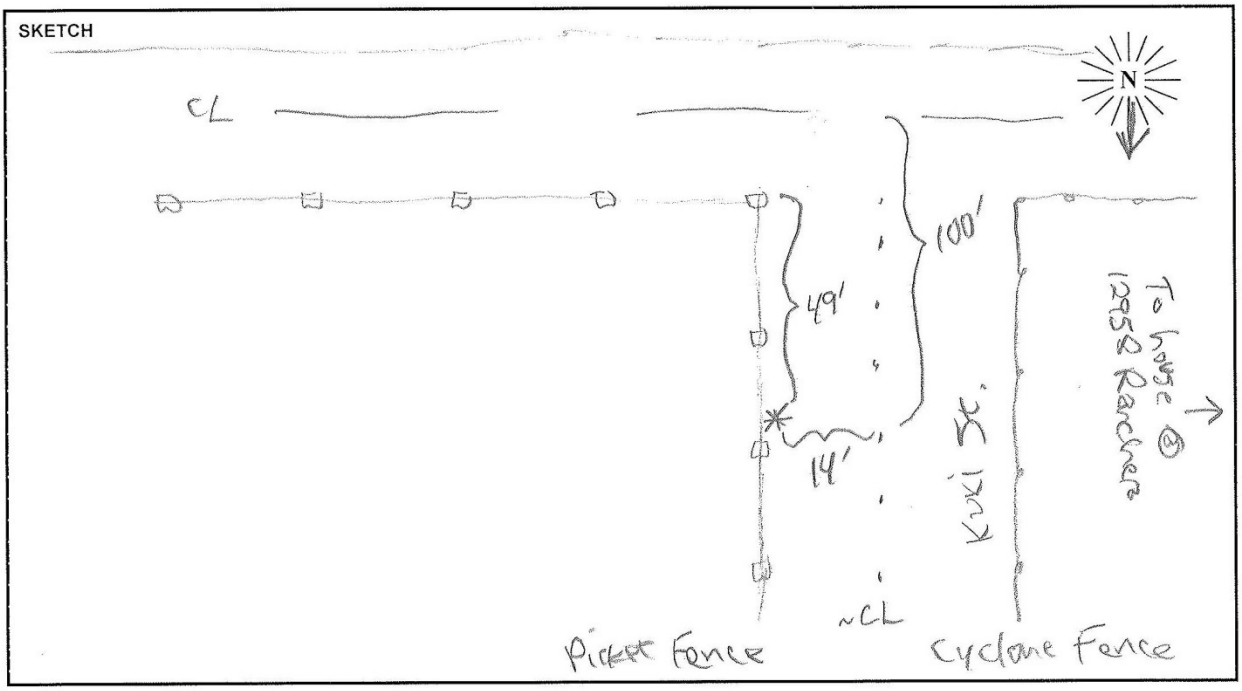
☐ Video ☐ Radar

Counts	AT	MT	HT
EB	88	4	0
WB	76	7	1

MEAS. TYPE:
☐ Long Term
☑ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/12/10	12:40	13:00	34.7	36.2	43.6	58.5	63.7	66.8	70.3	73.3	62.3	

SKETCH



PARSONS

FIELD SURVEY FORM

PROJECT: Ranchero Road Widening

ENGINEER: Michael Weber

DATE: 3/17/10

MEASUREMENT ADDRESS: Adjacent to 7277 Evanke

CITY: Hesperia

☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial

SITE NO.: ST4

SOUND LEVEL METER:
☐ LD-870 ☐ LD-820
☑ LD-824 ☐ LD-812
☐ LD-2900 ☐ _____
SERIAL #: 824A3119

MICROPHONE: ☑ WIND SCREEN
☐ NON-POLAR ☐ POLARIZED
☑ 1/2-INCH ☐ FREEFIELD
☐ 1-INCH ☐ RANDOM
SERIAL #: ACB377A002, SN 52820

PRE AMP:
☐ LD-900
☐ LD-828
☑ LD-902
SERIAL #: 3279

NOTES:
SYSTEM PWR: ☑ BAT ☐ AC
(observations at start of measurement)
TEMP: 76 °F R.H.: 22 %
WIND SPEED: 0-4 MPH
TOWARD (DIR): W/VAR.
SKIES: Clear
CAMERA _____
PHOTO NOs. _____

CALIBRATOR:
☑ LD CA250
☐ _____
S/N 2479

Freq, Hz.
☑ 250
☐ 1000
☐

CALIBRATION RECORD:
Input, dB / Reading, dB / Offset, dB / Time
Before 114.0, 113.7, , 13:38
After 114.0, 113.8, , 14:02

METER SETTINGS:
☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

NOTES:

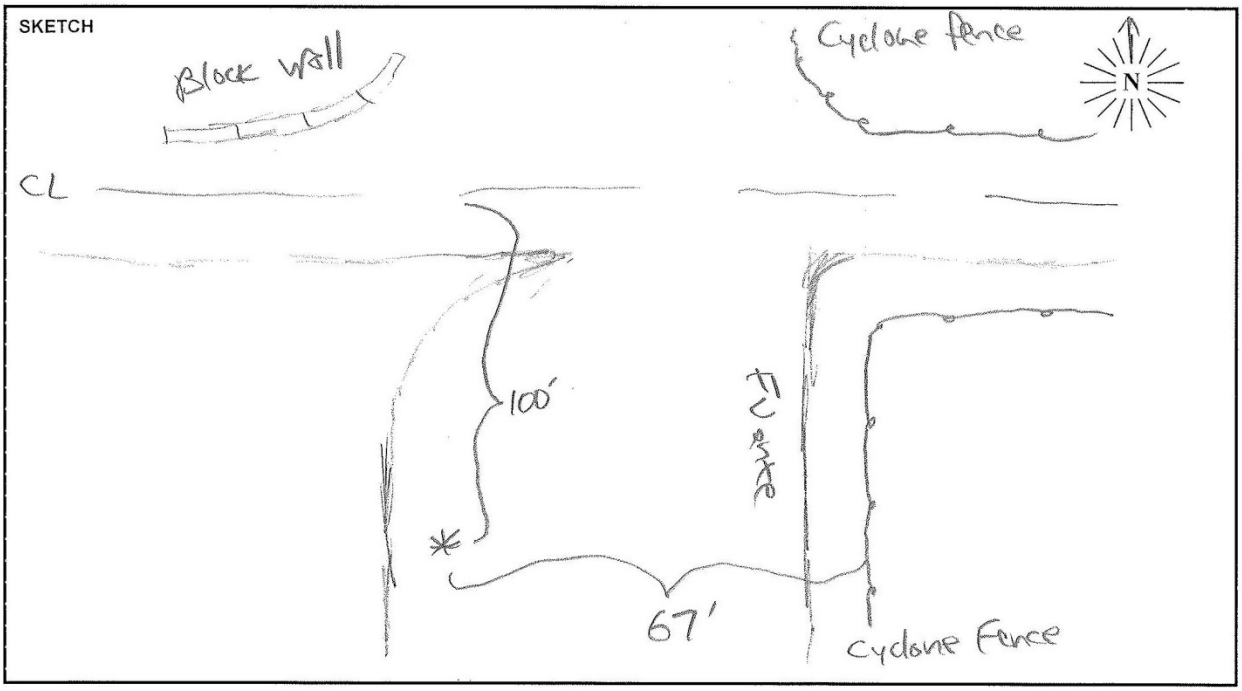
Dist. to Center of Nearest Lane _____
☐ Video ☐ Radar

Counts	AT	MT	HT
EB	76	1	2
WB	129	9	0

MEAS. TYPE:
☐ Long Term
☑ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/17	13:40	14:00	37.1	40.0	46.2	59.9	63.7	65.8	69.6	73.8	62.1	

SKETCH



PARSONS

FIELD SURVEY FORM

PROJECT: Ranchero Road Widening		ENGINEER: Michael Weber ☑ Valley, near JFR	DATE: 3/16/10
MEASUREMENT ADDRESS: S side Ranchero, W of Maple	CITY: Hesperia	☐ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial	SITE NO.: ST 5

SOUND LEVEL METER:	MICROPHONE:	PRE AMP:	NOTES:
☐ LD-870 ☐ LD-820 ☑ LD-824 ☐ LD-812 ☐ LD-2900 ☐ _____	☑ WIND SCREEN ☐ NON-POLAR ☐ POLARIZED ☑ 1/2-INCH ☐ FREEFIELD ☐ 1-INCH ☐ RANDOM	☐ LD-900 ☐ LD-828 ☑ PRM902	SYSTEM PWR: ☑ BAT ☐ AC (observations at start of measurement)
SERIAL #:	SERIAL #: PCB 377A02, SN 52820	SERIAL #: 3274	TEMP: 52 °F R.H.: 41 %

CALIBRATOR:	CALIBRATION RECORD:	NOTES:
☑ LD CA250 ☐ _____ S/N _____ Freq, Hz. ☑ 250 ☐ 1000 ☐	Input, dB / Reading, dB / Offset, dB / Time Before 114.0 / 114.0 / _____ / 6:39 After 114.0 / 113.9 / _____ / 7:13	WIND SPEED: 0-1 MPH TOWARD (DIR): Variable SKIES: partly cloudy CAMERA _____ PHOTO NOs. _____

METER SETTINGS:					
☑ A-WTD	☐ LINEAR	☑ SLOW	☐ 1/1 OCT	☑ INTERVAL: 20 - MINUTE	
☐ C-WTD	☐ IMPULSE	☐ FAST	☐ 1/3 OCT	☑ L_N PERCENTILE VALUES	

NOTES: Nearly all MTs were school buses

Dist. to Center of Nearest Lane: Live 75'

☐ Video ☑ Radar

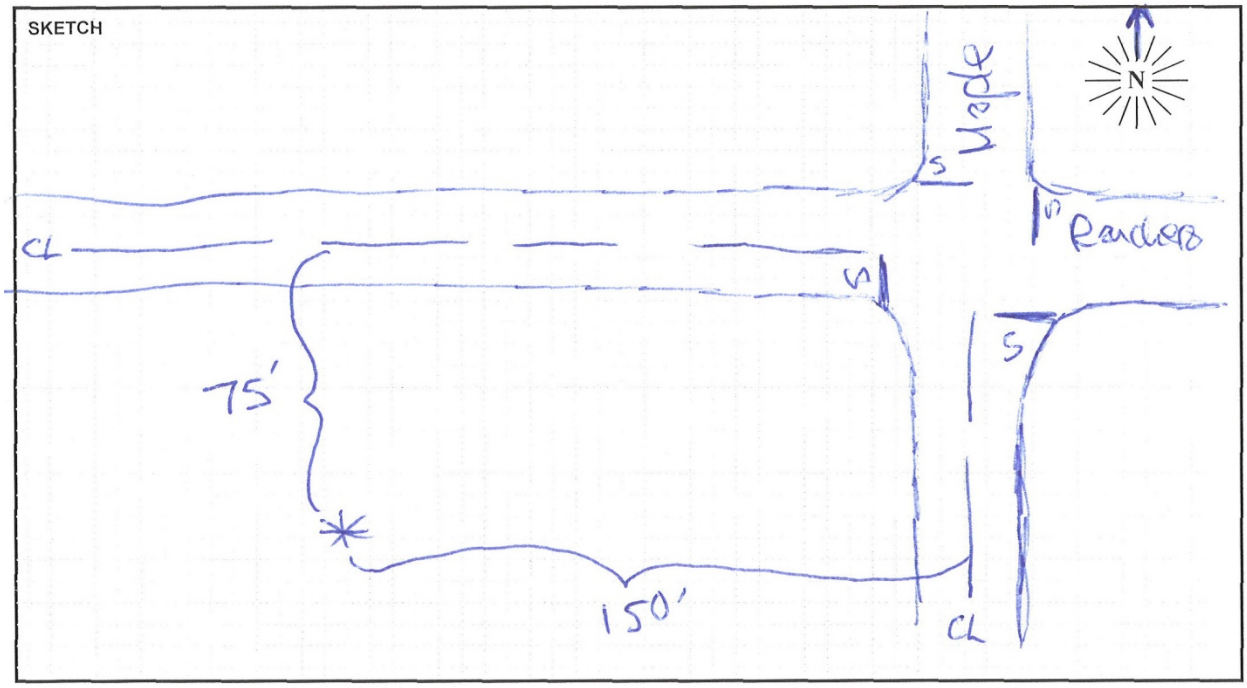
Counts

	AT	MT	HT
EB	96	9	0
WB	182	7	0
NB	39	1	0
SB	10	0	0

MEAS. TYPE:
☐ Long Term
☑ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/16	6:40	7:00	55.0	58.0	62.0	64.8	66.4	68.2	72.6	74.2	65.8	

SKETCH



PARSONS

FIELD SURVEY FORM

PROJECT: Ranchero Road Widening | ENGINEER: Michael Weber | DATE: 3/17/10

MEASUREMENT ADDRESS: Adjacent to 14818 Ranchero | CITY: Hesperia | ☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial | SITE NO.: ST6

SOUND LEVEL METER:
☐ LD-870 ☐ LD-820
☑ LD-824 ☐ LD-812
☐ LD-2900 ☐ _____
SERIAL #: 824A3119

MICROPHONE: ☑ WIND SCREEN
☐ NON-POLAR ☐ POLARIZED
☑ 1/2-INCH ☐ FREEFIELD
☐ 1-INCH ☐ RANDOM
SERIAL #: PCB 377A02, SN52820

PRE AMP:
☐ LD-900
☐ LD-828
☑ LD-902
SERIAL #: 3274

NOTES:
SYSTEM PWR: ☑ BAT ☐ AC
(observations at start of measurement)
TEMP: 81 °F R.H.: 19 %
WIND SPEED: 0-3 MPH
TOWARD (DIR): W/NW
SKIES: Clear
CAMERA _____
PHOTO NOs. _____

CALIBRATOR:
☑ LD CA250
☐ _____
S/N 2479
Freq, Hz.
☑ 250
☐ 1000
☐

CALIBRATION RECORD:
Input, dB / Reading, dB / Offset, dB / Time
Before 114.0, 113.6, _____, 14:35
After 114.0, 113.8, _____, 15:03

METER SETTINGS:
☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

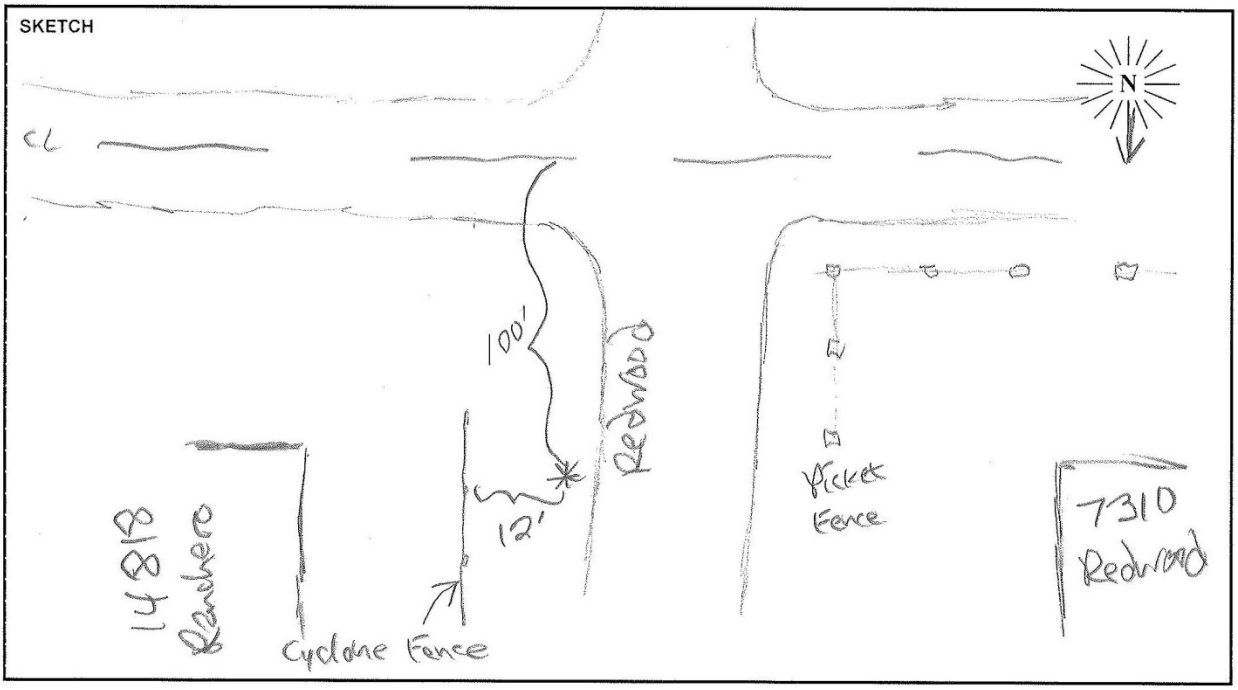
NOTES: Negligible influence on Leq from a couple of Loud HT passby ~2:55:50, N/S cars. Intermittent resident/dog noise: Minor

Dist. to Center of Nearest Lane _____
☐ Video ☐ Radar
Counts: AT MT HT
EB 76 ∅ 1
WB 66 ∅ 2

MEAS. TYPE:
☐ Long Term
☑ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/17	14:40	15:00	34.3	36.2	43.6	54.7	59.0	62.6	73.6	78.4	60.8	

SKETCH



PARSONS

FIELD SURVEY FORM

PROJECT: Ranchero Road Widening		ENGINEER: Michael Weber	DATE: 3/17/10
MEASUREMENT ADDRESS: Across From 7339 11th St.	CITY: Hesperia	☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial	SITE NO.: ST7

SOUND LEVEL METER:	MICROPHONE:	PRE AMP:	NOTES:
☐ LD-870 ☐ LD-820	☐ NON-POLAR ☐ POLARIZED	☐ LD-900	SYSTEM PWR: ☑ BAT ☐ AC
☑ LD-824 ☐ LD-812	☑ 1/2-INCH ☐ FREEFIELD	☐ LD-828	(observations at start of measurement)
☐ LD-2900 ☐ _____	☐ 1-INCH ☐ RANDOM	☑ LD-902	TEMP: 78 °F R.H.: 22 %
SERIAL #: 824A31A	SERIAL #: PCB 377A02, SN52820	SERIAL #: 3274	WIND SPEED: 0-4 MPH

CALIBRATOR:		CALIBRATION RECORD:	TOWARD (DIR): SE/Var.
☑ LD CA250	Freq, Hz.	Input, dB / Reading, dB / Offset, dB / Time	SKIES: Clear
☐ _____	☑ 250	Before ____ / 113.7 / ____ / 16:18	CAMERA _____
S/N 2479	☐ 1000	After ____ / ____ / ____ / ____	PHOTO NOs. _____
	☐		

METER SETTINGS:
☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

NOTES: Traffic on 11th traveled relatively slow, had minor influence on overall Leq

Dist. to Center of Nearest Lane _____

	AT	MT	HT
NB	13	1	0
SB	25	0	0

☐ Video ☐ Radar

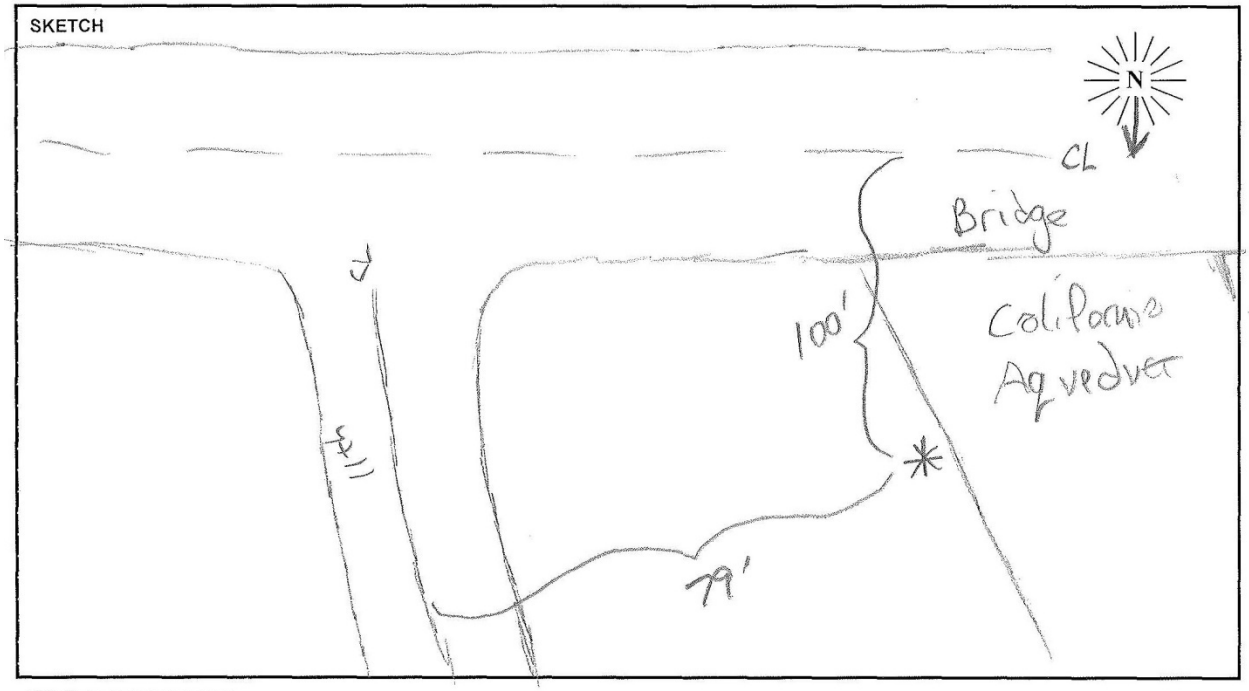
Counts

	AT	MT	HT
EB	95	1	0
WB	54	1	0

MEAS. TYPE:
☐ Long Term
☑ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/17	16:20	16:40	37.7	39.1	45.8	55.1	58.5	60.8	65.8	70.2	57.3	

SKETCH



PARSONS

FIELD SURVEY FORM

PROJECT: Ranchero Road Widening | ENGINEER: Michael Weber | DATE: 3/17/10

MEASUREMENT ADDRESS: 7237 Via Quintana St. | CITY: Hesperia | ☑ Single-Family ☐ Multi-Family ☐ Recreational ☐ Commercial | SITE NO.: ST8

SOUND LEVEL METER:	MICROPHONE:	PRE AMP:	NOTES:
☐ LD-870 ☐ LD-820	☑ WIND SCREEN	☐ LD-900	SYSTEM PWR: ☑ BAT ☐ AC
☑ LD-824 ☐ LD-812	☑ NON-POLAR ☐ POLARIZED	☐ LD-828	(observations at start of measurement)
☐ LD-2900 ☐ _____	☑ 1/2-INCH ☐ FREEFIELD	☑ LD-902	TEMP: 77 °F R.H.: 18 %
SERIAL #: 824A3119	☐ 1-INCH ☐ RANDOM	SERIAL #: 3274	WIND SPEED: 0-2 MPH
	SERIAL #: PCB 377A02, SN52920		TOWARD (DIR): W-S/W

CALIBRATOR: ☑ LD CA250 ☐ _____ S/N 2479 | Freq, Hz. ☑ 250 ☐ 1000 ☐

CALIBRATION RECORD: Input, dB / Reading, dB / Offset, dB / Time

Before 114.0, 113.6, _____, 15:27

After 114.0, 113.8, _____, 16:03

SKIES: Clear

CAMERA _____

PHOTO NOs. _____

METER SETTINGS:
☑ A-WTD ☐ LINEAR ☑ SLOW ☐ 1/1 OCT ☑ INTERVALS 20 - MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☑ L_N PERCENTILE VALUES

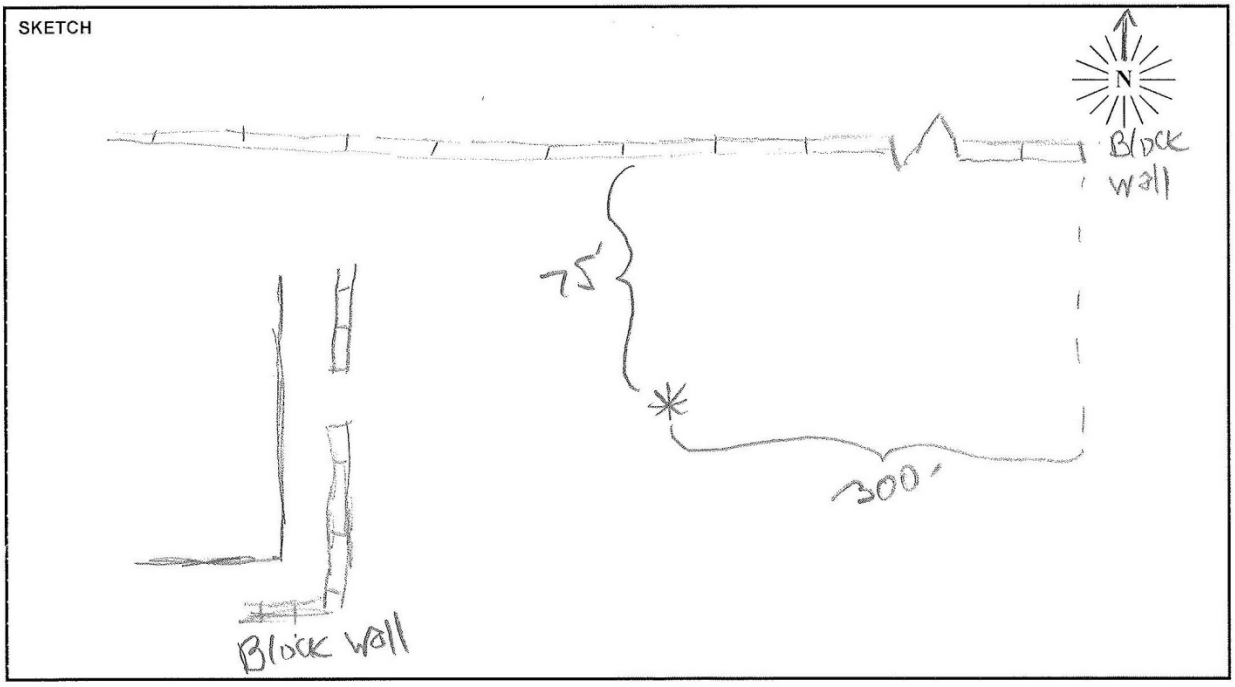
NOTES: Dist. to Center of Nearest Lane _____ ☐ Radar ☐ Video 15 min Counts

	AT	MT	HT
EB	65	2	Ø
WB	47	Ø	Ø

MEAS. TYPE: ☐ Long Term ☑ Short Term

DATE	START TIME	STOP TIME	L_{MIN}	L_{99}	L_{90}	L_{50}	L_{25}	L_{10}	L_{01}	L_{MAX}	L_{EQ}	NOTES:
3/17	15:40	16:00	32.6	35.2	40.9	50.1	53.1	55.2	60.1	64.6	51.9	

SKETCH



PARSONS

Appendix D Detailed Noise Level Predictions

Table D-1. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas													CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]							
												Barrier Design A [6]			Barrier Design B [7]				
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 1 W	S67 R/W	SFR	1	49.0	54.6	+5.6	56.1	+7.1	+1.5	No	No	7	56	0	11	55	1	--	--
R 2 W		SFR	1	58.0	63.3	+5.3	65.0	+7.0	+1.7	Yes	No	**7**	**63**	2	**11**	60	**5**	--	--
R 3 W	S73 R/W	SFR	1	59.6	64.9	+5.3	66.6	+7.0	+1.7	Yes	No	**7**	**64**	3	**10**	60	**7**	--	--
R 4 W		SFR	3	46.2	52.0	+5.8	53.4	+7.2	+1.4	No	No	7	53	0	10	52	1	--	--
R 5 W		SFR	1	58.1	63.4	+5.3	65.1	+7.0	+1.7	Yes	No	**7**	**63**	2	**10**	60	**5**	--	--
R 6 W	S81 R/W	SFR	1	58.4	63.7	+5.3	65.4	+7.0	+1.7	Yes	No	**7**	**63**	2	**10**	60	**5**	--	--
R 7 W		SFR	1	49.1	55.5	+6.4	56.8	+7.7	+1.3	No	No	7	57	0	10	56	1	--	--
R 8 W		SFR	1	58.3	64.4	+6.1	66.0	+7.7	+1.6	Yes	No	**7**	**64**	2	**10**	60	**6**	--	--
R 9 W	--	SFR	1	56.0	63.2	+7.2	61.7	+5.7	-1.5	No	No	--	--	--	--	--	--	--	--
R 9A LT1/CAL	--	SFR	1	54.2	60.6	+6.4	60.4	+6.2	-0.2	No	No	--	--	--	--	--	--	--	--
R 10		SFR	1	52.0	58.0	+6.0	59.1	+7.1	+1.1	No	No	--	--	--	--	--	--	--	--
R 11 W		SFR	1	50.7	56.5	+5.8	58.0	+7.3	+1.5	No	No	--	--	--	--	--	--	--	--
R 12 W		SFR	2	50.3	56.0	+5.7	57.7	+7.4	+1.7	No	No	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-1. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas														CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]								
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 13 X	--	SFR	1	65.3	70.1	+4.8	72.2	+6.9	+2.1	Yes	No	--	--	--	--	--	--	--	@
R 14		SFR	1	50.8	56.6	+5.8	58.5	+7.7	+1.9	No	No	--	--	--	--	--	--	--	--
R 15	--	PLG S	1	50.5	55.7	+5.2	57.3	+6.8	+1.6	No	No	--	--	--	--	--	--	--	--
R 16		PLG S	3	56.6	61.7	+5.1	63.3	+6.7	+1.6	No	No	--	--	--	--	--	--	--	--
R 17		PLG S	8	58.4	63.3	+4.9	64.7	+6.3	+1.4	No	No	--	--	--	--	--	--	--	--
R 18	S147 R/W	SFR	1	51.4	57.2	+5.8	59.9	+8.5	+2.7	No	No	11	58	2	6	59	1	--	--
R 19		SFR	1	65.0	70.0	+5.0	72.9	+7.9	+2.9	Yes	No	**11**	**64**	9	**6**	68	**5**	--	--
R 20	S151 R/W	SCH	1	53.1	58.8	+5.7	62.1	+9.0	+3.3	No	No	**6**	**60**	2	10	59	3	--	--
R 21		CHR	1	58.5	63.8	+5.3	67.0	+8.5	+3.2	Yes	No	**6**	**64**	3	**10**	62	**5**	--	--
R 22 X		SFR	1	67.7	72.6	+4.9	75.9	+8.2	+3.3	Yes	No	6	70	6	**10**	69	**7**	--	--
R 23 X	--	SFR	2	62.2	67.0	+4.8	68.5	+6.3	+1.5	Yes	No	--	--	--	--	--	--	--	@
R 24 Z		SFR	1	48.9	54.4	+5.5	56.4	+7.5	+2.0	No	No	--	--	--	--	--	--	--	--
R 25 X,W		SFR	1	58.9	64.0	+5.1	66.0	+7.1	+2.0	Yes	No	--	--	--	--	--	--	--	@

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-1. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas																			
					Design Year Without Project		Design Year With Project																	
											Impact Type		Noise Prediction with Barrier[5]											
													Barrier Design A[6]						Barrier Design B[7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA		Design Year With Project CNEL Equals or Exceeds 65 dBA[4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB		Height, ft	CNEL, dBA	I.L., dB		CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact[9]
R 26	S197 R/W	SFR	2	62.8	67.7	+4.9	69.1	+6.3	+1.4		Yes	No	**6**	**64**	5		**6**	64	**5**		--	--
R 27 X	--	SFR	1	63.9	68.7	+4.8	69.3	+5.4	+0.6		Yes	No	--	--	--		--	--	--		--	@
R 28 X,W		SFR	1	61.2	66.2	+5.0	67.7	+6.5	+1.5		Yes	No	--	--	--		--	--	--		--	@
R 29 LT2/CAL	S223 R/W	SFR	1	66.5	71.3	+4.8	72.9	+6.4	+1.6		Yes	No	**9**	**64**	9		**6**	67	**6**		--	--
R 30 X		SFR	2	64.1	69.0	+4.9	70.4	+6.3	+1.4		Yes	No	--	--	--		--	--	--		--	@
R 31 X		SFR	2	64.0	70.0	+6.0	71.4	+7.4	+1.4		Yes	No	--	--	--		--	--	--		--	@
R 32 *		SFR	3	53.9	60.1	+6.2	61.3	+7.4	+1.2		No	No	--	--	--		--	--	--		--	--
R 33 Z		SFR	1	64.3	70.3	+6.0	71.0	+6.7	+0.7		Yes	No	--	--	--		--	--	--		--	@
R 34 X	--	SFR	4	63.9	70.0	+6.1	70.4	+6.5	+0.4		Yes	No	--	--	--		--	--	--		--	@
R 35 Z		SFR	1	64.3	70.4	+6.1	70.8	+6.5	+0.4		Yes	No	--	--	--		--	--	--		--	@
R 36 Y		SFR	3	63.9	70.0	+6.1	70.2	+6.3	+0.2		Yes	No	--	--	--		--	--	--		--	@
R 37 X		SFR	1	64.4	70.5	+6.1	71.0	+6.6	+0.5		Yes	No	--	--	--		--	--	--		--	@
R 38 X		SFR	4	63.9	69.9	+6.0	70.1	+6.2	+0.2		Yes	No	--	--	--		--	--	--		--	26

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-1. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas														CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]								
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 39 Z		SFR	1	64.1	70.2	+6.1	70.4	+6.3	+0.2	Yes	No	--	--	--	--	--	--	--	@
R 40 X		SFR	5	63.9	70.0	+6.1	71.2	+7.3	+1.2	Yes	No	--	--	--	--	--	--	71	27
R 41 X		SFR	4	63.9	70.0	+6.1	71.7	+7.8	+1.7	Yes	No	--	--	--	--	--	--	72	28
R 42 X		SFR	3	64.0	70.1	+6.1	71.7	+7.7	+1.6	Yes	No	--	--	--	--	--	--	--	@
R 43 X		SFR	1	64.0	70.0	+6.0	72.0	+8.0	+2.0	Yes	No	--	--	--	--	--	--	72	28
R 44 Y		SFR	3	54.7	61.4	+6.7	62.4	+7.7	+1.0	No	No	--	--	--	--	--	--	--	--
R 45 X	--	SCH	1	60.5	66.6	+6.1	67.7	+7.2	+1.1	Yes	No	--	--	--	--	--	--	--	@
R 46 X,*		PLY	1	52.5	58.8	+6.3	60.2	+7.7	+1.4	No	No	--	--	--	--	--	--	--	--
R 47 X		SFR	4	61.5	67.5	+6.0	69.1	+7.6	+1.6	Yes	No	--	--	--	--	--	--	68	@
R 48 X		SFR	2	60.6	66.6	+6.0	68.3	+7.7	+1.7	Yes	No	--	--	--	--	--	--	68	@
R 49 X		SFR	1	60.2	66.5	+6.3	68.3	+8.1	+1.8	Yes	No	--	--	--	--	--	--	68	@
R 50 X		SFR	2	59.1	67.2	+8.1	69.8	+10.7	+2.6	Yes	No	--	--	--	--	--	--	68	@
R 51 Y		SFR	1	46.9	55.0	+8.1	57.3	+10.4	+2.3	No	No	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-1. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas														CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]								
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 52 X	--	SFR	1	60.4	65.4	+5.0	67.7	+7.3	+2.3	Yes	No	--	--	--	--	--	--	--	@
R 53	S74 R/W	SFR	1	63.0	67.8	+4.8	68.3	+5.3	+0.5	Yes	No	**6**	**63**	5	**6**	63	**5**	--	--
R 54	S80 R/W	SFR	1	62.8	67.6	+4.8	68.0	+5.2	+0.4	Yes	No	**6**	**64**	4	**6**	63	**5**	--	--
R 55		SFR	1	50.7	56.2	+5.5	57.6	+6.9	+1.4	No	No	6	55	3	6	55	3	--	--
R 56		SFR	--[10]	62.3	67.4	+5.1	68.9	+6.6	+1.5	Yes	No	**6**	**63**	6	**6**	62	**7**	--	--
R 57 X	--	SFR	1	65.2	70.0	+4.8	71.5	+6.3	+1.5	Yes	No	--	--	--	--	--	--	--	@
R 58 Y		SFR	1	52.0	57.7	+5.7	60.0	+8.0	+2.3	No	No	--	--	--	--	--	--	--	--
R 59	S114 R/W	SFR	1	65.2	70.1	+4.9	71.9	+6.7	+1.8	Yes	No	12	66	6	**9**	67	**5**	--	--
R 60 Y	--	SFR	1	54.7	60.2	+5.5	62.8	+8.1	+2.6	No	No	--	--	--	--	--	--	--	--
R 61 Y		SFR	1	51.6	57.3	+5.7	59.5	+7.9	+2.2	No	No	--	--	--	--	--	--	--	--
R 62	S122 R/W	SFR	1	53.7	59.2	+5.5	60.9	+7.2	+1.7	No	No	6	60	1	12	59	2	--	--
R 63		SFR	1	60.6	65.6	+5.0	66.7	+6.1	+1.1	Yes	No	**6**	**65**	2	12	63	4	--	--
R 64 W	S126 R/W	SFR	1	60.9	66.1	+5.2	67.3	+6.4	+1.2	Yes	No	**11**	**64**	3	12	63	4	--	--
R 65 Z	--	SFR	6	52.6	58.3	+5.7	60.6	+8.0	+2.3	No	No	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

10 - R56 represents the same residential unit as R54. The applicable dwelling unit is accounted for with R54.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-1. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas														CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]								
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 66 W	S148 R/W	SFR	1	62.0	67.1	+5.1	69.7	+7.7	+2.6	Yes	No	**10**	**64**	6	**9**	65	**5**	--	--
R 67 X	--	SFR	1	62.9	67.9	+5.0	70.6	+7.7	+2.7	Yes	No	--	--	--	--	--	--	--	@
R 68 Z		SFR	1	63.6	68.5	+4.9	70.5	+6.9	+2.0	Yes	No	--	--	--	--	--	--	--	@
R 69	S198 R/W	SFR	1	61.4	66.3	+4.9	67.1	+5.7	+0.8	Yes	No	**6**	**63**	4	**8**	62	**5**	--	--
R 70	--	SFR	1	57.2	62.4	+5.2	63.7	+6.5	+1.3	No	No	--	--	--	--	--	--	--	--
R 71	S208 R/W	SFR	2	64.7	69.6	+4.9	70.2	+5.5	+0.6	Yes	No	**9**	**64**	6	**8**	65	**5**	--	--
R 72	--	SFR	2	53.9	59.3	+5.4	61.3	+7.4	+2.0	No	No	--	--	--	--	--	--	--	--
R 73 W	S226 R/W	SFR	3	59.6	64.8	+5.2	66.1	+6.5	+1.3	Yes	No	**9**	**63**	3	12	62	4	--	--
R 74 W		SFR	1	53.4	58.9	+5.5	59.5	+6.1	+0.6	No	No	9	60	0	12	60	0	--	--
R 75 W		SFR	2	46.7	52.6	+5.9	53.5	+6.8	+0.9	No	No	9	54	0	12	54	0	--	--
R 76 W		SFR	13	52.1	57.6	+5.5	59.0	+6.9	+1.4	No	No	9	58	1	12	58	1	--	--
R 77 W		SFR	5	59.6	64.9	+5.3	66.6	+7.0	+1.7	Yes	No	**9**	**63**	4	**12**	62	**5**	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-1. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas															CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]									
												Barrier Design A [6]			Barrier Design B [7]						
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB				
R 78 W,*	--	SFR	4	47.9	53.9	+6.0	55.1	+7.2	+1.2	No	No	9	55 [10]	0	12	55 [10]	0	--	--		
R 79 W		SFR	5	58.1	63.9	+5.8	65.8	+7.7	+1.9	Yes	No	**9**	**63**	3	**12**	61	**5**	--	--		
R 80 W		SFR	3	57.5	63.7	+6.2	65.4	+7.9	+1.7	Yes	No	**9**	**64**	1	12	62	3	--	--		
R 81	S244/R/W	SFR	1	58.0	65.7	+7.7	65.7	+7.7	0.0	Yes	No	**6**	**63**	3	**12**	61	**5**	--	--		
R 82 X	--	SFR	2	61.4	67.5	+6.1	69.7	+8.3	+2.2	Yes	No	--	--	--	--	--	--	--	@		
R 83 X		SFR	4	61.5	67.6	+6.1	70.4	+8.9	+2.8	Yes	No	--	--	--	--	--	--	71	27		
R 84 X		SFR	4	61.4	67.6	+6.2	69.8	+8.4	+2.2	Yes	No	--	--	--	--	--	--	--	@		
R 85 X		SFR	4	61.1	67.3	+6.2	69.6	+8.5	+2.3	Yes	No	--	--	--	--	--	--	--	@		
R 86 Y,*		SFR	3	52.2	58.6	+6.4	60.5	+8.3	+1.9	No	No	--	--	--	--	--	--	--	--		
R 87 W,*		SFR	1	51.0	57.5	+6.5	59.1	+8.1	+1.6	No	No	--	--	--	--	--	--	--	--		
R 88 W,*		SFR	1	53.6	60.1	+6.5	61.5	+7.9	+1.4	No	No	--	--	--	--	--	--	--	--		
R 89 X		SFR	1	62.3	68.4	+6.1	70.2	+7.9	+1.8	Yes	No	--	--	--	--	--	--	--	@		

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

10 - Noise levels predicted by TNM are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver. Accordingly, these noise levels have been set to be equal noise levels predicted without abatement. This is deemed to be relatively conservative corrected values.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-1. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas																
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]							CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 90 W	S284 R/W	SFR	1	61.8	68.0	+6.2	70.6	+8.8	+2.6	Yes	No	**10**	**63**	8	**10**	63	**8**	--	--
R 91 W,LT3/CAL		SFR	2	60.2	66.5	+6.3	68.7	+8.5	+2.2	Yes	No	**10**	**64**	5	**10**	64	**5**	--	--
R 92 W	S288 R/W	SFR	1	64.0	70.1	+6.1	72.9	+8.9	+2.8	Yes	No	**10**	**64**	9	**7**	68	**5**	--	--
R 93 W	S292 R/W	SFR	1	63.5	69.6	+6.1	72.4	+8.9	+2.8	Yes	No	**12**	**64**	8	**8**	67	**5**	--	--
R 93A W		SFR	2	60.1	66.2	+6.1	68.0	+7.9	+1.8	Yes	No	**12**	**60**	8	**8**	62	**6**	--	--
R 94 W	--	SFR	4	57.2	63.5	+6.3	64.8	+7.6	+1.3	No	No	**--**	**--**	--	**--**	--	**--**	--	--
R 95 W		SFR	4	56.5	62.9	+6.4	63.8	+7.3	+0.9	No	No	**--**	**--**	--	**--**	--	**--**	--	--
R 96 W		SFR	3	46.6	53.4	+6.8	54.5	+7.9	+1.1	No	No	--	--	--	--	--	--	--	--
R 97 W	S306 R/W	SFR	1	50.8	57.3	+6.5	58.2	+7.4	+0.9	No	No	8	57	1	8	57	1	--	--
R 98 W		SFR	1	55.1	61.4	+6.3	62.2	+7.1	+0.8	No	No	8	60	2	8	60	2	--	--
R 99 W		SFR	1	61.2	67.3	+6.1	69.1	+7.9	+1.8	Yes	No	**8**	**64**	5	**8**	64	**5**	--	--
R 100 W	S314 R/W	SFR	4	60.0	66.2	+6.2	67.5	+7.5	+1.3	Yes	No	**8**	**64**	4	**10**	61	**7**	--	--
R 101 W		SFR	3	59.9	66.1	+6.2	67.2	+7.3	+1.1	Yes	No	**8**	**64**	3	**10**	62	**5**	--	--
R 102 W		SFR	1	60.0	66.1	+6.1	67.3	+7.3	+1.2	Yes	No	**8**	**64**	3	**10**	62	**5**	--	--
R 103 W	--	SFR	1	57.0	63.2	+6.2	64.3	+7.3	+1.1	No	No	--	--	--	--	--	--	--	--
R 104	--	SFR	1	49.3	57.0	+7.7	58.6	+9.3	+1.6	No	No	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-2. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions: OGAC Pavement

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas													CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]							
												Barrier Design A [6]			Barrier Design B [7]				
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 1 W	--	SFR	1	49.0	54.6	+5.6	54.6	+5.6	0.0	No	No	--	--	--	--	--	--	--	--
R 2 W		SFR	1	58.0	63.3	+5.3	63.5	+5.5	+0.2	No	No	--	--	--	--	--	--	--	--
R 3 W	S73 R/W	SFR	1	59.6	64.9	+5.3	65.1	+5.5	+0.2	Yes	No	**7**	**63**	2	**10**	60	**5**	--	--
R 4 W		SFR	3	46.2	52.0	+5.8	51.9	+5.7	-0.1	No	No	7	52	0	10	51	1	--	--
R 5 W		SFR	1	58.1	63.4	+5.3	63.6	+5.5	+0.2	No	No	7	63	1	10	59	5	--	--
R 6 W	--	SFR	1	58.4	63.7	+5.3	63.9	+5.5	+0.2	No	No	--	--	--	--	--	--	--	--
R 7 W		SFR	1	49.1	55.5	+6.4	55.3	+6.2	-0.2	No	No	--	--	--	--	--	--	--	--
R 8 W		SFR	1	58.3	64.4	+6.1	64.5	+6.2	+0.1	No	No	--	--	--	--	--	--	--	--
R 9 W	--	SFR	1	56.0	63.2	+7.2	60.2	+4.2	-3.0	No	No	--	--	--	--	--	--	--	--
R 9A LT1/CAL	--	SFR	1	54.2	60.6	+6.4	58.9	+4.7	-1.7	No	No	--	--	--	--	--	--	--	--
R 10		SFR	1	52.0	58.0	+6.0	57.6	+5.6	-0.4	No	No	--	--	--	--	--	--	--	--
R 11 W		SFR	1	50.7	56.5	+5.8	56.5	+5.8	0.0	No	No	--	--	--	--	--	--	--	--
R 12 W		SFR	2	50.3	56.0	+5.7	56.2	+5.9	+0.2	No	No	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes a CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-2. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions: OGAC Pavement (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas							Noise Prediction with Barrier [5]						CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Barrier Design A [6]			Barrier Design B [7]				
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 13 X	--	SFR	1	65.3	70.1	+4.8	70.7	+5.4	+0.6	Yes	No	--	--	--	--	--	--	--	@
R 14		SFR	1	50.8	56.6	+5.8	57.0	+6.2	+0.4	No	No	--	--	--	--	--	--	--	--
R 15	--	PLG S	1	50.5	55.7	+5.2	55.8	+5.3	+0.1	No	No	--	--	--	--	--	--	--	--
R 16		PLG S	3	56.6	61.7	+5.1	61.8	+5.2	+0.1	No	No	--	--	--	--	--	--	--	--
R 17		PLG S	8	58.4	63.3	+4.9	63.2	+4.8	-0.1	No	No	--	--	--	--	--	--	--	--
R 18	S147	SFR	1	51.4	57.2	+5.8	58.4	+7.0	+1.2	No	No	9	57	1	6	57	1	--	--
R 19	R/W	SFR	1	65.0	70.0	+5.0	71.4	+6.4	+1.4	Yes	No	**9**	**64**	7	**6**	66	**5**	--	--
R 20	S151	SCH	1	53.1	58.8	+5.7	60.6	+7.5	+1.8	No	No	6	58	3	9	58	3	--	--
R 21	R/W	CHR	1	58.5	63.8	+5.3	65.5	+7.0	+1.7	Yes	No	**6**	**62**	4	**9**	61	**5**	--	--
R 22 X		SFR	1	67.7	72.6	+4.9	74.4	+6.7	+1.8	Yes	No	6	69	5	**9**	68	**6**	--	--
R 23 X	--	SFR	2	62.2	67.0	+4.8	67.0	+4.8	0.0	Yes	No	--	--	--	--	--	--	--	@
R 24 Z		SFR	1	48.9	54.4	+5.5	54.9	+6.0	+0.5	No	No	--	--	--	--	--	--	--	--
R 25 X,W		SFR	1	58.9	64.0	+5.1	64.5	+5.6	+0.5	No	No	--	--	--	--	--	--	--	@

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes a CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-2. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions: OGAC Pavement (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas														CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]								
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 26	--	SFR	2	62.8	67.7	+4.9	67.6	+4.8	-0.1	Yes	No	--	--	--	--	--	--	--	--
R 27 X	--	SFR	1	63.9	68.7	+4.8	67.8	+3.9	-0.9	Yes	No	--	--	--	--	--	--	--	@
R 28 X,W		SFR	1	61.2	66.2	+5.0	66.2	+5.0	0.0	Yes	No	--	--	--	--	--	--	--	@
R 29 LT2/CAL	S223 R/W	SFR	1	66.5	71.3	+4.8	71.4	+4.9	+0.1	Yes	No	**8**	**63**	8	**6**	65	**6**	--	--
R 30 X		SFR	2	64.1	69.0	+4.9	68.9	+4.8	-0.1	Yes	No	--	--	--	--	--	--	--	@
R 31 X		SFR	2	64.0	70.0	+6.0	69.9	+5.9	-0.1	Yes	No	--	--	--	--	--	--	--	@
R 32 *		SFR	3	53.9	60.1	+6.2	59.8	+5.9	-0.3	No	No	--	--	--	--	--	--	--	--
R 33 Z		SFR	1	64.3	70.3	+6.0	69.5	+5.2	-0.8	Yes	No	--	--	--	--	--	--	--	@
R 34 X	--	SFR	4	63.9	70.0	+6.1	68.9	+5.0	-1.1	Yes	No	--	--	--	--	--	--	--	@
R 35 Z		SFR	1	64.3	70.4	+6.1	69.3	+5.0	-1.1	Yes	No	--	--	--	--	--	--	--	@
R 36 Y		SFR	3	63.9	70.0	+6.1	68.7	+4.8	-1.3	Yes	No	--	--	--	--	--	--	--	@
R 37 X		SFR	1	64.4	70.5	+6.1	69.5	+5.1	-1.0	Yes	No	--	--	--	--	--	--	--	@
R 38 X		SFR	4	63.9	69.9	+6.0	68.6	+4.7	-1.3	Yes	No	--	--	--	--	--	--	--	26

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes a CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

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Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-2. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions: OGAC Pavement (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas							Noise Prediction with Barrier [5]						CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Barrier Design A [6]			Barrier Design B [7]				
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 39 Z		SFR	1	64.1	70.2	+6.1	68.9	+4.8	-1.3	Yes	No	--	--	--	--	--	--	--	@
R 40 X		SFR	5	63.9	70.0	+6.1	69.7	+5.8	-0.3	Yes	No	--	--	--	--	--	--	71	27
R 41 X		SFR	4	63.9	70.0	+6.1	70.2	+6.3	+0.2	Yes	No	--	--	--	--	--	--	72	28
R 42 X		SFR	3	64.0	70.1	+6.1	70.2	+6.2	+0.1	Yes	No	--	--	--	--	--	--	--	@
R 43 X		SFR	1	64.0	70.0	+6.0	70.5	+6.5	+0.5	Yes	No	--	--	--	--	--	--	72	28
R 44 Y		SFR	3	54.7	61.4	+6.7	60.9	+6.2	-0.5	No	No	--	--	--	--	--	--	--	--
R 45 X	--	SCH	1	60.5	66.6	+6.1	66.2	+5.7	-0.4	Yes	No	--	--	--	--	--	--	--	@
R 46 X,*		PLY	1	52.5	58.8	+6.3	58.7	+6.2	-0.1	No	No	--	--	--	--	--	--	--	--
R 47 X		SFR	4	61.5	67.5	+6.0	67.6	+6.1	+0.1	Yes	No	--	--	--	--	--	--	68	@
R 48 X		SFR	2	60.6	66.6	+6.0	66.8	+6.2	+0.2	Yes	No	--	--	--	--	--	--	68	@
R 49 X		SFR	1	60.2	66.5	+6.3	66.8	+6.6	+0.3	Yes	No	--	--	--	--	--	--	68	@
R 50 X		SFR	2	59.1	67.2	+8.1	68.3	+9.2	+1.1	Yes	No	--	--	--	--	--	--	68	@
R 51 Y		SFR	1	46.9	55.0	+8.1	55.8	+8.9	+0.8	No	No	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes a CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-2. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions: OGAC Pavement (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas														CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]								
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 52 X	--	SFR	1	60.4	65.4	+5.0	66.2	+5.8	+0.8	Yes	No	--	--	--	--	--	--	--	@
R 53	--	SFR	1	63.0	67.8	+4.8	66.8	+3.8	-1.0	Yes	No	--	--	--	--	--	--	--	--
R 54	S80 R/W	SFR	1	62.8	67.6	+4.8	66.5	+3.7	-1.1	Yes	No	**6**	**62**	5	**6**	62	**5**	--	--
R 55		SFR	1	50.7	56.2	+5.5	56.1	+5.4	-0.1	No	No	6	54	2	6	54	2	--	--
R 56		SFR	--[10]	62.3	67.4	+5.1	67.4	+5.1	0.0	Yes	No	**6**	**61**	6	**6**	61	**6**	--	--
R 57 X	--	SFR	1	65.2	70.0	+4.8	70.0	+4.8	0.0	Yes	No	--	--	--	--	--	--	--	@
R 58 Y		SFR	1	52.0	57.7	+5.7	58.5	+6.5	+0.8	No	No	--	--	--	--	--	--	--	--
R 59	S114 R/W	SFR	1	65.2	70.1	+4.9	70.4	+5.2	+0.3	Yes	No	**12**	**64**	6	**9**	65	**5**	--	--
R 60 Y	--	SFR	1	54.7	60.2	+5.5	61.3	+6.6	+1.1	No	No	--	--	--	--	--	--	--	--
R 61 Y		SFR	1	51.6	57.3	+5.7	58.0	+6.4	+0.7	No	No	--	--	--	--	--	--	--	--
R 62	--	SFR	1	53.7	59.2	+5.5	59.4	+5.7	+0.2	No	No	--	--	--	--	--	--	--	--
R 63		SFR	1	60.6	65.6	+5.0	65.2	+4.6	-0.4	Yes	No	--	--	--	--	--	--	--	--
R 64 W	--	SFR	1	60.9	66.1	+5.2	65.8	+4.9	-0.3	Yes	No	--	--	--	--	--	--	--	--
R 65 Z	--	SFR	6	52.6	58.3	+5.7	59.1	+6.5	+0.8	No	No	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes a CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

10 - R56 represents the same residential unit as R54. The applicable dwelling unit is accounted for with R54.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-2. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions: OGAC Pavement (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas														CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]								
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 66 W	S148 R/W	SFR	1	62.0	67.1	+5.1	68.2	+6.2	+1.1	Yes	No	**8**	**64**	4	**9**	63	**5**	--	--
R 67 X	--	SFR	1	62.9	67.9	+5.0	69.1	+6.2	+1.2	Yes	No	--	--	--	--	--	--	--	@
R 68 Z		SFR	1	63.6	68.5	+4.9	69.0	+5.4	+0.5	Yes	No	--	--	--	--	--	--	--	@
R 69	--	SFR	1	61.4	66.3	+4.9	65.6	+4.2	-0.7	Yes	No	--	--	--	--	--	--	--	--
R 70	--	SFR	1	57.2	62.4	+5.2	62.2	+5.0	-0.2	No	No	--	--	--	--	--	--	--	--
R 71	--	SFR	2	64.7	69.6	+4.9	68.7	+4.0	-0.9	Yes	No	--	--	--	--	--	--	--	--
R 72	--	SFR	2	53.9	59.3	+5.4	59.8	+5.9	+0.5	No	No	--	--	--	--	--	--	--	--
R 73 W	S226 R/W	SFR	3	59.6	64.8	+5.2	64.6	+5.0	-0.2	No	No	8	63	2	12	61	4	--	--
R 74 W		SFR	1	53.4	58.9	+5.5	58.0	+4.6	-0.9	No	No	8	58	0	12	58	0	--	--
R 75 W		SFR	2	46.7	52.6	+5.9	52.0	+5.3	-0.6	No	No	8	52 [10]	0	12	52 [10]	0	--	--
R 76 W		SFR	13	52.1	57.6	+5.5	57.5	+5.4	-0.1	No	No	8	58	0	12	57	1	--	--
R 77 W		SFR	5	59.6	64.9	+5.3	65.1	+5.5	+0.2	Yes	No	**8**	**63**	2	**12**	60	**5**	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes a CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

10 - Noise levels predicted by TNM are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver. Accordingly, these noise levels have been set to be equal noise levels predicted without abatement. This is deemed to be relatively conservative corrected values.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-2. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions: OGAC Pavement (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas														CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]								
												Barrier Design A [6]			Barrier Design B [7]					
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 78 W,*	--	SFR	4	47.9	53.9	+6.0	53.6	+5.7	-0.3	No	No	--	--	--	--	--	--	--	--
R 79 W		SFR	5	58.1	63.9	+5.8	64.3	+6.2	+0.4	No	No	--	--	--	--	--	--	--	@
R 80 W		SFR	3	57.5	63.7	+6.2	63.9	+6.4	+0.2	No	No	--	--	--	--	--	--	--	@
R 81	--	SFR	1	58.0	65.7	+7.7	64.2	+6.2	-1.5	No	No	--	--	--	--	--	--	--	--
R 82 X	--	SFR	2	61.4	67.5	+6.1	68.2	+6.8	+0.7	Yes	No	--	--	--	--	--	--	--	@
R 83 X		SFR	4	61.5	67.6	+6.1	68.9	+7.4	+1.3	Yes	No	--	--	--	--	--	--	71	27
R 84 X		SFR	4	61.4	67.6	+6.2	68.3	+6.9	+0.7	Yes	No	--	--	--	--	--	--	--	@
R 85 X		SFR	4	61.1	67.3	+6.2	68.1	+7.0	+0.8	Yes	No	--	--	--	--	--	--	--	@
R 86 Y,*		SFR	3	52.2	58.6	+6.4	59.0	+6.8	+0.4	No	No	--	--	--	--	--	--	--	--
R 87 W,*		SFR	1	51.0	57.5	+6.5	57.6	+6.6	+0.1	No	No	--	--	--	--	--	--	--	--
R 88 W,*		SFR	1	53.6	60.1	+6.5	60.0	+6.4	-0.1	No	No	--	--	--	--	--	--	--	--
R 89 X		SFR	1	62.3	68.4	+6.1	68.7	+6.4	+0.3	Yes	No	--	--	--	--	--	--	--	@

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes a CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

10 - Noise levels predicted by TNM are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver. Accordingly, these noise levels have been set to be equal noise levels predicted without abatement. This is deemed to be relatively conservative corrected values.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-2. Predicted Future Noise Levels and Noise Abatement Analysis: National-Average Pavement Conditions: OGAC Pavement (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Existing Noise Level CNEL, dBA	Future Noise Levels in Outdoor Activity Areas													CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]	Minimum Outdoor to Indoor Level Reduction (OILR, dB) to Avoid Interior Impact [9]
					Design Year Without Project		Design Year With Project			Impact Type		Noise Prediction with Barrier [5]							
												Barrier Design A [6]			Barrier Design B [7]				
					CNEL, dBA	Difference from Existing Conditions CNEL, dBA	CNEL, dBA	Difference from Existing Conditions CNEL, dBA	Difference from Future No Project Conditions CNEL, dBA	Design Year With Project CNEL Equals or Exceeds 65 dBA [4]	Project Increase of 5 dB or More Resulting in CNEL of 60 dBA or More	Height, ft	CNEL, dBA	I.L., dB	Height, ft	CNEL, dBA	I.L., dB		
R 90 W	S284	SFR	1	61.8	68.0	+6.2	69.1	+7.3	+1.1	Yes	No	**9**	**63**	6	**10**	62	**7**	--	--
R 91 W,LT3/CAL	R/W	SFR	2	60.2	66.5	+6.3	67.2	+7.0	+0.7	Yes	No	**9**	**63**	4	**10**	62	**5**	--	--
R 92 W	S288 R/W	SFR	1	64.0	70.1	+6.1	71.4	+7.4	+1.3	Yes	No	**10**	**63**	8	**8**	66	**5**	--	--
R 93 W	S292	SFR	1	63.5	69.6	+6.1	70.9	+7.4	+1.3	Yes	No	**10**	**64**	7	**8**	66	**5**	--	--
R 93A W	R/W	SFR	2	60.1	66.2	+6.1	66.5	+6.4	+0.3	Yes	No	**10**	**60**	7	**8**	61	**6**	--	--
R 94 W		SFR	4	57.2	63.5	+6.3	63.3	+6.1	-0.2	No	No	**--**	**--**	--	**--**	--	**--**	--	--
R 95 W	--	SFR	4	56.5	62.9	+6.4	62.3	+5.8	-0.6	No	No	**--**	**--**	--	**--**	--	**--**	--	--
R 96 W		SFR	3	46.6	53.4	+6.8	53.0	+6.4	-0.4	No	No	--	--	--	--	--	--	--	--
R 97 W		SFR	1	50.8	57.3	+6.5	56.7	+5.9	-0.6	No	No	7	56	1	8	55	2	--	--
R 98 W	S306 R/W	SFR	1	55.1	61.4	+6.3	60.7	+5.6	-0.7	No	No	7	59	2	8	59	2	--	--
R 99 W		SFR	1	61.2	67.3	+6.1	67.6	+6.4	+0.3	Yes	No	**7**	**64**	4	**8**	63	**5**	--	--
R 100 W		SFR	4	60.0	66.2	+6.2	66.0	+6.0	-0.2	Yes	No	**--**	**--**	--	**--**	--	**--**	--	--
R 101 W	--	SFR	3	59.9	66.1	+6.2	65.7	+5.8	-0.4	Yes	No	**--**	**--**	--	**--**	--	**--**	--	--
R 102 W		SFR	1	60.0	66.1	+6.1	65.8	+5.8	-0.3	Yes	No	--	--	--	--	--	--	--	--
R 103 W	--	SFR	1	57.0	63.2	+6.2	62.8	+5.8	-0.4	No	No	--	--	--	--	--	--	--	--
R 104	--	SFR	1	49.3	57.0	+7.7	57.1	+7.8	+0.1	No	No	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes a CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-3. Noise Abatement Analysis for Different Cruise Speeds: National-Average Pavement Conditions

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																								CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																							
											Barrier Design A[6]									Barrier Design B[7]													
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB							
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 1 W	S67 R/W	SFR	1	54.6	56.1	54.9	53.7	+1.5	+0.3	-0.9	7	--	--	56	--	--	0	--	--	11	--	--	55	--	--	1	--	--	--	--	--	--	--	--
R 2 W		SFR	1	63.3	**65.0**	63.7	62.4	+1.7	+0.4	-0.9	**7**	--	--	**63**	--	--	2	--	--	**11**	--	--	60	--	--	**5**	--	--	--	--	--	--	--	--
R 3 W	S73 R/W	SFR	1	64.9	**66.6**	**65.2**	64.0	+1.7	+0.3	-0.9	**7**	**7**	--	**64**	**63**	--	3	2	--	**10**	**10**	--	60	60	--	**7**	**5**	--	--	--	--	--	--	--
R 4 W		SFR	3	52.0	53.4	52.4	51.3	+1.4	+0.4	-0.7	7	7	--	53	52	--	0	0	--	10	10	--	52	52	--	1	0	--	--	--	--	--	--	--
R 5 W		SFR	1	63.4	**65.1**	64.3	62.7	+1.7	+0.9	-0.7	**7**	7	--	**63**	63	--	2	1	--	**10**	10	--	60	60	--	**5**	4	--	--	--	--	--	--	--
R 6 W	S81 R/W	SFR	1	63.7	**65.4**	64.6	63.0	+1.7	+0.9	-0.7	**7**	7	--	**63**	63	--	2	2	--	**10**	10	--	60	59	--	**5**	**6**	--	--	--	--	--	--	--
R 7 W		SFR	1	55.5	56.8	56.1	54.7	+1.3	+0.6	-0.8	7	7	--	57	56	--	0	1	--	10	10	--	56	55	--	1	1	--	--	--	--	--	--	--
R 8 W		SFR	1	64.4	**66.0**	**65.1**	63.5	+1.6	+0.7	-0.9	**7**	**7**	--	**64**	**63**	--	2	3	--	**10**	**10**	--	60	60	--	**6**	**5**	--	--	--	--	--	--	--
R 9 W	--	SFR	1	63.2	61.7	60.9	59.4	-1.5	-2.3	-3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 9A LT1/CAL	--	SFR	1	60.6	60.4	59.5	58.1	-0.2	-1.1	-2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 10		SFR	1	58.0	59.1	58.2	56.9	+1.1	+0.2	-1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 11 W		SFR	1	56.5	58.0	57.2	55.8	+1.5	+0.7	-0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 12 W		SFR	2	56.0	57.7	57.0	55.7	+1.7	+1.0	-0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

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4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-3. Noise Abatement Analysis for Different Cruise Speeds: National-Average Pavement Conditions (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																								CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																							
											Barrier Design A[6]									Barrier Design B[7]													
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB							
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 13 X	--	SFR	1	70.1	**72.2**	**71.1**	70.0	+2.1	+1.0	-0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 14		SFR	1	56.6	58.5	57.7	57.0	+1.9	+1.1	+0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 15	--	PLG[S]	1	55.7	57.3	56.2	55.2	+1.6	+0.5	-0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 16		PLG[S]	3	61.7	63.3	62.2	61.1	+1.6	+0.5	-0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 17		PLG[S]	8	63.3	64.7	63.4	62.3	+1.4	+0.1	-1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 18	S147	SFR	1	57.2	59.9	58.7	57.7	+2.7	+1.5	+0.5	11	9	6	58	57	57	2	2	1	6	6	6	59	58	57	1	1	1	--	--	--	--	--	--
R 19	R/W	SFR	1	70.0	**72.9**	**71.5**	**70.3**	+2.9	+1.5	+0.3	**11**	**9**	**6**	**64**	**64**	**63**	9	8	7	**6**	**6**	**6**	68	66	65	**5**	**6**	**5**	--	--	--	--	--	--
R 20	S151 R/W	SCH	1	58.8	62.1	60.8	59.8	+3.3	+2.0	+1.0	**6**	6	6	**60**	59	58	2	2	2	10	10	6	59	58	58	3	3	2	--	--	--	--	--	--
R 21		CHR	1	63.8	**67.0**	**65.6**	64.5	+3.2	+1.8	+0.7	**6**	**6**	6	**64**	**62**	**61**	3	4	4	**10**	**10**	6	62	61	61	**5**	**5**	4	--	--	--	--	--	--
R 22 X		SFR	1	72.6	**75.9**	**74.4**	**73.1**	+3.3	+1.8	+0.5	**6**	**6**	**6**	70	69	68	6	5	5	**10**	**10**	**6**	69	68	68	**7**	**6**	**5**	--	--	--	--	--	--
R 23 X	--	SFR	2	67.0	**68.5**	**67.1**	65.9	+1.5	+0.1	-1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 24 Z		SFR	1	54.4	56.4	55.3	54.2	+2.0	+0.9	-0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 25 X,W		SFR	1	64.0	**66.0**	64.6	63.5	+2.0	+0.6	-0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--

Notes:

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4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

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Table D-3. Noise Abatement Analysis for Different Cruise Speeds: National-Average Pavement Conditions (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																								CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																							
											Barrier Design A[6]									Barrier Design B[7]													
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB							
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 26	S197 R/W	SFR	2	67.7	**69.1**	**68.0**	**66.5**	+1.4	+0.3	-1.2	**6**	**6**	**6**	**64**	**63**	**62**	5	5	5	**6**	**6**	**6**	64	63	62	**5**	**5**	5	--	--	--	--	--	--
R 27 X	--	SFR	1	68.7	**69.3**	**68.3**	66.8	+0.6	-0.4	-1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 28 X,W		SFR	1	66.2	**67.7**	**66.8**	**66.3**	+1.5	+0.6	+0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	@
R 29 LT2/CAL	S223 R/W	SFR	1	71.3	**72.9**	**71.9**	**70.3**	+1.6	+0.6	-1.0	**9**	**8**	**7**	**64**	**64**	**64**	9	8	6	**6**	**6**	**6**	67	66	65	**6**	**6**	**5**	--	--	--	--	--	--
R 30 X		SFR	2	69.0	**70.4**	**69.4**	67.9	+1.4	+0.4	-1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 31 X		SFR	2	70.0	**71.4**	**70.2**	68.7	+1.4	+0.2	-1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 32 *		SFR	3	60.1	61.3	60.1	59.0	+1.2	0.0	-1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 33 Z		SFR	1	70.3	**71.0**	69.6	68.3	+0.7	-0.7	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 34 X	--	SFR	4	70.0	**70.4**	69.0	67.7	+0.4	-1.0	-2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 35 Z		SFR	1	70.4	**70.8**	69.4	68.1	+0.4	-1.0	-2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 36 Y		SFR	3	70.0	**70.2**	68.8	67.6	+0.2	-1.2	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 37 X		SFR	1	70.5	**71.0**	69.6	68.3	+0.5	-0.9	-2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 38 X		SFR	4	69.9	**70.1**	68.7	67.4	+0.2	-1.2	-2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26	--	--

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											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB							
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 39 Z		SFR	1	70.2	**70.4**	69.0	67.8	+0.2	-1.2	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 40 X		SFR	5	70.0	**71.2**	69.9	68.6	+1.2	-0.1	-1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	71	--	--	27	--	--
R 41 X		SFR	4	70.0	**71.7**	**70.3**	69.0	+1.7	+0.3	-1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72	--	--	28	26	--
R 42 X		SFR	3	70.1	**71.7**	**70.3**	69.0	+1.6	+0.2	-1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 43 X		SFR	1	70.0	**72.0**	**70.6**	69.3	+2.0	+0.6	-0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72	--	--	28	27	--
R 44 Y		SFR	3	61.4	62.4	61.4	60.0	+1.0	0.0	-1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 45 X	--	SCH	1	66.6	**67.7**	**66.7**	65.1	+1.1	+0.1	-1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 46 X*		PLY	1	58.8	60.2	59.3	58.0	+1.4	+0.5	-0.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 47 X		SFR	4	67.5	**69.1**	**68.0**	66.5	+1.6	+0.5	-1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	--	--	@	@	--
R 48 X		SFR	2	66.6	**68.3**	**67.2**	66.1	+1.7	+0.6	-0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	--	--	@	@	--
R 49 X		SFR	1	66.5	**68.3**	**67.3**	66.0	+1.8	+0.8	-0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	--	--	@	@	--
R 50 X		SFR	2	67.2	**69.8**	**68.7**	67.2	+2.6	+1.5	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	67	--	@	@	--
R 51 Y		SFR	1	55.0	57.3	56.4	55.3	+2.3	+1.4	+0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-3. Noise Abatement Analysis for Different Cruise Speeds: National-Average Pavement Conditions (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Design Year Without Project [3]	Noise Levels In Outdoor Activity Areas With Project																						CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																						
											Barrier Design A[6]									Barrier Design B[7]													
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB							
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 52 [X]	--	SFR	1	65.4	**67.7**	**66.4**	65.2	+2.3	+1.0	-0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 53	S74 R/W	SFR	1	67.8	**68.3**	67.1	65.7	+0.5	-0.7	-2.1	**6**	--	**--**	**63**	--	**--**	5	--	--	**6**	--	**--**	63	62	--	**5**	--	**--**	--	--	--	--	--	--
R 54	S80 R/W	SFR	1	67.6	**68.0**	66.9	65.5	+0.4	-0.7	-2.1	**6**	6	**--**	**64**	62	**--**	4	5	--	**6**	6	**--**	63	62	--	**5**	5	**--**	--	--	--	--	--	--
R 55		SFR	1	56.2	57.6	55.7	54.3	+1.4	-0.5	-1.9	6	6	--	55	54	--	3	2	--	6	6	--	55	54	--	3	2	--	--	--	--	--	--	--
R 56		SFR	--[10]	67.4	**68.9**	**66.7**	65.3	+1.5	-0.7	-2.1	**6**	**6**	**--**	**63**	**62**	**--**	6	5	--	**6**	**6**	**--**	62	62	--	**7**	**5**	**--**	--	--	--	--	--	--
R 57 [X]	--	SFR	1	70.0	**71.5**	**70.4**	**69.3**	+1.5	+0.4	-0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 58 [Y]		SFR	1	57.7	60.0	59.1	58.3	+2.3	+1.4	+0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 59	S114 R/W	SFR	1	70.1	**71.9**	**70.7**	69.6	+1.8	+0.6	-0.5	**12**	**12**	**--**	**66**	**64**	**--**	6	7	--	**9**	**9**	**--**	67	66	**--**	**5**	**5**	**--**	--	--	--	--	--	--
R 60 [Y]	--	SFR	1	60.2	62.8	61.8	60.8	+2.6	+1.6	+0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 61 [Y]		SFR	1	57.3	59.5	58.6	57.7	+2.2	+1.3	+0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 62	S122 R/W	SFR	1	59.2	60.9	59.9	59.0	+1.7	+0.7	-0.2	6	--	--	60	--	--	1	--	--	12	--	--	59	--	--	2	--	--	--	--	--	--	--	--
R 63		SFR	1	65.6	**66.7**	65.6	64.5	+1.1	0.0	-1.1	**6**	--	--	**65**	--	--	2	--	--	12	--	--	63	--	--	4	--	--	--	--	--	--	--	--
R 64 [W]	S126 R/W	SFR	1	66.1	**67.3**	**66.3**	65.2	+1.2	+0.2	-0.9	**11**	**9**	**--**	**64**	**64**	**--**	3	2	--	12	12	**--**	63	62	**--**	4	4	--	--	--	--	--	--	--
R 65 [Z]	--	SFR	6	58.3	60.6	59.3	58.3	+2.3	+1.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

10 - R56 represents the same residential unit as R54. The applicable dwelling unit is accounted for with R54.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-3. Noise Abatement Analysis for Different Cruise Speeds: National-Average Pavement Conditions (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																								CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																							
											Barrier Design A[6]									Barrier Design B[7]													
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB							
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 66 W	S148 R/W	SFR	1	67.1	**69.7**	**68.4**	**67.2**	+2.6	+1.3	+0.1	**10**	**8**	**6**	**64**	**64**	**64**	6	4	3	**9**	**9**	**9**	65	63	62	**5**	**5**	**5**	--	--	--	--	--	--
R 67 X	--	SFR	1	67.9	**70.6**	**69.3**	**68.0**	+2.7	+1.4	+0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	@
R 68 Z		SFR	1	68.5	**70.5**	**69.2**	68.0	+2.0	+0.7	-0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 69	S198 R/W	SFR	1	66.3	**67.1**	66.0	64.6	+0.8	-0.3	-1.7	**6**	--	--	**63**	--	--	--	--	--	**8**	--	--	62	--	--	**5**	--	--	--	--	--	--	--	--
R 70	--	SFR	1	62.4	63.7	62.7	61.4	+1.3	+0.3	-1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 71	S208 R/W	SFR	2	69.6	**70.2**	69.0	67.7	+0.6	-0.6	-1.9	**9**	--	--	**64**	--	--	--	--	--	**8**	--	--	65	--	--	**5**	--	--	--	--	--	--	--	--
R 72	--	SFR	2	59.3	61.3	60.3	59.0	+2.0	+1.0	-0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 73 W		SFR	3	64.8	**66.1**	**65.1**	63.8	+1.3	+0.3	-1.0	9	8	--	**63**	**64**	--	3	--	--	12	**12**	--	62	60	--	4	**5**	--	--	--	--	--	--	--
R 74 W		SFR	1	58.9	59.5	58.7	57.3	+0.6	-0.2	-1.6	9	8	--	60	59	--	0	--	--	12	12	--	60	58	--	0	1	--	--	--	--	--	--	--
R 75 W	S226 R/W	SFR	2	52.6	53.5	52.9	51.6	+0.9	+0.3	-1.0	9	8	--	54	54	--	0	--	--	12	12	--	54	53	--	0	0	--	--	--	--	--	--	--
R 76 W		SFR	13	57.6	59.0	58.2	56.9	+1.4	+0.6	-0.7	9	8	--	58	59	--	1	--	--	12	12	--	58	57	--	1	1	--	--	--	--	--	--	--
R 77 W		SFR	5	64.9	**66.6**	**65.6**	64.3	+1.7	+0.7	-0.6	9	8	--	**63**	**63**	--	4	--	--	**12**	**12**	--	62	60	--	**5**	**6**	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-3. Noise Abatement Analysis for Different Cruise Speeds: National-Average Pavement Conditions (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																								CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																							
											Barrier Design A[6]									Barrier Design B[7]													
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB							
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 78 W,*	--	SFR	4	53.9	55.1	54.5	53.4	+1.2	+0.6	-0.5	9	--	--	55 [10]	--	--	0	--	--	12	--	--	55 [10]	--	--	0	--	--	--	--	--	--	--	--
R 79 W		SFR	5	63.9	**65.8**	64.8	63.6	+1.9	+0.9	-0.3	9	--	--	63	--	--	3	--	--	12	--	--	61	--	--	5	--	--	--	--	--	--	--	--
R 80 W		SFR	3	63.7	**65.4**	64.5	63.4	+1.7	+0.8	-0.3	9	--	--	64	--	--	1	--	--	12	--	--	62	--	--	3	--	--	--	--	--	--	--	--
R 81	S244 R/W	SFR	1	65.7	**65.7**	64.7	63.6	0.0	-1.0	-2.1	**6**	--	--	**63**	--	--	3	--	--	12	--	--	**61**	--	--	**5**	--	--	--	--	--	--	--	--
R 82 X	--	SFR	2	67.5	**69.7**	**68.5**	67.1	+2.2	+1.0	-0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 83 X		SFR	4	67.6	**70.4**	**69.1**	**67.8**	+2.8	+1.5	+0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	71	69	--	27	@	@
R 84 X		SFR	4	67.6	**69.8**	**68.5**	67.3	+2.2	+0.9	-0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 85 X		SFR	4	67.3	**69.6**	**68.4**	67.1	+2.3	+1.1	-0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--
R 86 Y,*		SFR	3	58.6	60.5	59.3	58.2	+1.9	+0.7	-0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 87 W,*		SFR	1	57.5	59.1	57.9	57.0	+1.6	+0.4	-0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 88 W,*		SFR	1	60.1	61.5	60.3	59.3	+1.4	+0.2	-0.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 89 X		SFR	1	68.4	**70.2**	**68.9**	67.7	+1.8	+0.5	-0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	@	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

10 - Noise levels predicted by TNM are not reliable due to issues with procedures used in TNM to calculate noise levels when two parallel walls intervene between source and receiver. Accordingly, these noise levels have been set to be equal noise levels predicted without abatement. This is deemed to be relatively conservative corrected values.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-3. Noise Abatement Analysis for Different Cruise Speeds: National-Average Pavement Conditions (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Design Year Without Project [3]	Noise Levels In Outdoor Activity Areas With Project																						CNEL at Selected Building Façades With Project (Without Barrier), dBA [8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB [9]		
					CNEL Without Barrier, dBA [3,4]			Difference from Future No Project Conditions CNEL, dBA [3]			Noise Prediction with Barrier [5]																						
											Barrier Design A [6]									Barrier Design B [7]													
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB							
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 90 W	S284	SFR	1	68.0	**70.6**	**69.4**	**68.2**	+2.6	+1.4	+0.2	**10**	**9**	**8**	**63**	**62**	**63**	8	7	5	**10**	**10**	**11**	63	62	61	**8**	**7**	**7**	--	--	--	--	--	--
R 91 W,LT3/CAL	R/W	SFR	2	66.5	**68.7**	**67.5**	66.4	+2.2	+1.0	-0.1	**10**	**9**	8	**64**	**63**	64	5	5	2	**10**	**10**	11	64	63	61	**5**	**5**	5	--	--	--	--	--	--
R 92 W	S288 R/W	SFR	1	70.1	**72.9**	**71.6**	**70.3**	+2.8	+1.5	+0.2	**10**	**10**	**9**	**64**	**65**	**64**	9	7	6	**7**	**7**	**8**	68	67	65	**5**	**5**	**5**	--	--	--	--	--	--
R 93 W	S292	SFR	1	69.6	**72.4**	**71.1**	**69.9**	+2.8	+1.5	+0.3	**12**	**10**	**9**	**64**	**65**	**64**	8	6	6	**8**	**8**	**8**	67	66	65	**5**	**5**	**5**	--	--	--	--	--	--
R 93A W	R/W	SFR	2	66.2	**68.0**	**66.7**	**65.5**	+1.8	+0.5	-0.7	**12**	**10**	**9**	**60**	**60**	**60**	8	7	6	**8**	**8**	**8**	62	61	60	**6**	**6**	**6**	--	--	--	--	--	--
R 94 W		SFR	4	63.5	64.8	63.6	62.5	+1.3	+0.1	-1.0	**--**	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	--	--
R 95 W		SFR	4	62.9	63.8	62.7	61.6	+0.9	-0.2	-1.3	**--**	**--**	**--**	**--**	**--**	**--**	--	--	--	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	--	--	--	--	--	--
R 96 W		SFR	3	53.4	54.5	53.6	52.6	+1.1	+0.2	-0.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 97 W	S306 R/W	SFR	1	57.3	58.2	57.4	56.0	+0.9	+0.1	-1.3	8	8	--	57	56	--	1	1	--	8	9	--	57	56	--	1	1	--	--	--	--	--	--	--
R 98 W		SFR	1	61.4	62.2	61.2	59.8	+0.8	-0.2	-1.6	8	8	--	60	59	--	2	2	--	8	9	--	60	59	--	2	2	--	--	--	--	--	--	--
R 99 W		SFR	1	67.3	**69.1**	**68.0**	66.6	+1.8	+0.7	-0.7	**8**	**8**	--	**64**	**64**	--	5	4	--	**8**	**9**	--	64	62	--	**5**	**6**	--	--	--	--	--	--	--
R 100 W	S314 R/W	SFR	4	66.2	**67.5**	**66.5**	65.1	+1.3	+0.3	-1.1	**8**	**7**	--	**64**	**64**	--	4	3	--	**10**	**10**	--	61	60	--	**7**	**7**	--	--	--	--	--	--	--
R 101 W		SFR	3	66.1	**67.2**	**66.2**	64.9	+1.1	+0.1	-1.2	**8**	**7**	--	**64**	**64**	**--**	3	2	--	**10**	**10**	--	62	61	**--**	**5**	**5**	--	--	--	--	--	--	--
R 102 W		SFR	1	66.1	**67.3**	**66.3**	65.0	+1.2	+0.2	-1.1	**8**	**7**	--	**64**	**64**	--	3	2	--	**10**	**10**	--	62	61	--	**5**	**5**	--	--	--	--	--	--	--
R 103 W	--	SFR	1	63.2	64.3	63.3	62.3	+1.1	+0.1	-0.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 104	--	SFR	1	57.0	58.6	57.7	56.4	+1.6	+0.7	-0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-4. Noise Abatement Analysis for Different Cruise Speeds: OGAC Pavement

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																						CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																						
											Barrier Design A[6]									Barrier Design B[7]												
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB						
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 1 [W]	--	SFR	1	54.6	54.6	53.4	52.2	0.0	-1.2	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 2 [W]		SFR	1	63.3	63.5	62.2	60.9	+0.2	-1.1	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 3 [W]	S73 R/W	SFR	1	64.9	**65.1**	63.7	62.5	+0.2	-1.2	-2.4	**7**	--	--	**63**	--	--	2	--	--	**10**	--	--	60	--	--	**5**	--	--	--	--	--	--	--
R 4 [W]		SFR	3	52.0	51.9	50.9	49.8	-0.1	-1.1	-2.2	7	--	--	52	--	--	0	--	--	10	--	--	51	--	--	1	--	--	--	--	--	--	--
R 5 [W]		SFR	1	63.4	63.6	62.8	61.2	+0.2	-0.6	-2.2	7	--	--	63	--	--	1	--	--	10	--	--	59	--	--	**5**	--	--	--	--	--	--	--
R 6 [W]	--	SFR	1	63.7	63.9	63.1	61.5	+0.2	-0.6	-2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 7 [W]		SFR	1	55.5	55.3	54.6	53.2	-0.2	-0.9	-2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 8 [W]		SFR	1	64.4	64.5	63.6	62.0	+0.1	-0.8	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 9 [W]	--	SFR	1	63.2	60.2	59.4	57.9	-3.0	-3.8	-5.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 9A [LT1/CAL]	--	SFR	1	60.6	58.9	58.0	56.6	-1.7	-2.6	-4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 10		SFR	1	58.0	57.6	56.7	55.4	-0.4	-1.3	-2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 11 [W]		SFR	1	56.5	56.5	55.7	54.3	0.0	-0.8	-2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 12 [W]		SFR	2	56.0	56.2	55.5	54.2	+0.2	-0.5	-1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

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Table D-4. Noise Abatement Analysis for Different Cruise Speeds: OGAC Pavement (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																								CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																						
											Barrier Design A[6]									Barrier Design B[7]												
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB						
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 13 X	--	SFR	1	70.1	**70.7**	69.6	68.5	+0.6	-0.5	-1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 14		SFR	1	56.6	57.0	56.2	55.5	+0.4	-0.4	-1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 15	--	PLG[S]	1	55.7	55.8	54.7	53.7	+0.1	-1.0	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 16		PLG[S]	3	61.7	61.8	60.7	59.6	+0.1	-1.0	-2.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 17		PLG[S]	8	63.3	63.2	61.9	60.8	-0.1	-1.4	-2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 18	S147 R/W	SFR	1	57.2	58.4	57.2	56.2	+1.2	0.0	-1.0	9	8	--	57	56	--	1	1	--	6	6	--	57	56	--	1	1	--	--	--	--	--	--	--
R 19		SFR	1	70.0	**71.4**	**70.0**	68.8	+1.4	0.0	-1.2	**9**	**8**	--	**64**	**64**	--	7	6	--	**6**	**6**	--	66	65	--	**5**	**5**	--	--	--	--	--	--	--
R 20	S151 R/W	SCH	1	58.8	60.6	59.3	58.3	+1.8	+0.5	-0.5	**6**	6	--	**58**	57	--	3	2	--	9	6	--	58	57	--	3	2	--	--	--	--	--	--	--
R 21		CHR	1	63.8	**65.5**	64.1	63.0	+1.7	+0.3	-0.8	**6**	**6**	--	**62**	**61**	--	4	3	--	**9**	6	--	61	59	--	**5**	5	--	--	--	--	--	--	--
R 22 X		SFR	1	72.6	**74.4**	**72.9**	71.6	+1.8	+0.3	-1.0	**6**	**6**	--	69	67	--	5	6	--	**9**	**6**	--	68	66	--	**6**	**7**	--	--	--	--	--	--	--
R 23 X	--	SFR	2	67.0	**67.0**	65.6	64.4	0.0	-1.4	-2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 24 Z		SFR	1	54.4	54.9	53.8	52.7	+0.5	-0.6	-1.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 25 X,W		SFR	1	64.0	64.5	63.1	62.0	+0.5	-0.9	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																						
											Barrier Design A[6]									Barrier Design B[7]												
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB						
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 26	--	SFR	2	67.7	67.6	66.5	65.0	-0.1	-1.2	-2.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 27 X	--	SFR	1	68.7	67.8	66.8	65.3	-0.9	-1.9	-3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 28 X,W		SFR	1	66.2	66.2	65.3	64.8	0.0	-0.9	-1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 29 LT2/CAL	S223 R/W	SFR	1	71.3	**71.4**	70.4	68.8	+0.1	-0.9	-2.5	**8**	**--**	**--**	**63**	**--**	**--**	8	--	--	**6**	**--**	**--**	65	**--**	--	**6**	**--**	**--**	--	--	--	--	--	--
R 30 X		SFR	2	69.0	68.9	67.9	66.4	-0.1	-1.1	-2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 31 X		SFR	2	70.0	69.9	68.7	67.2	-0.1	-1.3	-2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 32 *		SFR	3	60.1	59.8	58.6	57.5	-0.3	-1.5	-2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 33 Z		SFR	1	70.3	69.5	68.1	66.8	-0.8	-2.2	-3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 34 X	--	SFR	4	70.0	68.9	67.5	66.2	-1.1	-2.5	-3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 35 Z		SFR	1	70.4	69.3	67.9	66.6	-1.1	-2.5	-3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 36 Y		SFR	3	70.0	68.7	67.3	66.1	-1.3	-2.7	-3.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 37 X		SFR	1	70.5	69.5	68.1	66.8	-1.0	-2.4	-3.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 38 X		SFR	4	69.9	68.6	67.2	65.9	-1.3	-2.7	-4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-4. Noise Abatement Analysis for Different Cruise Speeds: OGAC Pavement (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																						CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																					
											Barrier Design A[6]									Barrier Design B[7]											
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB					
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 39 Z		SFR	1	70.2	68.9	67.5	66.3	-1.3	-2.7	-3.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 40 X		SFR	5	70.0	69.7	68.4	67.1	-0.3	-1.6	-2.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 41 X		SFR	4	70.0	**70.2**	68.8	67.5	+0.2	-1.2	-2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	--	26	--	--
R 42 X		SFR	3	70.1	**70.2**	68.8	67.5	+0.1	-1.3	-2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 43 X		SFR	1	70.0	**70.5**	69.1	67.8	+0.5	-0.9	-2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	--	26	--	--
R 44 Y		SFR	3	61.4	60.9	59.9	58.5	-0.5	-1.5	-2.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 45 X	--	SCH	1	66.6	66.2	65.2	63.6	-0.4	-1.4	-3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 46 X*		PLY	1	58.8	58.7	57.8	56.5	-0.1	-1.0	-2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 47 X		SFR	4	67.5	**67.6**	66.5	65.0	+0.1	-1.0	-2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	--	@	--	--
R 48 X		SFR	2	66.6	**66.8**	65.7	64.6	+0.2	-0.9	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	--	@	--	--
R 49 X		SFR	1	66.5	**66.8**	65.8	64.5	+0.3	-0.7	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	--	@	--	--
R 50 X		SFR	2	67.2	**68.3**	67.2	65.7	+1.1	0.0	-1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	--	@	--	--
R 51 Y		SFR	1	55.0	55.8	54.9	53.8	+0.8	-0.1	-1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-4. Noise Abatement Analysis for Different Cruise Speeds: OGAC Pavement (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																								CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																						
											Barrier Design A[6]									Barrier Design B[7]												
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB						
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 52 X	--	SFR	1	65.4	**66.2**	64.9	63.7	+0.8	-0.5	-1.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 53	--	SFR	1	67.8	66.8	65.6	64.2	-1.0	-2.2	-3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 54	S80 R/W	SFR	1	67.6	**66.5**	65.4	64.0	-1.1	-2.2	-3.6	**6**	**--**	**--**	**62**	**--**	**--**	5	--	--	**6**	**--**	**--**	62	--	--	**5**	**--**	**--**	--	--	--	--	--	--
R 55		SFR	1	56.2	56.1	54.2	52.8	-0.1	-2.0	-3.4	6	--	--	54	--	--	2	--	--	6	--	--	54	--	--	2	--	--	--	--	--	--	--	--
R 56		SFR	--[10]	67.4	**67.4**	65.2	63.8	0.0	-2.2	-3.6	**6**	**--**	**--**	**61**	**--**	**--**	6	--	--	**6**	**--**	**--**	61	--	--	**6**	**--**	**--**	--	--	--	--	--	--
R 57 X	--	SFR	1	70.0	**70.0**	68.9	67.8	0.0	-1.1	-2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 58 Y		SFR	1	57.7	58.5	57.6	56.8	+0.8	-0.1	-0.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 59	S114 R/W	SFR	1	70.1	**70.4**	69.2	68.1	+0.3	-0.9	-2.0	**12**	**--**	**--**	**64**	**--**	**--**	6	--	--	**9**	**--**	**--**	65	--	--	**5**	**--**	**--**	--	--	--	--	--	--
R 60 Y	--	SFR	1	60.2	61.3	60.3	59.3	+1.1	+0.1	-0.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 61 Y		SFR	1	57.3	58.0	57.1	56.2	+0.7	-0.2	-1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 62	--	SFR	1	59.2	59.4	58.4	57.5	+0.2	-0.8	-1.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 63		SFR	1	65.6	65.2	64.1	63.0	-0.4	-1.5	-2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 64 W	--	SFR	1	66.1	65.8	64.8	63.7	-0.3	-1.3	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 65 Z	--	SFR	6	58.3	59.1	57.8	56.8	+0.8	-0.5	-1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

10 - R56 represents the same residential unit as R54. The applicable dwelling unit is accounted for with R54.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-4. Noise Abatement Analysis for Different Cruise Speeds: OGAC Pavement (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																						CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																						
											Barrier Design A[6]									Barrier Design B[7]												
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB						
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 66 W	S148 R/W	SFR	1	67.1	**68.2**	66.9	65.7	+1.1	-0.2	-1.4	**8**	--	--	**64**	--	--	4	--	--	**9**	--	--	63	--	--	**5**	**--**	**--**	--	--	--	--	--	--
R 67 X	--	SFR	1	67.9	**69.1**	67.8	66.5	+1.2	-0.1	-1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 68 Z		SFR	1	68.5	**69.0**	67.7	66.5	+0.5	-0.8	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 69	--	SFR	1	66.3	65.6	64.5	63.1	-0.7	-1.8	-3.2	**--**	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	--	--
R 70	--	SFR	1	62.4	62.2	61.2	59.9	-0.2	-1.2	-2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 71	--	SFR	2	69.6	68.7	67.5	66.2	-0.9	-2.1	-3.4	**--**	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	--	--
R 72	--	SFR	2	59.3	59.8	58.8	57.5	+0.5	-0.5	-1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 73 W	S226 R/W	SFR	3	64.8	64.6	63.6	62.3	-0.2	-1.2	-2.5	8	--	--	63	--	--	2	--	--	12	--	--	61	--	--	**4**	--	--	--	--	--	--	--	--
R 74 W		SFR	1	58.9	58.0	57.2	55.8	-0.9	-1.7	-3.1	8	--	--	58	--	--	0	--	--	12	--	--	58	--	--	**0**	--	--	--	--	--	--	--	--
R 75 W		SFR	2	52.6	52.0	51.4	50.1	-0.6	-1.2	-2.5	8	--	--	53	--	--	0	--	--	12	--	--	53	--	--	**0**	--	--	--	--	--	--	--	--
R 76 W		SFR	13	57.6	57.5	56.7	55.4	-0.1	-0.9	-2.2	8	--	--	58	--	--	0	--	--	12	--	--	57	--	--	**1**	--	--	--	--	--	--	--	--
R 77 W		SFR	5	64.9	**65.1**	64.1	62.8	+0.2	-0.8	-2.1	**8**	--	--	**63**	--	--	2	--	--	**12**	--	--	60	--	--	**5**	--	--	--	--	--	--	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

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Table D-4. Noise Abatement Analysis for Different Cruise Speeds: OGAC Pavement (cont'd)

Receiver I.D.[1]	Barrier I.D. and Location	Land Use[2]	Number of Dwelling Units	Design Year Without Project[3]	Noise Levels In Outdoor Activity Areas With Project																						CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																						
											Barrier Design A[6]									Barrier Design B[7]												
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB						
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 78 W,*		SFR	4	53.9	53.6	53.0	51.9	-0.3	-0.9	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 79 W	--	SFR	5	63.9	64.3	63.3	62.1	+0.4	-0.6	-1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 80 W		SFR	3	63.7	63.9	63.0	61.9	+0.2	-0.7	-1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 81	--	SFR	1	65.7	64.2	63.2	62.1	-1.5	-2.5	-3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 82 X		SFR	2	67.5	**68.2**	67.0	65.6	+0.7	-0.5	-1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 83 X		SFR	4	67.6	**68.9**	67.6	66.3	+1.3	0.0	-1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 84 X		SFR	4	67.6	**68.3**	67.0	65.8	+0.7	-0.6	-1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 85 X		SFR	4	67.3	**68.1**	66.9	65.6	+0.8	-0.4	-1.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--
R 86 Y,*	--	SFR	3	58.6	59.0	57.8	56.7	+0.4	-0.8	-1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 87 W,*		SFR	1	57.5	57.6	56.4	55.5	+0.1	-1.1	-2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 88 W,*		SFR	1	60.1	60.0	58.8	57.8	-0.1	-1.3	-2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 89 X		SFR	1	68.4	**68.7**	67.4	66.2	+0.3	-1.0	-2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	@	--	--

Notes:

1 - STxx or LTxx - measurement site number; CAL - Calibration site.

2 - Land Use: SFR - single-family residence; CHR - Church; SCH - School; PLG - Playgrounds, recreational/sports fields.

3 - Noise levels in these columns are reported to a precision of 0.1 dBA to more clearly distinguish whether or not predicted noise levels are expected to increase between Without Project and With Project conditions. The accuracy of the absolute noise level predictions shown here is not as fine as one tenth of a decibel.

4 - The City's currently-adopted General Plan Noise Element establishes an CNEL of 65 dBA as the exterior noise standard for residential development, the facades of classrooms, and park uses.

5 - The minimum barrier height considered was 6 feet or 2 feet taller than the existing property wall (if applicable), whichever is higher. The maximum barrier height considered is 12 feet.

6 - Design A was only considered where one or more receivers were predicted to experience a Community Noise Equivalent Level (CNEL) of 65 dBA or higher under Design Year With Project conditions. It represents the minimum height required to reduce outdoor traffic noise exposure to a CNEL below 65 dBA at as many of the receivers exposed to those impacts as possible.

7 - Design B represents the minimum height required to provide five or more decibels of reduction in traffic noise exposure at all impacted receivers where such reduction is possible.

8 - In many cases, receivers selected to represent outdoor activity areas are set back a different distance from the roadway than the buildings themselves. Where outdoor impacts have been identified under one or more cruise speed scenarios and where the adequacy of noise reduction could be an issue for one or more of those scenarios, CNEL values predicted at the building facade are presented here. These are the appropriate values to use in computing the minimum OILR.

9 - It has been assumed that the Ranchero-Rd.-facing facades of buildings will provide at least 25 dB of outdoor to indoor noise level reduction (OILR) for older homes and at least 30 dB of OILR for newer homes. Therefore, values are reported in these columns only if the minimum required OILR is above these assumed levels.

* - Intervening building structures substantially obstruct line of sight to Ranchero Road. @ - OILR requirement is assumed to be met.

I.L. - Insertion Loss. W - Existing private property wall or soundwall. X - Represented land use depends upon Ranchero Road for vehicular access.

S - These receivers are located within school property. However, abatement is not warranted at these sports fields. The actual school classrooms are set much further back from the Ranchero Road, and would not be exposed to significant noise impacts.

Y - Adjacent/intervening driveways would inhibit feasibility of sound walls within existing/future City right-of-way.

Z - To be feasible, a soundwall would need to extend along the boundary of adjacent undeveloped property. However, the undeveloped property would depend upon vehicular access to Ranchero Road to remain viable.

Table D-4. Noise Abatement Analysis for Different Cruise Speeds: OGAC Pavement (cont'd)

Receiver I.D. [1]	Barrier I.D. and Location	Land Use [2]	Number of Dwelling Units	Design Year Without Project [3]	Noise Levels In Outdoor Activity Areas With Project																						CNEL at Selected Building Façades With Project (Without Barrier), dBA[8]			Minimum Outdoor to Indoor Level Reduction (OILR) to Avoid Interior Impact, dB[9]		
					CNEL Without Barrier, dBA[3,4]			Difference from Future No Project Conditions CNEL, dBA[3]			Noise Prediction with Barrier[5]																					
											Barrier Design A[6]									Barrier Design B[7]											
											Height, ft			CNEL, dBA			Insertion Loss, dB			Height, ft			CNEL, dBA			Insertion Loss, dB					
					50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph	50 mph	45 mph	40 mph
R 90 W	S284 R/W	SFR	1	68.0	**69.1**	67.9	66.7	+1.1	-0.1	-1.3	**9**	--	--	**63**	--	--	6	--	--	**10**	--	--	62	61	62	**7**	--	--	--	--	--	--	--	--
R 91 W,LT3/CAL		SFR	2	66.5	**67.2**	66.0	64.9	+0.7	-0.5	-1.6	**9**	--	--	**63**	--	--	4	--	--	**10**	--	--	62	61	63	**5**	--	--	--	--	--	--	--	--
R 92 W	S288 R/W	SFR	1	70.1	**71.4**	**70.1**	68.8	+1.3	0.0	-1.3	**10**	**9**	--	**63**	**64**	--	8	6	--	**8**	**8**	--	66	64	--	**5**	**6**	--	--	--	--	--	--	--
R 93 W	S292 R/W	SFR	1	69.6	**70.9**	**69.6**	68.4	+1.3	0.0	-1.2	**10**	**9**	--	**64**	**63**	--	7	7	--	**8**	**8**	--	66	65	--	**5**	**5**	--	--	--	--	--	--	--
R 93A W		SFR	2	66.2	**66.5**	**65.2**	64.0	+0.3	-1.0	-2.2	**10**	**9**	--	**60**	**59**	--	7	6	--	**8**	**8**	--	61	60	--	**6**	**5**	--	--	--	--	--	--	--
R 94 W		SFR	4	63.5	63.3	62.1	61.0	-0.2	-1.4	-2.5	**--**	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	--	--	--
R 95 W		SFR	4	62.9	62.3	61.2	60.1	-0.6	-1.7	-2.8	**--**	**--**	--	**--**	**--**	--	--	--	--	**--**	**--**	--	**--**	**--**	--	**--**	**--**	--	--	--	--	--	--	--
R 96 W		SFR	3	53.4	53.0	52.1	51.1	-0.4	-1.3	-2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 97 W	S306 R/W	SFR	1	57.3	56.7	55.9	54.5	-0.6	-1.4	-2.8	7	--	--	56	--	--	1	--	--	8	--	--	55	--	--	2	--	--	--	--	--	--	--	--
R 98 W		SFR	1	61.4	60.7	59.7	58.3	-0.7	-1.7	-3.1	7	**--**	--	59	**--**	--	2	--	--	8	**--**	--	59	**--**	--	2	--	--	--	--	--	--	--	--
R 99 W		SFR	1	67.3	**67.6**	66.5	65.1	+0.3	-0.8	-2.2	**7**	--	**--**	**64**	--	**--**	4	--	--	**8**	--	--	63	--	--	**5**	**--**	--	--	--	--	--	--	--
R 100 W	--	SFR	4	66.2	66.0	65.0	63.6	-0.2	-1.2	-2.6	**--**	--	**--**	--	--	**--**	--	--	--	**--**	--	--	--	--	--	**--**	**--**	--	--	--	--	--	--	--
R 101 W		SFR	3	66.1	65.7	64.7	63.4	-0.4	-1.4	-2.7	**--**	**--**	**--**	**--**	**--**	**--**	--	--	--	**--**	**--**	--	**--**	**--**	--	**--**	**--**	--	--	--	--	--	--	--
R 102 W		SFR	1	66.1	65.8	64.8	63.5	-0.3	-1.3	-2.6	**--**	--	**--**	--	--	**--**	--	--	--	**--**	--	--	--	--	--	**--**	--	--	--	--	--	--	--	--
R 103 W	--	SFR	1	63.2	62.8	61.8	60.8	-0.4	-1.4	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R 104	--	SFR	1	57.0	57.1	56.2	54.9	+0.1	-0.8	-2.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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