

C. NOISE ASSESSMENT

NOISE IMPACT ANALYSIS

WILLOW ROAD EXTENSION/U.S. 101 INTERCHANGE PROJECT

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I. EXECUTIVE SUMMARY

The County of San Luis Obispo (County) proposes to construct the extension of Willow Road and connect it with U.S. Route 101 (US 101) in the community of Nipomo, south San Luis Obispo County. The proposed project includes the extension of Willow Road east from its existing terminus approximately 1000 feet west of Pomeroy Road to Thompson Avenue, construction of a frontage road between Willow Road and Sanddydale Drive, and construction of a new US 101/Willow Road interchange between postmile (PM) 5.75 and PM 6.0. The County is the lead agency for environmental approval under the California Environmental Quality Act (CEQA).

Short-term noise levels were measured at five representative locations to document the existing noise environment. Twenty-two representative existing sensitive receptors were evaluated for potential noise impacts resulting from the proposed project. The results of the existing noise levels are shown in Table ES-A.

Table ES-A: Existing Traffic Noise Level, L_{eq} , dBA L_{dn}

Rec #	Location	Type of Development	# of Units Represented	Existing Noise Level
R-1	Misty Glen Place	Residential	1	58
R-2	Pomeroy Road	Residential	1	50
R-3	Pomeroy Road	Residential	1	50
R-4	Pomeroy Road	Residential	1	50
R-5	Pomeroy Road	Residential	1	50
R-6	Pomeroy Road	Residential	1	50
R-7	Pomeroy Road	Residential	1	50
R-8	Willow Road	Residential	1	42
R-9	Willow Road	Residential	1	42
R-10	Cherokee Place	Residential	1	42
R-11	Cherokee Place	Residential	1	42
R-12	Cherokee Place	Residential	1	42
R-13	Cherokee Place	Residential	1	42
R-14	Cherokee Place	Residential	1	42
R-15	Cherokee Place	Residential	1	42
R-16	Cherokee Place	Residential	1	42
R-17	Cherokee Place	Residential	1	42
R-18	Cherokee Place	Residential	1	42
R-19	Thompson Avenue	Residential	1	55
R-20	Willow Road	Residential	1	42
R-21	Willow Road	Residential	1	42
R-22	Cherokee Place	Residential	1	42

Source: LSA Associates, Inc. 2003.

When traffic noise impacts have been identified, noise abatement measures must be considered. Traffic noise impacts result from exceeding the 60 L_{dn} noise level standard or a project-related increase of 3 dBA or more over the corresponding existing level when the existing level already exceeds the noise level standard. Implementation of the proposed interchange improvement project would result in potential short-term noise impacts during construction and long-term noise impacts from use of the completed project. As traffic noise from US 101 was not audible at any of the modeled receptor locations, it was not included in the future with project noise model. All future noise impacts are the result of traffic on the existing and proposed local roadways and highway ramps. Of the 22 receptor locations that were modeled in the project area, 10 receptor locations would exceed San Luis Obispo County noise standards. Projected noise levels at each receptor location are shown in Table ES-B.

Table ES-B: Projected Noise Levels, L_{eq}, dBA L_{dn}

Rec #	Location	Existing Noise Level	Future With Project	Change from Existing Level
R-1	Misty Glen Place	58	64¹	6
R-2	Pomeroy Road	50	65	15
R-3	Pomeroy Road	50	61	11
R-4	Pomeroy Road	50	63	13
R-5	Pomeroy Road	50	64	14
R-6	Pomeroy Road	50	61	11
R-7	Pomeroy Road	50	69	19
R-8	Willow Road	42	66	24
R-9	Willow Road	42	62	20
R-10	Cherokee Place	42	56	14
R-11	Cherokee Place	42	52	10
R-12	Cherokee Place	42	60	18
R-13	Cherokee Place	42	53	11
R-14	Cherokee Place	42	53	11
R-15	Cherokee Place	42	61	19
R-16	Cherokee Place	42	59	17
R-17	Cherokee Place	42	57	15
R-18	Cherokee Place	42	54	12
R-19	Thompson Avenue	55	57	2
R-20	Willow Road	42	52	10
R-21	Willow Road	42	53	11
R-22	Cherokee Place	42	56	14

Source: LSA Associates, Inc. 2003.

Noise abatement measures were evaluated for all receptors that would be or would continue to be exposed to traffic noise exceeding the San Luis Obispo County exterior noise standards. Sound walls have been evaluated to reduce the noise levels at these receptor locations. From the results of this

¹ Numbers in bold represent noise levels exceeding the County's exterior noise standard of 60 dBA.

modeling, sound walls were evaluated at three locations along the project alignment. Of the 10 receptor locations that would be exposed to noise levels exceeding the County's exterior noise standards, the evaluation of sound barriers at 7 receptor locations were not feasible due to property access onto Willow Road.

The results of the sound barrier modeling are shown in Table ES-C. Of the 10 receptor locations that would exceed the County's exterior noise standard, sound barriers were evaluated at 3 receptor locations. Of the 3 receptor locations evaluated for sound barriers, all can feasibly reduce noise levels to below that County's exterior noise standard. Table ES-D lists the required sound barriers and barrier heights.

Construction of the proposed project would result in potentially high short-term, intermittent noise levels reaching 91 dBA L_{max} at existing residences immediately adjacent to the proposed project. Limiting construction activities to the hours between 7:00 a.m. and 9:00 p.m. on Monday through Friday and 9 a.m. to 5 p.m. on Saturdays and Sundays would reduce the exposure to construction noise impacts.

Table ES-C: Sound Barrier Modeling, L_{eq} , dBA L_{dn} (See Figure 3)

Rec #	Future Build (L_{eq} , dBA L_{dn})	SW #	With Wall H = 6' (1.8 m)		With Wall H = 8' (2.4 m)		With Wall H = 10' (3.05 m)		With Wall H = 12' (3.7 m)		With Wall H = 14' (4.3 m)		With Wall H = 16' (4.9 m)	
			L_{eq}	I.L. ¹	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
R-1	64 ²	SW #1	62	2	61	3	59	5	59	5	58	6	58	6
R-2	65	None	65	0	65	0	65	0	65	0	65	0	65	0
R-3	61	None	61	0	61	0	61	0	61	0	61	0	61	0
R-4	63	None	63	0	63	0	63	0	63	0	63	0	63	0
R-5	64	None	64	0	64	0	64	0	64	0	64	0	64	0
R-6	61	None	61	0	61	0	61	0	61	0	61	0	61	0
R-7	69	None	69	0	69	0	69	0	69	0	69	0	69	0
R-8	66	SW #2	62	4	60	6	59	7	58	8	57	9	57	9
R-9	62	None	62	0	62	0	62	0	62	0	62	0	62	0
R-10	56	None	56	0	56	0	56	0	56	0	56	0	56	0
R-11	52	None	52	0	52	0	52	0	52	0	52	0	52	0
R-12	60	None	60	0	60	0	60	0	60	0	60	0	60	0
R-13	53	None	53	0	53	0	53	0	53	0	53	0	53	0
R-14	53	None	53	0	53	0	53	0	53	0	53	0	53	0
R-15	61	SW #3	59	2	57	4	56	5	55	6	54	7	53	8
R-16	59	None	59	0	59	0	59	0	59	0	59	0	59	0
R-17	57	None	57	0	57	0	57	0	57	0	57	0	57	0
R-18	54	None	54	0	54	0	54	0	54	0	54	0	54	0
R-19	57	None	57	0	57	0	57	0	57	0	57	0	57	0
R-20	52	None	52	0	52	0	52	0	52	0	52	0	52	0
R-21	53	None	53	0	53	0	53	0	53	0	53	0	53	0
R-22	56	None	56	0	56	0	56	0	55	1	55	1	55	1

Source: LSA Associates, Inc. 2003

¹ I.L.: Insertion Loss.

² Numbers in bold represent noise levels exceeding the San Luis Obispo County noise standards of 60 dBA.

Table ES-D: Required Sound Barriers (see Figure 3)

SW #	Benefited Receptors	Wall Height m (ft)
SW # 1	R-1	3.05 (10)
SW #2	R-8	2.4 (8)
SW #3	R-15	3.05 (10)

Source: LSA Associates, Inc. 2003

II. NOISE IMPACT TECHNICAL REPORT

A. INTRODUCTION

The County of San Luis Obispo (County) proposes to construct the extension of Willow Road and connect it with U.S. Route 101 (US 101) in the community of Nipomo, south San Luis Obispo County. The proposed project includes the extension of Willow Road east from its existing terminus approximately 500 feet west of Pomeroy Road to Thompson Avenue, construction of a frontage road between Willow Road and Sandydale Drive, and construction of a new US 101/Willow Road interchange between postmile (PM) 5.75 and PM 6.0. The County will be the Lead Agency for environmental approval under the California Environmental Quality Act (CEQA). The proposed project's regional location and project vicinity are shown in Figure 1. The description of the existing condition (No Project/No Build Alternative) and the conceptual improvement plans for the proposed project are provided in Appendix A.

Funding sources for the extension of Willow Road and the frontage road include local development fees and other local monies. Planned funding sources for the construction of the interchange include local development fees, other local monies, and State Transportation Improvement Program (STIP) funds. The proposed extension of Willow Road and the interchange are identified in the San Luis Obispo Council of Government's (SLOCOG) Regional Transportation Plan (RTP) as a major proposed short-term project and in the Circulation Element of the County General Plan and the 1994/1995 South County Circulation Study.¹ The Willow Road interchange is listed in SLOCOG's Regional Transportation Improvement Program (RTIP) (Project ID #4745).

Goals and Objectives

The primary goal of the proposed project is to provide a new direct connection between State Route 1 (SR-1) and US 101. In doing so, the proposed project will also achieve the following objectives:

- Relieve traffic congestion in order to improve traffic flow and levels of service (LOS) at the US 101 interchanges at Tefft Street and Los Berros Road;
- Provide circulation improvements to support planned land uses as identified in the South County Area Plan;
- Reduce future traffic levels on Los Berros Road, West Tefft Street, and Pomeroy Road;
- Reduce travel length and time in the Nipomo area;
- Reduce the need for major modification of the US 101/Tefft Street and Los Berros-Thompson Road interchanges;

¹ Willow Road Extension Draft EIR, pg. V-24, March 1999.

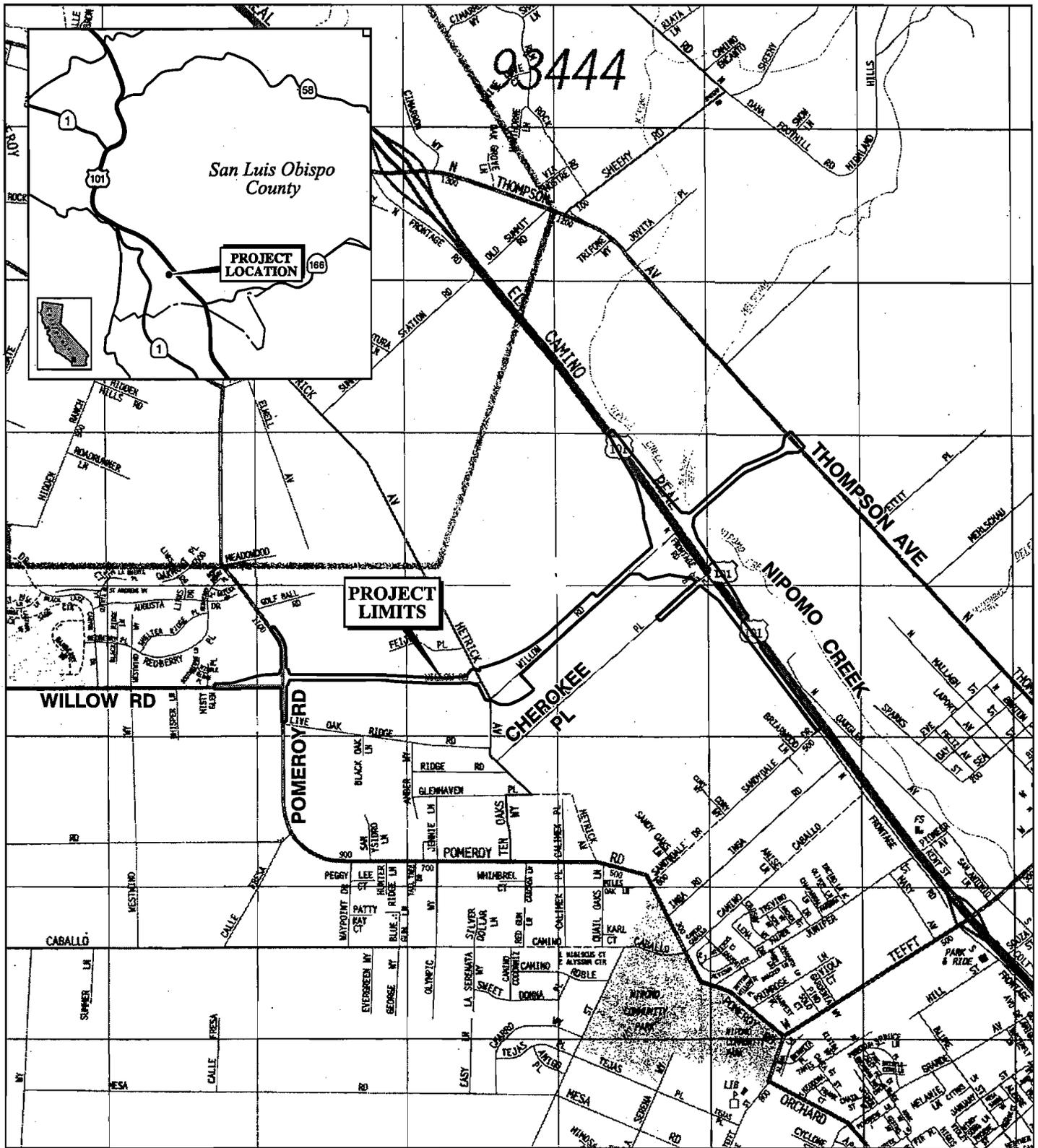


FIGURE 1

LSA



SOURCE: THE THOMAS GUIDE

Willow Road Extension/U.S. 101 Interchange
Project Location

- Improve traffic safety by diverting future traffic from nonstandard County roadways to a full standard roadway;
- Provide enhanced emergency access to the residents and businesses of the Nipomo area through the provision of an alternative east-west access and a connection to US 101; and
- Provide a new recreational trail from Thompson Avenue to SR-1, improving access to the coastal zone.

The proposed project is needed to accommodate the projected population growth in the Nipomo area. The Nipomo area is served by three existing interchanges on US 101, including Los Berros-Thompson Road, Tefft Street, and Hutton Road (State Route 166 [SR-166]). Over the past decade, traffic modeling of the Nipomo area has shown that the existing Tefft Street interchange is and will continue to be inadequate to serve projected development during peak traffic periods, subjecting the public to recurring congestion and delay as well as increasing traffic on the existing local street network. Of the three existing interchanges, only the Tefft Street interchange is located centrally to existing and planned developments. Los Berros-Thompson Road and Hutton Road (SR-166) are relatively remote to serve area traffic, and the existing street network does not provide direct connections to any of the three existing interchanges.

The proposed project will allow the County to concentrate limited funds on providing a transportation improvement that will lessen the impacts to the existing roadway network as the area continues to develop. The new link between US 101 west to the Black Lake-Calendar area will provide substantial benefits in local traffic circulation, including a reduction in future vehicle miles traveled on the Nipomo Mesa and reduced traffic loads on nonstandard roadways. The improvement will also provide a direct route to several developed or approved Specific Plans in south County, such as Cypress Ridge, Black Lake, and Woodlands.

B. PROJECT DESCRIPTION

No Project/No Build Alternative

No improvements to the existing roadway network would be made as part of the No Project/No Build Alternative other than routine roadway maintenance within the project area. The No Project/No Build Alternative assumes implementation of other improvements identified in the 1994/1995 South County Circulation Study.

Proposed Project

Extension of Willow Road. The proposed extension of Willow Road begins approximately 1,000 feet west of Pomeroy Road, running east and northeast approximately 2.5 miles to its termination at Thompson Road, located east of US 101. The Willow Road extension will be a two-lane roadway (one lane in each direction) within a 100-foot right-of-way to accommodate a 40-foot-wide roadway with two 12-foot travel lanes, a 14-foot-wide center turn (auxiliary) lane in selected areas, two 8-foot shoulders, and an 8-foot area set aside for a future equestrian path.

Local access to the proposed Willow Road extension will be via local roadways and limited driveway access. A center turn (auxiliary) lane will be provided at the intersections with Pomeroy Road, Hetrick Avenue, Thompson Road, the proposed frontage road west of US 101, and the proposed US 101/Willow Road interchange ramps. Based upon future project traffic generation from the build out of the area's land use plan, the roadway is expected to carry over 15,000 trips per day and will have a minimum design speed of 55 miles per hour. No substantive changes to the configuration of the existing segments of Willow Road are anticipated except at its connection with Hetrick Road. Improvements planned for Pomeroy Road where it intersects with Willow Road include widening of Pomeroy (both the north and south legs of the intersection) to accommodate left turn lanes, two travel lanes, and shoulders on both sides of the road. The left turn segment of each leg will be approximately 250 feet in length. A two-lane bridge is proposed to be constructed at the crossing of Willow Road over Nipomo Creek, east of US 101.

US 101/Willow Road Interchange. An interchange is proposed where the extension of Willow Road would cross US 101, between US 101 Post Mile (PM) 5.75 and PM 6.0. The interchange will be constructed as an undercrossing and includes the construction of two two-lane concrete bridges to carry northbound and southbound US 101 traffic over Willow Road, approach slabs, and on- and off-ramps. The interchange will be constructed to accommodate any future widening of US 101 to six lanes and Willow Road to four lanes, as well as the 8 foot set-aside for a future equestrian trail.

Frontage Road. The proposed frontage road, with a 60 foot right-of-way, between Willow Road and Sandydale Drive is proposed to be located adjacent to the US 101 right-of-way. The new 0.8-mile roadway will be located within a 60-foot right-of-way to accommodate a 40-foot-wide two-lane roadway with two 12-foot travel lanes and two 8-foot bicycle lanes.

Park and Ride Facility. The southwest quadrant of the future interchange at US 101/Willow Road, outside of the southbound on-ramp is the proposed location for a future park and ride facility. The park and ride would provide approximately 50 spaces and will include a bus dropoff area and bicycle racks.

Infiltration Basins. The proposed extension of Willow Road will add an additional 2.5 miles of roadway between Pomeroy Road and Thompson Road, in addition to 0.8 mile of frontage road between the new extension of Willow Road and Sandydale Drive. This new roadway will not only add to the volume of runoff to the current drainage systems due to the imperviousness of the asphalt, but it will also essentially bisect natural drainage basins, thus causing a man-made barrier to natural runoff. The County dictates in its Standard Specifications Manual that all runoff caused by impervious bituminous asphalt must be routed into infiltration basins to ultimately be absorbed by the soil. The remaining natural runoff must be routed across the proposed roadway and is to continue downgrade on its current course. Infiltration basins will serve to capture and dispose of the natural runoff caused by precipitation on the new asphalt so as to not affect the natural drainage patterns.

Two separate basins along the Willow Road alignment are required to accommodate the increased runoff. Each basin has distinct design characteristics, and therefore each basin has a unique configuration. The depth of the infiltration basins will be up to two feet with 5:1 sideslopes.

Drainage swales will be provided along the extended segment of Willow Road, at the interchange, and at the frontage road north of Sandydale Drive. The swales will perform similar functions as detention basins. Buffer strips off the edge of pavement will be earthen and vegetated with native grasses. The native vegetation will be designed to capture the oils and fluids from the roadway surface runoff during storm events.

Cherokee Place. The project also includes the construction of Cherokee Place east for a distance of 1,000 feet to connect with the proposed frontage road west of US 101. Cherokee Place will be graded and paved to meet County standards. The proposed roadway is shown in Figure 1, Project Location.

C. FUNDAMENTALS OF TRAFFIC NOISE

The following is a brief discussion of fundamental traffic noise concepts. For a detailed discussion, refer to the Caltrans Technical Noise Supplement (California Department of Transportation 1998), which is available on the Caltrans Web site at www.dot.ca.gov/hq/env/noise.

Sound, Noise, and Acoustics

Sound is a disturbance created by a moving or vibrating source in a gaseous or liquid medium or the elastic stage of a solid, and is capable of being detected by the hearing organs. Sound may be thought of as the mechanical energy of a vibrating object transmitted by pressure waves through a medium to a hearing organ, such as a human ear. For traffic sound, the medium of concern is air. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired.

Sound is actually a process that consists of three components: the sound source, the sound path, and the sound receiver. All three components must be present for sound to exist. Without a source to produce sound, there is no sound. Likewise, without a medium to transmit sound pressure waves, there is also no sound. Finally, sound must be received; a hearing organ, sensor, or object must be present to perceive, register, or be affected by sound or noise. In most situations, there are many different sound sources, paths, and receptors rather than just one of each. Acoustics is the field of science that deals with the production, propagation, reception, effects, and control of sound.

Frequency and Hertz

A continuous sound can be described by its frequency (pitch) and its amplitude (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch, like the low notes on a piano, whereas high-frequency sounds are high in pitch, like the high notes on a piano. Frequency is expressed in terms of oscillations, or cycles, per second. Cycles per second are commonly referred to as Hertz (Hz). A frequency of 250 cycles per second is referred to as 250 Hz. High frequencies are sometimes more conveniently expressed in units of kilo-Hertz (kHz), or thousands of Hertz. The extreme range of frequencies that can be heard by the healthiest human ear spans from 16–20 Hz on the low end to about 20,000 Hz (or 20 kHz) on the high end.

Sound Pressure Levels and Decibels

The amplitude of a sound determines its loudness. Loudness of sound increases and decreases with increasing and decreasing amplitude. Sound pressure amplitude is measured in units of micro-Newton per square meter (N/m^2), also called micro-Pascal (μPa). One μPa is approximately one-hundred billionth (0.0000000001) of normal atmospheric pressure. The pressure of a very loud sound may be 200 million μPa , or 10 million times the pressure of the weakest audible sound (20 μPa). Because expressing sound levels in terms of μPa would be very cumbersome, sound pressure level (SPL) is used instead to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called bels, named after Alexander Graham Bell. To provide a finer resolution, a bel is subdivided into 10 decibels, abbreviated dB.

Addition of Decibels

Because decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces an SPL of 70 dBA as it passes an observer, two cars passing simultaneously would not produce 140 dBA; they would, in fact, combine to produce 73 dBA. When two sounds of equal SPL are combined, they will produce a combined SPL 3 dBA greater than the original individual SPL. In other words, sound energy must be doubled to produce a 3 dBA increase. If two sound levels differ by 10 dBA or more, the combined SPL is equal to the higher SPL; in other words, the lower sound level does not increase the higher sound level.

A-Weighted Decibels

Sound pressure level alone is not a reliable indicator of loudness. The frequency, or pitch, of a sound also has a substantial effect on how humans will respond. 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.

Human hearing is limited not only in the range of audible frequencies but also in the way it perceives the SPL in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound of higher or lower frequency with the same magnitude. To approximate the frequency response of the human ear, a series of SPL adjustments is usually applied to the sound measured by a sound level meter. The adjustments (referred to as a weighting network) are frequency dependent.

The A-scale 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-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-scale, C-scale, D-scale), but these scales are rarely, if ever, used in conjunction with highway traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted dBAs. In environmental noise studies, A-weighted SPLs are commonly referred to as noise levels. Table A shows typical A-weighted noise levels.

Human Response to Changes in Noise Levels

Under controlled conditions in an acoustics laboratory, the trained, healthy human ear is able to discern changes in sound levels of 1 dBA when exposed to steady, single-frequency signals in the midfrequency range. Outside such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise. It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA. A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as being twice or half as loud. As discussed above, a doubling of sound energy results in a 3 dBA increase in sound, which means that a doubling of sound energy (e.g., doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Table A: Typical Noise Levels

Common Outdoor Activities	Noise Level dBA	Common Indoor Activities
	—110—	Rock Band
Jet Flyover at 300 m (1000 ft)	—100—	
Gas Lawn Mower at 1 m (3 ft)	—90—	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	—80—	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	—70—	Vacuum Cleaner at 3 m (10 ft)
Heavy Traffic at 90 m (300 ft)	—60—	Normal Speech at 1 m (3 ft)
Quiet Urban, Daytime	—50—	Large Business Office Dishwasher Next Room
Quiet Urban, Nighttime Quiet Suburban, Nighttime	—40—	Theater, Large Conference Room (Background)
	—30—	Library
Quiet Rural Nighttime	—20—	Bedroom at Night, Concert Hall (Background)
	—10—	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, October 1998.

Noise Descriptors

Noise in the daily environment fluctuates over time. Some of the fluctuations are minor; some are substantial. Some noise levels occur in regular patterns; others are random. Some noise levels fluctuate rapidly, others slowly. Some noise levels vary widely; others are relatively constant. Various

noise descriptors have been developed to describe time-varying noise levels. The following is a list of 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. L_{eq} is, in effect, the steady-state sound level that, in a stated period, would contain the same acoustical energy as the time-varying sound that actually occurs during the same period. The one-hour A-weighted equivalent sound level, $L_{eq}(h)$, is the energy average of the A-weighted sound levels occurring during a one-hour period and is the basis for the NAC used by Caltrans and the Federal Highway Administration (FHWA).
- **Percentile-Exceeded Sound Level (L_x):** L_x represents the sound level exceeded for a given percentage of a specified period. For example, L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time.
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Sound Level (L_{dn}):** The U.S. Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA) have adopted the L_{dn} as their standard unit of measurement for noise levels. This measure increases the average noise level (L_{eq}) for late evening and early morning hours (10:00 p.m. to 7:00 a.m.) by 10 dBA. The daytime noise levels (7:01 a.m. to 9:59 p.m.) are then combined with these weighted levels and are averaged to obtain a 24-hour averaged noise level.

Sound Propagation

When sound propagates over a distance, it changes in both level and frequency content. The manner in which noise reduces with distance depends on the following factors.

Geometric Spreading. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of distance. Highway noise is not a single, stationary point source of sound. The movement of the vehicles on a highway makes the source of the sound appear to emanate from a line (i.e., a line source) rather than a point. This line source results in cylindrical spreading rather than the spherical spreading that results from a point source. The change in sound level from a line source is 3 dBA per doubling of distance.

Ground Absorption. Most often, the noise path between the highway and the observer is 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 done for simplification only; for distances of less than 60 meters (200 feet), prediction results based on this scheme are sufficiently accurate. For acoustically hard sites (i.e., those sites with a reflective surface, such as a parking lot or a smooth body of water, between the source and the receiver), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, between the source

and the receiver), an excess ground attenuation value of 1.5 dBA per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dBA per doubling of distance for a line source and 7.5 dBA per doubling of distance for a point source.

Atmospheric Effects. Research by Caltrans and others has shown that atmospheric conditions can have a significant effect on noise levels within 60 meters (200 feet) of a highway. Wind has been shown to be the most important meteorological factor within approximately 150 meters (500 feet) of the source, whereas vertical air temperature gradients are more important for greater distances. Other factors such as air temperature, humidity, and turbulence also have significant effects. Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lower noise levels. Increased sound levels can also occur as a result of temperature inversion conditions (i.e., increasing temperature with elevation).

Shielding by Natural and Human-Made Features. 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 this 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 dBA of noise reduction.

D. STATE AND COUNTY REGULATIONS

California Environmental Quality Act

The California Environmental Quality Act (CEQA) is the foundation of environmental law and policy in California. The main objectives of CEQA are to disclose to decision makers and the public the significant environmental effects of proposed activities and to identify ways to avoid or reduce those effects by requiring implementation of feasible alternatives or mitigation measures. Under CEQA, a substantial noise increase may result in a significant adverse environmental effect; if so, the noise increase must be mitigated or identified as a noise impact for which it is likely that only partial (or no) mitigation measures are available. Specific economic, social, environmental, legal, and technological conditions may make noise mitigation measures infeasible.

San Luis Obispo County Noise Standards

Noise Element of the County General Plan. The Noise Element of the County General Plan recommends for residential land uses an exterior noise standard of 60 dBA L_{dn} and an interior noise of 45 dBA L_{dn} .

County Code. The County code limits the hours of construction adjacent to residential or sensitive land uses between the hours of 7:00 a.m. to 9:00 p.m. on Monday through Friday and 9 a.m. to 5 p.m. on Saturdays and Sundays.

E. STUDY METHODS AND PROCEDURES

Site Selection

Developed and undeveloped land uses in the project vicinity were identified through land use maps, aerial photography, and site inspection. Within each land use category, sensitive receptors were then identified. Land uses in the project vicinity include single-family residential and two plant nurseries. The generalized land use data and location of particular sensitive receptors were the basis for the selection of the noise monitoring and analysis sites. A total of 22 receptor locations were modeled to represent residential land uses in the project vicinity. These modeled receptor locations are shown in Figure 2.

Noise Level Measurement Program

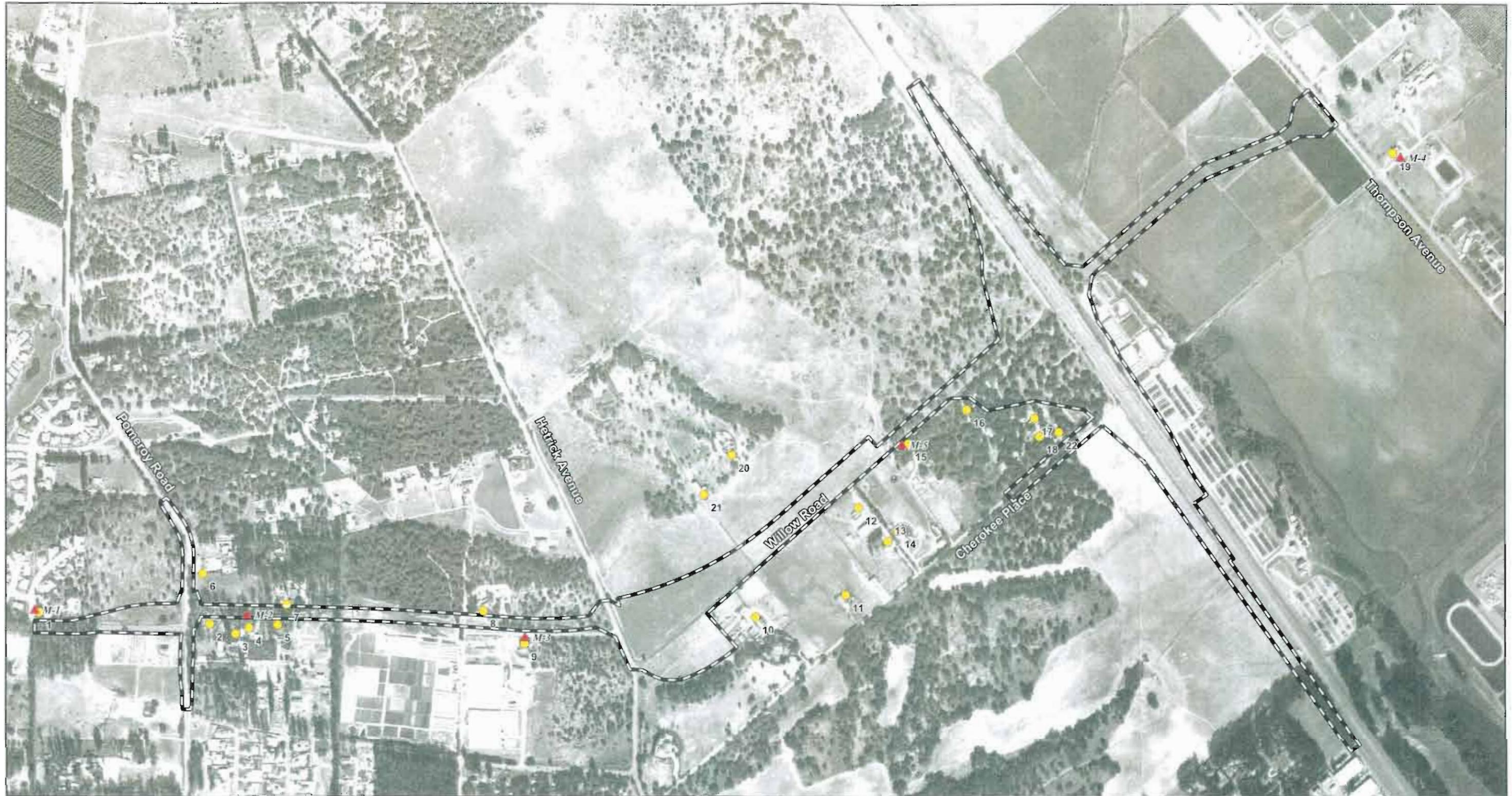
Existing noise levels in the project vicinity were sampled during off-peak traffic hours when traffic was flowing freely. All measurements were made using a Larson Davis Model 824 sound level meter.

The following measurement procedure was utilized:

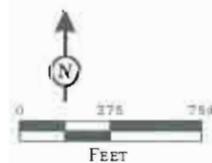
- Calibrate sound level meter.
- Set up sound level meter at a height of 1.5 m (5 ft).
- Commence noise monitoring.
- Collect site specific data such as date, time, direction of traffic, and distance from sound level meter to the right-of-way.
- Count passing vehicles for a period of 15 minutes. Vehicles were split into three categories: Heavy Trucks, Medium Trucks, and Automobiles.
- Stop measurement after 20 minutes.
- Calibrate sound level meter.
- Proceed to next monitoring site and repeat.

Noise Modeling

The future with project traffic noise level was modeled using Sound32. Sound32 is a program based on the FHWA STAMINA 2.0 Highway Traffic Noise Prediction Model and the methodology in the FHWA report, FHWA-RD-77-108. The program was fitted with the CALVENO noise emission levels for use on highway projects within California. Because no major roads currently exist adjacent to the modeled receptors, existing conditions were not modeled. The existing and future no project noise levels were obtained from the ambient noise monitoring. The future with project traffic noise levels at all 22 receptor locations were then modeled using the peak hour traffic operations per lane (prior to speed degradation). Peak hour traffic volumes on mainline highway and local collector roads were obtained from the traffic study provided by Fehr & Peers Transportation Consultants (March 15, 2004). As traffic noise from US 101 was not audible at any of the modeled receptor locations, it was not included in the future with project noise model. All future noise impacts are the result of traffic on the existing and proposed local roadways and highway ramps. For future noise, receptor locations exceeding the exterior noise standard of 60 dBA L_{dn} and a project-related increase of 3 dBA or more would experience a potential noise impact. Sound barriers were evaluated at each impacted receptor location to reduce the projected noise impact.



LSA



LEGEND

-  CEQA Study Limits
-  Monitor Location
-  Receptor Location

FIGURE 2

Willow Road Extension/US 101 Interchange
 CEQA Noise Impact Analysis
 Monitoring and Modeled Receptor Locations

SOURCE: COUNTY OF SAN LUIS OBISPO (AERIAL), RAJAPPAN & MEYER CONSULTING ENGINEERS, INC. (CAD).

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F. EXISTING NOISE ENVIRONMENT

The primary source of noise in the project area is traffic on Willow Road, Pomeroy Road, Hetrick Avenue, and Thompson Avenue. Ambient (20-minute) noise measurements were conducted to document existing noise levels at five representative sensitive receptor locations along the project alignments (see Figure 2). The noise level measurements were performed using a Larson Davis Model 824 Type 1 sound level meter (serial number 824A1612). All of the monitoring locations selected are existing residential uses. Table B contains the results of these measurements. Table C describes the physical location of the noise monitoring. These noise measurements were used to establish the existing and future no project noise levels at all 22 modeled receptors in the project area. Table D summarizes the existing traffic noise levels. Of the 22 modeled receptor locations, no receptors currently exceed the 60 dBA L_{dn} noise standard.

The meteorological conditions at the project site during the short-term noise monitoring were as follows:

October 9, 2003

17–24°C (62–75°F)

Partly cloudy

Wind speed of 0.2 to 1.3 m/s (0.5 to 2.8 mph)

Table B: Summary of Field-Measured Data (See Figure 2)

Monitoring Location	Date	Start Time	Duration (minutes)	Measured Sound Level (L_{eq} , dBA L_{dn})
M-1	10/9/03	9:10 a.m.	20	58
M-2	10/9/03	9:45 a.m.	20	50
M-3	10/9/03	10:53 a.m.	20	42
M-4	10/9/03	1:13 p.m.	20	55
M-5	10/9/03	1:53 p.m.	20	42

Source: LSA Associates, Inc, 2003.

Table C: Physical Location of Noise Level Measurements

Monitoring Location	Address	Location on Property
M-1	695 Misty Glen Place.	In front of the house.
M-2	1108 Pomeroy Road.	In front of the house.
M-3	775 Willow Road	In front of the house.
M-4	702 Thompson Avenue	In front of the house.
M-5	Along Willow Road between Hetrick Avenue and US 101	On the side of the street.

Source: LSA Associates, Inc. 2003.

Table D: Existing Traffic Noise Level, L_{eq} , dBA L_{dn}

Rec #	Location	Type of Development	# of Units Represented	Existing Noise Level
R-1	Misty Glen Place	Residential	1	58
R-2	Pomeroy Road	Residential	1	50
R-3	Pomeroy Road	Residential	1	50
R-4	Pomeroy Road	Residential	1	50
R-5	Pomeroy Road	Residential	1	50
R-6	Pomeroy Road	Residential	1	50
R-7	Pomeroy Road	Residential	1	50
R-8	Willow Road	Residential	1	42
R-9	Willow Road	Residential	1	42
R-10	Cherokee Place	Residential	1	42
R-11	Cherokee Place	Residential	1	42
R-12	Cherokee Place	Residential	1	42
R-13	Cherokee Place	Residential	1	42
R-14	Cherokee Place	Residential	1	42
R-15	Cherokee Place	Residential	1	42
R-16	Cherokee Place	Residential	1	42
R-17	Cherokee Place	Residential	1	42
R-18	Cherokee Place	Residential	1	42
R-19	Thompson Avenue	Residential	1	55
R-20	Willow Road	Residential	1	42
R-21	Willow Road	Residential	1	42
R-22	Cherokee Place	Residential	1	42

Source: LSA Associates, Inc. 2003.

G. FUTURE NOISE ENVIRONMENT, IMPACTS, AND CONSIDERED ABATEMENT/MITIGATION

Traffic Noise Impact Assessment

Potential noise impacts associated with project operations are solely from traffic noise created by vehicles that use the system of roadways. Traffic noise was evaluated for the year 2030 as a worst-case scenario. The proposed project was modeled using Caltrans' Sound32 model. Each scenario was modeled using CAD maps provided by Rajappan & Meyer Consulting Engineers Inc. A total of 22 receptor locations representing existing residential land uses were evaluated in the model using coordinates obtained from the CAD maps. Concept plans for the project are included in Appendix A.

The ambient noise monitoring was used to establish the existing and future no project noise levels. The noise monitoring results are shown in Table B. Future year 2030 sound levels at the representative sensitive receptor locations in the project area were determined using peak hour traffic volumes as described in Section E. The model input and output data for the future with project condition are included in Appendix B. The traffic noise levels for existing and future year 2030 with project conditions are shown in Table E.

If the peak hour traffic noise level at a sensitive receptor location is predicted to exceed the exterior noise standard of 60 dBA L_{dn} or a project-related traffic noise increase of 3 dBA or more over the corresponding existing noise level when the existing noise level is already exceeding the noise standard would result in a significant noise impact. When noise impacts have been identified, noise abatement measures must be considered. Of the 22 receptor locations modeled, 10 receptor locations would exceed exterior noise thresholds with the proposed extension of Willow Road. Of the 10 receptor locations that would exceed the exterior noise threshold, the evaluation of sound barriers at 7 receptor locations was not feasible due to property access onto Willow Road. Sound walls were analyzed for each receptor locations that would exceed the exterior noise threshold of 60 dBA L_{dn} . Results of the sound wall modeling are shown in Table F. Input and output data for the future with project and with mitigated sound wall conditions are included in Appendix C.

County of San Luis Obispo Standards. The County of San Luis Obispo's noise standards are expressed in terms of L_{dn} ; however, the traffic noise model (SOUND32) generates its results as L_{eq} for peak hours. It is observed that in urban/suburban areas when the dominant noise source is from traffic, the L_{dn} level would be equal to the peak hour L_{eq} level. Using the modeled L_{eq} to obtain the L_{dn} , noise-sensitive receptor locations would be exposed to noise levels of up to 69 dBA L_{dn} under the future 2030 traffic condition. The future noise level at 10 of the 22 modeled receptor locations will exceed the County's exterior noise standard of 60 dBA L_{dn} .

Table E: Projected Traffic Noise Level, L_{eq} dBA L_{dn}

Rec #	Location	Existing Noise Level	Future With Project	Change from Existing Level
R-1	Misty Glen Place	58	64 ¹	6
R-2	Pomeroy Road	50	65	15
R-3	Pomeroy Road	50	61	11
R-4	Pomeroy Road	50	63	13
R-5	Pomeroy Road	50	64	14
R-6	Pomeroy Road	50	61	11
R-7	Pomeroy Road	50	69	19
R-8	Willow Road	42	66	24
R-9	Willow Road	42	62	20
R-10	Cherokee Place	42	56	14
R-11	Cherokee Place	42	52	10
R-12	Cherokee Place	42	60	18
R-13	Cherokee Place	42	53	11
R-14	Cherokee Place	42	53	11
R-15	Cherokee Place	42	61	19
R-16	Cherokee Place	42	59	17
R-17	Cherokee Place	42	57	15
R-18	Cherokee Place	42	54	12
R-19	Thompson Avenue	55	57	2
R-20	Willow Road	42	52	10
R-21	Willow Road	42	53	11
R-22	Cherokee Place	42	56	14

Source: LSA Associates, Inc. 2003.

¹ Numbers in bold represent noise levels exceeding the County's exterior noise standard of 60 dBA.

Table F: Sound Barrier Modeling, Leq, dBA Ldn (See Figure 3)

Rec #	Future Build (Leq, dBA Ldn)	SW #	With Wall H = 6' (1.8 m)		With Wall H = 8' (2.4 m)		With Wall H = 10' (3.05 m)		With Wall H = 12' (3.7 m)		With Wall H = 14' (4.3 m)		With Wall H = 16' (4.9 m)		
			Leq	I.L. ¹	Leq	I.L.	Leq	I.L.	Leq	I.L.	Leq	I.L.	Leq	I.L.	Leq
R-1	64 ²	SW #1	62	2	61	3	59 ³	5	59	5	58	6	58	6	6
R-2	65	None	65	0	65	0	65	0	65	0	65	0	65	0	0
R-3	61	None	61	0	61	0	61	0	61	0	61	0	61	0	0
R-4	63	None	63	0	63	0	63	0	63	0	63	0	63	0	0
R-5	64	None	64	0	64	0	64	0	64	0	64	0	64	0	0
R-6	61	None	61	0	61	0	61	0	61	0	61	0	61	0	0
R-7	69	None	69	0	69	0	69	0	69	0	69	0	69	0	0
R-8	66	SW #2	62	4	60	6	59	7	58	8	57	9	57	9	9
R-9	62	None	62	0	62	0	62	0	62	0	62	0	62	0	0
R-10	56	None	56	0	56	0	56	0	56	0	56	0	56	0	0
R-11	52	None	52	0	52	0	52	0	52	0	52	0	52	0	0
R-12	60	None	60	0	60	0	60	0	60	0	60	0	60	0	0
R-13	53	None	53	0	53	0	53	0	53	0	53	0	53	0	0
R-14	53	None	53	0	53	0	53	0	53	0	53	0	53	0	0
R-15	61	SW #3	59	2	57	4	56	5	55	6	54	7	53	8	8
R-16	59	None	59	0	59	0	59	0	59	0	59	0	59	0	0
R-17	57	None	57	0	57	0	57	0	57	0	57	0	57	0	0
R-18	54	None	54	0	54	0	54	0	54	0	54	0	54	0	0
R-19	57	None	57	0	57	0	57	0	57	0	57	0	57	0	0
R-20	52	None	52	0	52	0	52	0	52	0	52	0	52	0	0
R-21	53	None	53	0	53	0	53	0	53	0	53	0	53	0	0
R-22	56	None	56	0	56	0	56	0	55	1	55	1	55	1	1

Source: LSA Associates, Inc. 2003

¹ I.L.: Insertion Loss.

² Numbers in bold represent noise levels exceeding the County's exterior noise standard of 60 dBA L_{dn}.

³ Underlined noise levels have been attenuated to below the County's exterior noise standard of 60 dBA L_{dn}.

The following receptor locations will be exposed to noise levels that exceed 60 dBA L_{dn} , as shown in Table E:

R-1. This receptor represents an existing residence on Misty Glen Place north of Willow Road between Guadalupe Road and Pomeroy Road. Sound barriers were modeled to protect this residence. The results of the barrier analysis are shown in Table F.

R-2, R-3, R-4, R-5, and R-7. These receptors represent existing residences along Pomeroy Road. Property access to these residences are currently from Pomeroy Road and it is assumed that the proposed Willow Road extension will be the new property access. As property access will be onto Willow Road, it is not feasible to abate traffic noise with sound barriers.

R-6. This receptor represents existing an residence along Pomeroy Road. As property access will be onto Pomeroy Road, it is not feasible to abate traffic noise with sound barriers.

R-8. This receptor location represents an existing residence along Willow Road west of Hetrick Avenue. Sound barriers were modeled to protect this resident. The results of the barrier analysis are shown in Table F.

R-9. This receptor location represents an existing residence along Willow Road west of Hetrick Avenue. As property access is via a driveway onto Willow Road, it is not feasible to abate traffic noise with sound barriers.

R-15. This receptor location represents an existing residence along Cherokee Place between Hetrick Avenue and US 101. A sound barrier was modeled to protect this residence. The results of the barrier analysis are shown in Table F.

Modeling of Sound Barriers

Bold numbers in Table F show impacted receptor locations with projected noise levels that exceed the San Luis Obispo County exterior noise standards of 60 dBA L_{dn} . Sound barriers were analyzed for each of these sensitive receptor locations. At each location, six sound barrier heights were analyzed: 1.8, 2.4, 3.05, 3.7, 4.3, and 4.9 m (6, 8, 10, 12, 14, and 16 ft). The locations of the modeled sound barriers are shown in Figure 3. The Sound32 printouts for the mitigated sound wall model runs are located in Appendix C of this document.

The following barriers were analyzed to protect the sensitive receptor locations exposed to traffic noise levels exceeding the San Luis Obispo County exterior noise standard:

Sound Barrier No. 1. A 39 m (129 ft) barrier in length, was analyzed within state right-of-way along the north side of Willow Road between Guadalupe and Pomeroy Road to protect receptor location #1 (R-1). The results of the noise modeling are shown in Table F. The location of Receptor R-1 and the modeled sound wall are shown in Figure 3.

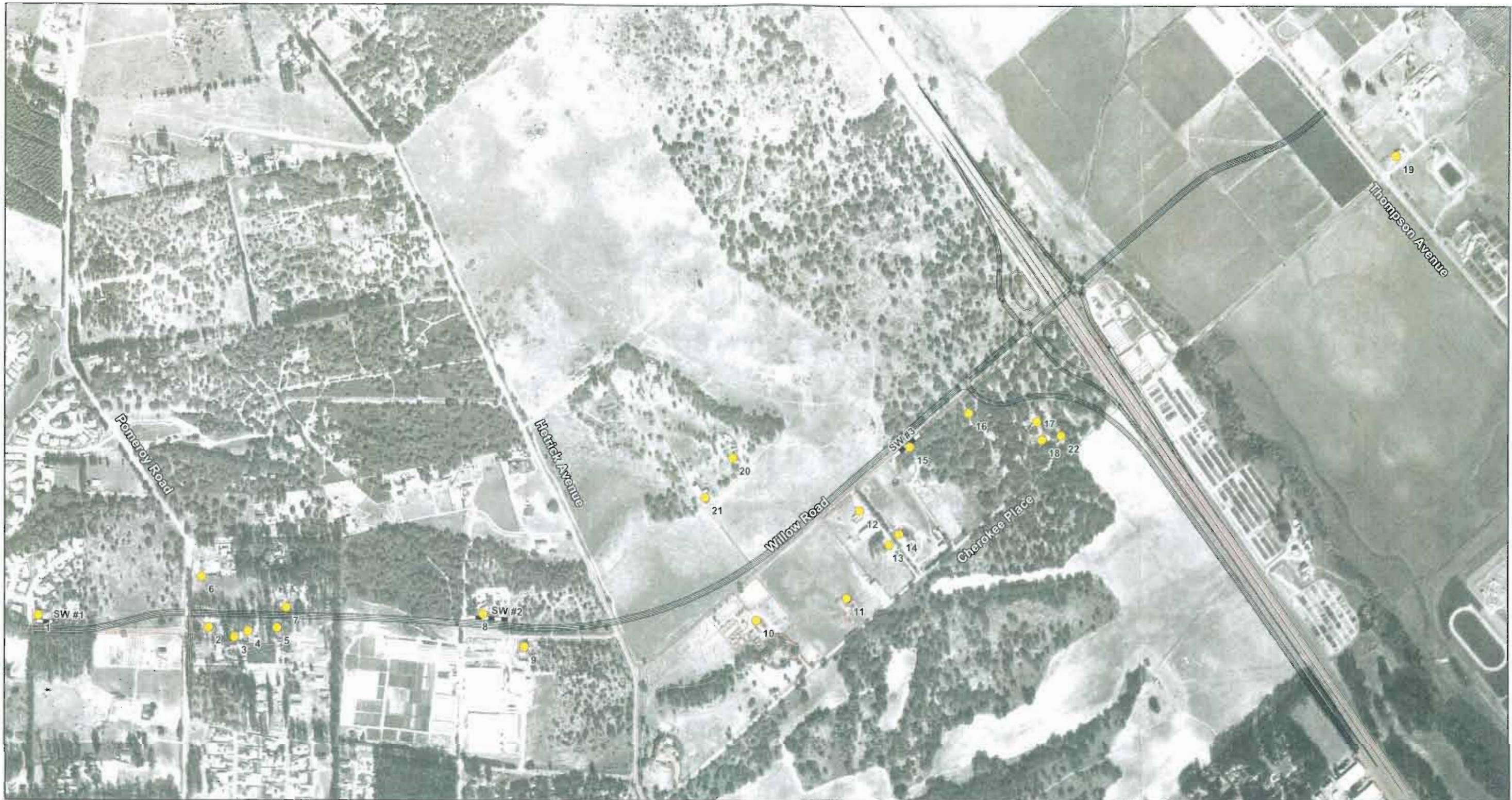
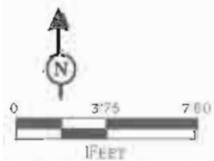


FIGURE 3

LSA



LEGEND

-  Sound Wall
-  Receptor Location

Willow Road Extension/US 101 Interchange
 CEQA Noise Impact Analysis
 Modeled Soundwall and Receptor Locations

Sound Barrier No. 2. A 97 m (318 ft) barrier in length, was analyzed within the state right-of-way along Willow Road West of Hetrick Avenue to protect receptor location #8 (R-8). The results of the noise modeling are shown in Table F. The location of Receptor R-8 and the modeled sound wall are shown in Figure 3.

Sound Barrier No. 3. A 79 m (259 ft) barrier in length, was analyzed within the state right-of-way along Cherokee Place east of Hetrick Avenue to protect receptor location #15 (R-15). The results of the noise modeling are shown in Table F. The location of Receptor R-15 and the modeled sound wall are shown in Figure 3.

H. SOUND BARRIER MITIGATION

Sound barriers were evaluated for receptors exceeding the San Luis Obispo County exterior noise standards of 60 dBA L_{dn} under the projected future year 2030 with project condition noise level. Table F shows the results of each receptor. Table G lists the barrier heights that would attenuate noise levels below 60 dBA L_{dn} .

Table G: Required Sound Barriers (see Figure 3)

SW #	Benefited Receptors	Wall Height m (ft)
SW # 1	R-1	3.05 (10)
SW #2	R-8	2.4 (8)
SW #3	R-15	3.05 (10)

Source: LSA Associates, Inc. 2003

I. CONSTRUCTION NOISE

Two types of short-term noise impacts would occur during construction of the project. First, construction crew commutes and the transport of construction equipment and materials to the project site would incrementally raise noise levels on access roads leading to the site. The pieces of heavy equipment for grading and construction activities will be moved on site, will remain for the duration of each construction phase, and will not add to the daily traffic volume in the project vicinity. A relatively high single-event noise exposure potential will exist at a maximum level of 87 dBA L_{max} with trucks passing at 15 meters (m) (50 feet [ft]). However, the projected construction traffic will be small when compared to the existing traffic volumes on Willow Road, Pomeroy Road, Hetrick Avenue, Thompson Avenue, and other affected streets. Therefore, short-term construction related worker commutes and equipment transport noise impacts would not be substantial.

The second type of short-term noise impact is related to noise generated during excavation, grading, and roadway construction. Construction is performed in discrete steps, each of which has its own mix of equipment, and consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated, and therefore, the noise levels along the alignments as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise

ranges to be categorized by work phase. Table H lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments, based on a distance of 15 m (50 ft) between the equipment and a noise receptor.

Typical noise levels at 15 m (50 ft) from active construction area range up to 91 dBA L_{max} during the noisiest construction phases. The site preparation phase, which includes grading and paving of the median, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings.

Construction of the proposed project is expected to require the use of earthmovers, bulldozers, water trucks, and pickup trucks. Noise associated with the use of construction equipment is estimated between 79 and 89 dBA L_{max} at a distance of 15 m (50 ft) from the active construction area for the grading phase. As seen in Table H, the maximum noise level generated by each earthmover is assumed to be 88 dBA L_{max} at 15 m (50 ft) from the earthmover in operation. Each bulldozer would also generate 88 dBA L_{max} at 15 m (50 ft). The maximum noise level generated by water and pickup trucks is approximately 86 dBA L_{max} at 15 m (50 ft) from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Each piece of the construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be 91 dBA L_{max} (at a distance of 15 m [50 ft] from an active construction area).

The closest existing residences in the vicinity of the project area are located 15 m (50 ft) from the project construction areas. The closest residences may be subject to short-term noise reaching 91 dBA L_{max} , generated by construction activities along the alignments. To minimize the construction noise impacts for existing residences adjacent to the project site, the construction shall follow Caltrans Standard Specifications, Section 7-10/I, "Sound Control Requirements."

Table H: Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81-96	93
Rock Drills	83-99	96
Jackhammers	75-85	82
Pneumatic Tools	78-88	85
Pumps	68-80	77
Dozers	85-90	88
Tractors	77-82	80
Front-End Loaders	86-90	88
Hydraulic Backhoe	81-90	86
Hydraulic Excavators	81-90	86
Graders	79-89	86
Air Compressors	76-86	86
Trucks	81-87	86

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman 1987.

Standard Conditions

Restricting construction activities to the hours between 7:00 a.m. and 9:00 p.m. on Monday through Friday and 9 a.m. to 5 p.m. on Saturdays and Sundays would reduce the exposure to construction noise impacts.

Mitigation Measures

Initial construction has the potential to create noise impacts at the homes located along the project alignments. In addition to the County's regulations, the following measures are recommended to reduce these impacts to the extent feasible:

- Portable equipment should be located as far as possible from the noise sensitive locations as is feasible.
- Construction vehicle staging areas and equipment maintenance areas should be located as far as possible from sensitive receptor locations.
- Each internal combustion engine used for any purpose on the job or related to the job shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without the muffler.

Implementation of these measures would reduce construction noise impacts to the extent feasible.

J. REFERENCES

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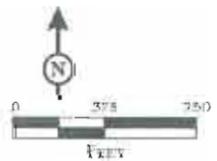
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APPENDIX A

CONCEPT PLANS



*Willow Road Extension/US 101 Interchange
Concept Plans*

APPENDIX B

SOUND32 TRAFFIC NOISE MODEL PRINTOUTS FOR FUTURE (2030) WITH PROJECT WITHOUT SOUND WALLS

Willow Road Future CEQA Conditions Part 1

T-Willow WB prt2, 1
537 , 50 , 12 , 50 , 31 , 45
T-Willow WB prt3, 2
537 , 50 , 12 , 50 , 31 , 45
T-Willow EB prt2, 3
537 , 50 , 12 , 50 , 31 , 45
T-Willow EB prt3, 4
537 , 50 , 12 , 50 , 31 , 45
T-Hetrick NB prt1, 5
176 , 40 , 4 , 40 , 10 , 40
T-Hetrick NB prt2, 6
176 , 40 , 4 , 40 , 10 , 40
T-Hetrick SB prt1, 7
176 , 40 , 4 , 40 , 10 , 40
T-Hetrick SB prt2, 8
162 , 40 , 4 , 40 , 9 , 40
T-Pomeroy NB prt1, 9
162 , 40 , 4 , 40 , 9 , 40
T-Pomeroy NB prt2, 10
162 , 40 , 4 , 40 , 9 , 40
T-Pomeroy SB prt1, 11
162 , 40 , 4 , 40 , 9 , 40
T-Pomeroy SB prt2, 12
162 , 40 , 4 , 40 , 9 , 40
L-Willow WB prt2,1,
N,11618.9,4360.0,385.6,
N,11348.1,4114.5,397.5,
N,11036.3,3842.3,404.8,
N,10817.0,3669.4,402.5,
N,10559.7,3504.5,392.1,
N,10239.8,3345.5,383.3,
N,9926.3,3232.1,385.5,
N,9665.7,3167.4,392.0,
N,9362.7,3120.4,398.4,
N,9049.3,3106.8,404.9,
N,8737.2,3122.1,412.4,
N,8421.3,3142.3,418.7,
N,8090.5,3163.5,419.8,
N,7740.4,3180.0,418.5,
N,7431.1,3190.7,416.9,
N,7106.4,3198.9,410.9,
L-Willow WB prt3,2,
N,7106.4,3198.9,410.9,
N,6779.4,3207.9,394.9,
N,6472.3,3216.2,378.2,
N,6155.4,3225.0,370.6,
N,6006.3,3217.3,371.2,
N,5835.8,3180.6,374.5,
N,5645.9,3131.8,379.1,

N,5438.0,3087.0,385.2,
N,5204.7,3082.3,392.0,
N,4986.7,3088.2,393.0,
N,4712.9,3098.0,393.2,
N,4345.6,3113.2,393.2,
N,4005.4,3123.4,393.2,
N,3660.1,3123.5,393.2,
L-Willow EB prt2,3,
N,11635.5,4342.3,385.6,
N,11360.6,4099.1,397.5,
N,11051.3,3824.1,404.8,
N,10830.4,3649.7,402.5,
N,10571.7,3483.0,392.1,
N,10247.9,3322.0,383.3,
N,9933.0,3208.5,385.5,
N,9674.3,3142.9,392.0,
N,9365.5,3096.6,398.4,
N,9048.6,3083.8,404.9,
N,8736.5,3099.1,412.4,
N,8420.6,3119.3,418.7,
N,8089.8,3140.4,419.8,
N,7739.7,3157.0,418.9,
N,7430.7,3166.0,416.9,
N,7105.7,3175.9,410.9,
L-Willow EB prt3,4,
N,7105.7,3175.9,410.9,
N,6778.6,3184.9,394.9,
N,6472.2,3192.6,378.2,
N,6154.7,3201.9,370.6,
N,6009.0,3193.5,371.2,
N,5840.5,3157.9,374.5,
N,5651.1,3109.1,379.1,
N,5441.6,3064.0,385.2,
N,5204.0,3059.2,392.0,
N,4986.0,3065.2,393.0,
N,4712.9,3072.6,393.2,
N,4344.0,3086.2,393.2,
N,4005.4,3096.3,393.2,
N,3658.4,3101.4,393.2,
L-Hetrick NB prt1,5,
N,9133.5,4216.9,397.1,
N,9227.0,4032.9,397.1,
N,9299.7,3862.9,397.1,
N,9368.6,3718.5,397.1,
N,9447.9,3555.1,401.3,
N,9507.3,3428.6,402.2,
N,9579.1,3258.7,398.3,
L-Hetrick NB prt2,6,
N,9671.6,3044.4,391.1,
N,9743.4,2869.8,391.2,

N,9800.1,2709.3,392.6,
N,9809.5,2559.2,390.2,
N,9806.7,2383.6,388.5,
N,9801.4,2184.3,386.8,
L-Hetrick SB prt1,7,
N,9125.1,4212.3,397.1
N,9218.5,4028.2,397.1
N,9291.3,3858.3,397.1
N,9360.2,3713.8,397.1
N,9439.4,3550.5,401.3
N,9498.9,3423.9,402.2
N,9563.2,3252.2,398.3
L-Hetrick SB prt2,8,
N,9653.8,3039.7,391.1
N,9735.0,2865.1,391.2
N,9791.7,2708.4,392.6
N,9801.1,2558.3,390.2
N,9798.2,2382.7,388.5
N,9793.0,2183.3,386.8
L-Pomeroy NB prt1,9,
N,5912.6,4256.4,375.0
N,6070.8,4019.0,375.0
N,6209.0,3782.3,375.0
N,6227.3,3593.2,375.0
N,6223.8,3389.7,375.0
N,6225.0,3278.6,371.0
L-Pomeroy NB prt2,10,
N,6223.6,3171.8,367.2
N,6222.4,2930.7,361.4
N,6213.4,2717.7,360.3
N,6212.7,2504.7,361.3
N,6214.3,2273.3,361.3
N,6203.1,2046.3,361.3
L-Pomeroy SB prt1,11,
N,5899.2,4256.4,375.0
N,6057.4,4019.0,375.0
N,6195.5,3782.3,375.0
N,6213.9,3593.2,375.0
N,6210.3,3389.7,375.0
N,6213.7,3276.1,371.0
L-Pomeroy SB prt2,12,
N,6210.2,3171.8,367.2
N,6208.9,2930.7,361.4
N,6199.9,2717.7,360.3
N,6199.2,2504.7,361.3
N,6200.8,2273.3,361.3
N,6189.7,2046.3,361.3
B-Willow WB Barrier prt3,1,2,0,0
10249.2,3355.1,383.3,383.3
9935.7,3241.6,385.5,385.5

9659.8,3178.5,392.0,392.0
9360.5,3133.6,398.4,398.4
9050.0,3120.0,404.9,404.9
8737.9,3135.3,412.4,412.4
8422.0,3155.5,418.7,418.7,
8091.2,3176.7,419.8,419.8,
7741.1,3193.2,418.5,418.5,
7431.8,3203.9,416.9,416.9,
7107.1,3212.1,410.9,410.9,
B-Willow WB Barrier prt4,2,2,0,0
7107.1,3212.1,410.9,410.9,
6780.0,3221.1,394.9,394.9,
6473.0,3229.4,378.2,378.2,
6156.1,3238.2,370.6,370.6,
6007.0,3230.5,371.2,371.2,
5836.5,3193.8,374.5,374.5,
5646.6,3145.0,379.1,379.1,
5438.7,3100.2,385.2,385.2,
5205.4,3095.5,392.0,392.0,
4987.4,3101.4,393.2,393.2,
4712.9,3111.7,393.2,393.2,
B-Willow WB Barrier prt5,3,2,0,0
4712.9,3111.7,393.2,393.2,
4345.6,3126.9,393.2,393.2,
4005.4,3137.1,393.2,393.2,
3660.1,3137.1,393.2,393.2,
B-Willow EB Barrier prt3,4,2,0,0
10252.9,3309.4,383.3,383.3
9939.4,3196.0,385.5,385.5
9677.3,3127.0,392.0,392.0
9367.1,3083.6,398.4,398.4
9047.9,3069.3,404.9,404.9
8735.8,3084.6,412.4,412.4
8419.9,3104.8,418.7,418.7
8089.2,3125.9,419.8,419.8
7739.0,3142.5,418.5,418.5
7429.8,3153.2,416.9,416.9
7105.0,3161.4,410.9,410.9
B-Willow EB Barrier prt4,5,2,0,0
7105.0,3161.4,410.9,410.9
6778.0,3170.4,394.9,394.9
6470.9,3178.6,378.2,378.2
6154.0,3187.4,370.6,370.6,
6004.9,3179.8,371.2,371.2,
5834.5,3143.1,374.5,374.5,
5644.5,3094.3,379.1,379.1,
5436.6,3049.5,385.2,385.2,
B-Pomeroy NB Barrier,6,2,0,0
5924.6,4256.4,375.0,375.0,
6082.8,4019.0,375.0,375.0,

6221.0,3782.3,375.0,375.0,
6239.0,3588.4,375.0,375.0,
6240.9,3273.6,371.0,371.0,
B-Pomeroy SBE Barrier,7,2,0,0
6236.2,3171.8,367.2,367.2,
6234.9,2930.7,361.4,361.4,
6226.0,2717.7,360.3,360.3,
6225.3,2504.7,361.3,361.3,
6226.9,2273.3,361.3,361.3,
6215.7,2046.3,361.3,361.3,
B-Hetrick NB Barrier,8,2,0,0
9112.9,4209.1,397.1,397.1,
9206.4,4025.0,397.1,397.1,
9279.1,3855.1,397.1,397.1,
9348.1,3710.6,397.1,397.1,
9427.3,3547.3,401.3,401.3,
9486.8,3420.8,402.2,402.2,
9561.8,3200.7,398.3,398.3,
B-Hetrick SBW Barrier,9,2,0,0
9644.3,3035.0,391.1,391.1,
9725.5,2860.3,391.2,391.2,
9782.1,2703.6,392.6,392.6,
9792.7,2558.3,390.2,390.2,
9789.9,2382.7,388.5,388.5,
9784.7,2183.3,386.8,386.8,
B-Hetrick SBE Barrier,10,2,0,0
9680.0,3046.9,391.1,391.1,
9755.3,2874.6,391.2,391.2,
9811.9,2717.9,392.6,392.6,
9821.3,2561.8,390.2,390.2,
9818.5,2386.2,388.5,388.5,
9813.3,2186.9,386.8,386.8,
R, 1 , 67 ,500
5022.9,3192.5,409.0,1
R, 2 , 67 ,500
6387.3,3101.6,374.7,2
R, 3 , 67 ,500
6593.6,3023.0,395.5,3
R, 4 , 67 ,500
6701.6,3070.2,402.6,4
R, 5 , 67 ,500
6933.2,3094.3,411.5,5
R, 6 , 67 ,500
6330.4,3506.2,375.1,6
R, 7 , 67 ,500
7007.4,3256.1.6,419.2,7
R, 8 , 67 ,500
8581.5,3209.6,420.0,8
R, 9 , 67 ,500
8912.8,2947.4,424.5,9

D, 4.5
ALL, ALL
C, C

Willow Road Future CEQA Conditions Part 2

T-Willow WB prt1, 1
176 , 50 , 4 , 50 , 10 , 45
T-Willow WB prt2, 2
537 , 50 , 12 , 50 , 31 , 45
T-Willow EB prt1, 3
176 , 50 , 4 , 50 , 10 , 45
T-Willow EB prt2, 4
537 , 50 , 12 , 50 , 31 , 45
T-101 SB Off Ramp, 5
269 , 45 , 6 , 45 , 16 , 40
T-101 SB On Ramp, 6
273 , 45 , 6 , 45 , 16 , 40
T-101 NB On Ramp, 7
213 , 45 , 5 , 45 , 12 , 40
T-101 NB Off Ramp, 8
227 , 45 , 5 , 45 , 13 , 40
T-Frontage NB prt1, 9
181 , 40 , 4 , 40 , 11 , 40
T-Frontage NB prt2, 10
181 , 40 , 4 , 40 , 11 , 40
T-Frontage SB prt1, 11
181 , 40 , 4 , 40 , 11 , 40
T-Frontage SB prt2, 12
181 , 40 , 4 , 40 , 11 , 40
T-Thompson NB prt1, 13
250 , 45 , 5 , 45 , 15 , 40
T-Thompson NB prt2, 14
250 , 45 , 5 , 45 , 15 , 40
T-Thompson SB prt1, 15
250 , 45 , 5 , 45 , 15 , 40
T-Thompson SB prt2, 16
250 , 45 , 5 , 45 , 15 , 40
L-Willow WB prt1, 1
N,15273.5,7200.3,374,
N,15134.4,7082.8,367.2,
N,14952.2,6968.8,356.8,
N,14765.2,6894,349.2,
N,14503.8,6793,344.1,
N,14306.8,6680.5,341,
N,14124.8,6534.3,338.1,
N,13936.0,6372.7,338.8,
N,13668.4,6141.1,340,
N,13376.4,5890.4,341.3,
N,13110.6,5661.7,349.4,
N,12819.5,5410.4,367.2,
N,12575.6,5199,382.8,
N,12270.8,4935.4,390,
N,11942.7,4645.3,384.7,
11618.9,4360,385.6,

L-Willow WB prt2, 2
N,11618.9,4360,385.6,
N,11348.1,4114.5,397.5,
N,11036.3,3842.3,404.8,
N,10817.0,3669.4,402.5,
N,10559.7,3504.5,392.1,
N,10239.8,3345.5,383.3,
N,9926.3,3232.1,385.5,
N,9665.7,3167.4,392,
N,9362.7,3120.4,398.4,
N,9049.3,3106.8,404.9,
N,8737.2,3122.1,412.4,
N,8421.3,3142.3,418.7,
N,8090.5,3163.5,419.8,
N,7740.4,3180,418.5,
N,7431.1,3190.7,416.9,
N,7106.4,3198.9,410.9,
L-Willow EB prt1, 3
N,15288.5,7182.1,374,
N,15148.2,7062.3,367.2,
N,14961.9,6947.4,356.8,
N,14773.6,6871,349.2,
N,14512.2,6770.2,344.1,
N,14320.8,6662.5,341,
N,14139.8,6517.1,338.1,
N,13952.3,6355,338.8,
N,13683.9,6124.7,340,
N,13392.1,5871.4,341.3,
N,13126.9,5643.7,349.4,
N,12835.3,5392.4,367.2,
N,12589.3,5180.5,382.8,
N,12285.3,4917.9,390,
N,11957.2,4628.4,384.7,
N,11635.5,4342.3,385.6,
L-Willow EB prt2, 4
N,11635.5,4342.3,385.6,
N,11360.6,4099.1,397.5,
N,11051.3,3824.1,404.8,
N,10830.4,3649.7,402.5,
N,10571.7,3483,392.1,
N,10247.9,3322,383.3,
N,9933.0,3208.5,385.5,
N,9674.3,3142.9,392,
N,9365.5,3096.6,398.4,
N,9048.6,3083.8,404.9,
N,8736.5,3099.1,412.4,
N,8420.6,3119.3,418.7,
N,8089.8,3140.4,419.8,
N,7739.7,3157,418.9,
N,7430.7,3166,416.9,

N,7105.7,3175.9,410.9,
L-101 SB Off Ramp, 5
N,12892.1,5532.2,362,
N,12780.2,5660.6,379,
N,12734.9,5745.3,380.4,
N,12713.9,5840.1,377,
N,12717.3,6002.9,383.4,
N,12692.1,6185.9,377.3,
N,12632.5,6340.3,374.5,
N,12526.0,6544.2,373.1,
N,12419.4,6727.1,373.1,
L-101 SB On Ramp, 6
N,12964.8,5457.5,362,
N,13071.4,5334.1,374.1,
N,13162.9,5229.2,377.3,
N,13257.7,5152.9,375.1,
N,13383.6,5095,371.3,
N,13510.3,5032,372,
N,13647.9,4920.4,369.2,
N,13749.4,4802.1,366,
N,13879.5,4641.9,366.4,
N,14035.6,4437.9,365.4,
L-101 NB On Ramp, 7
N,13277.5,5878.2,341.2,
N,13170.3,6003.1,345,
N,13050.9,6142.4,350,
N,12949.3,6259.7,355,
N,12837.7,6387.8,360,
N,12740.2,6503.5,365,
N,12696.0,6556.8,370,
N,12560.4,6733.3,373.1,
N,12436.9,6895.3,373.1,
L-101 NB Off Ramp, 8
N,13365.8,5784.9,341.2,
N,13419.1,5667.6,344,
N,13457.1,5566.8,347,
N,13520.7,5464.3,350,
N,13622.4,5315.9,353,
N,13737.3,5146.5,356,
N,13846.4,4987,359,
N,13952.6,4820.5,361,
N,14044.3,4663.1,363,
N,14150.9,4482.5,364,
L-Frontage Road NB prt1, 9
N,12484.0,5032.1,387.8,
N,12603.1,4929.7,378.3,
N,12753.6,4903.5,376.1,
N,12897.1,4942.9,373,
N,13077.0,4972.1,374.5,
N,13246.7,4959.8,373.2,

N,13404.2,4912.8,371,
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N,13738.5,4677.2,364.2,
N,13883.6,4521.9,363.1,
N,14016.2,4342.3,364,
N,14167.3,4133.4,363.4,
N,14328.1,3910.2,362.1,
N,14497.9,3676.1,360.6,
N,14663.3,3441.7,361.3,
N,14831.0,3203.6,357.2,
L-Frontage Road NB prt2, 10
N,14831.0,3203.6,357.2,
N,14993.8,2970.3,354.1,
N,15158.3,2733.7,354.8,
N,15319.4,2513.9,354.8,
N,15440.5,2350.7,354.2,
N,15594.7,2132.9,353.2,
L-Frontage Road SB prt1, 11
N,12474.8,5023.2,387.8,
N,12600.2,4919.2,378.3,
N,12754.7,4890.4,376.1,
N,12899.8,4930.6,373,
N,13077.5,4959,374.5,
N,13244.1,4948,373.2,
N,13400.0,4901.2,371,
N,13557.1,4810.3,369.4,
N,13730.9,4669.3,364.2,
N,13874.5,4513,363.1,
N,14006.2,4335.8,364,
N,14157.6,4127.3,363.4,
N,14317.6,3904.2,362.1,
N,14488.7,3667.1,360.6,
N,14653.8,3434.3,361.3,
N,14821.3,3195,357.2,
L-Frontage Road SB prt2, 12
N,14821.3,3195,357.2,
N,14984.6,2961.4,354.1,
N,15148.6,2727.7,354.8,
N,15310.2,2504.9,354.8,
N,15431.3,2344.2,354.2,
N,15585.5,2124,353.2,
L-Thompson NB prt1, 13
N,14580.4,8119.7,362.7,
N,14697.7,7984.1,362.7,
N,14800.8,7863.6,365.3,
N,14899.6,7748.2,366.2,
N,14989.4,7647,368.4,
N,15086.4,7531.1,370,
N,15180.7,7425.4,372.4,
N,15268.2,7322.4,373.4,

N,15348.8,7228.5,374.2,
 N,15459.0,7104.1,374.5,
 N,15591.7,6948.9,374.3,
 N,15696.1,6825.2,374.3,
 N,15822.9,6673.3,374.3,
 N,15954.2,6519.6,374.3,
 N,16090.3,6363,374.3,
 N,16213.3,6219.4,374.3,
 L-Thompson NB prt2, 14
 N,16213.3,6219.4,374.3,
 N,16368.3,6035.5,374.3,
 N,16501.1,5877.2,374.3,
 L-Thompson SB prt1, 15
 N,14573.3,8114.6,362.7,
 N,14690.6,7979,362.7,
 N,14793.7,7858.6,365.3,
 N,14892.5,7743.1,366.2,
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 N,15079.3,7526,370,
 N,15173.6,7420.3,372.4,
 N,15261.1,7317.3,373.4,
 N,15341.7,7223.4,374.2,
 N,15451.9,7099,374.5,
 N,15584.6,6943.8,374.3,
 N,15689.0,6820.1,374.3,
 N,15815.8,6668.3,374.3,
 N,15947.1,6514.5,374.3,
 N,16083.2,6357.9,374.3,
 N,16206.2,6214.4,374.3,
 L-Thompson SB prt2, 16
 N,16206.2,6214.4,374.3,
 N,16361.1,6030.5,374.3,
 N,16493.9,5872.1,374.3,
 B-Willow EB Barrier prt2, 1 , 2 , 0 , 0
 13134.8,5631,349.4,349.4,
 12843.7,5379.7,367.2,367.2,
 12598.9,5169.2,382.8,382.8,
 12294.1,4905.5,390,390,
 11966.9,4615.5,384.7,384.7,
 11643.1,4330.2,385.6,385.6,
 11369.8,4088.9,397.5,397.5,
 11058.0,3816.7,404.8,404.8,
 10837.7,3636.2,402.5,402.5,
 10580.5,3471.2,392.1,392.1,
 10252.9,3309.4,383.3,383.3,
 B-Willow EB Barrier prt3, 2 , 2 , 0 , 0
 10252.9,3309.4,383.3,383.3,
 9939.4,3196,385.5,385.5,
 9677.3,3127,392,392,
 9367.1,3083.6,398.4,398.4,

9047.9,3069.3,404.9,404.9,
8735.8,3084.6,412.4,412.4,
8419.9,3104.8,418.7,418.7,
8089.2,3125.9,419.8,419.8,
7739.0,3142.5,418.5,418.5,
7429.8,3153.2,416.9,416.9,
7105.0,3161.4,410.9,410.9,
B-101 SB Ramp Barrier, 3 , 2 , 0 , 0
12956.4,5447,362,362,
13062.9,5323.7,374.1,374.1,
13154.4,5218.8,377.3,377.3,
13249.2,5142.4,375.1,375.1,
13378.1,5082,371.3,371.3,
13504.8,5019.1,372,372,
13639.4,4910,369.2,369.2,
13739.5,4790.7,366,366,
B-Frontage NB Barrier, 4 , 2 , 0 , 0
12494.8,5040.8,387.8,387.8,
12611.1,4940.6,378.3,378.3,
12752.9,4918.7,376.1,376.1,
12894.2,4956.7,373,373,
13077.0,4983.7,374.5,374.5,
13251.0,4972.8,373.2,373.2,
13409.3,4925.1,371,371,
13571.2,4830.7,369.4,369.4,
13747.2,4688,364.2,364.2,
13894.5,4530.6,363.1,363.1,
14027.1,4351,364,364,
B-Frontage SB Barrier, 5 , 2 , 0 , 0
12462.2,5011.8,387.8,387.8,
12595.2,4905.8,378.3,378.3,
12755.1,4877.4,376.1,376.1,
12903.7,4918.3,373,373,
13079.1,4945.3,374.5,374.5,
13240.2,4933.7,373.2,373.2,
13396.2,4888.2,371,371,
13549.4,4798.8,369.4,369.4,
13721.8,4656.1,364.2,364.2,
13861.9,4501.6,363.1,363.1,
13994.5,4325.7,364,364,
R, 1 , 67 , 500
10776.4,3159.9,390.4,10
R, 2 , 67 , 500
11500.2,3337.0,395.3,11
R, 3 , 67 , 500
11604.4,4034.7,397.2,12
R, 4 , 67 , 500
11841.0,3766.3,395.3,13
R, 5 , 67 , 500
11918.7,3850.6,395.3,14

R, 6 , 67 ,500
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R, 7 , 67 ,500
12475.0,4823.9,388.4,16
R, 8 , 67 ,500
13022.2,4756.0,379.2,17
R, 9 , 67 ,500
13063.1,4611.7,379.5,18
R, 10 , 67 ,500
13195,4660,377.,22
D, 4.5
ALL,ALL
C,C

Willow Road Future CEQA Conditions part 3

T-Willow WB prt1, 1
176 , 50 , 4 , 50 , 10 , 45
T-Willow WB prt2, 2
537 , 50 , 12 , 50 , 31 , 45
T-Willow EB prt1, 3
176 , 50 , 4 , 50 , 10 , 45
T-Willow EB prt2, 4
537 , 50 , 12 , 50 , 31 , 45
T-101 SB Off Ramp, 5
269 , 45 , 6 , 45 , 16 , 40
T-101 SB On Ramp, 6
273 , 45 , 6 , 45 , 16 , 40
T-101 NB On Ramp, 7
213 , 45 , 5 , 45 , 12 , 40
T-101 NB Off Ramp, 8
227 , 45 , 5 , 45 , 13 , 40
T-Frontage NB prt1, 9
181 , 40 , 4 , 40 , 11 , 40
T-Frontage NB prt2, 10
181 , 40 , 4 , 40 , 11 , 40
T-Frontage SB prt1, 11
181 , 40 , 4 , 40 , 11 , 40
T-Frontage SB prt2, 12
181 , 40 , 4 , 40 , 11 , 40
T-Thompson NB prt1, 13
250 , 45 , 5 , 45 , 15 , 40
T-Thompson NB prt2, 14
250 , 45 , 5 , 45 , 15 , 40
T-Thompson SB prt1, 15
250 , 45 , 5 , 45 , 15 , 40
T-Thompson SB prt2, 16
250 , 45 , 5 , 45 , 15 , 40
L-Willow WB prt1, 1
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L-Willow WB prt2, 2
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N,9049.3,3106.8,404.9,
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N,7740.4,3180,418.5,
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L-Willow EB prt1, 3
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N,14961.9,6947.4,356.8,
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N,12285.3,4917.9,390,
N,11957.2,4628.4,384.7,
N,11635.5,4342.3,385.6,
L-Willow EB prt2, 4
N,11635.5,4342.3,385.6,
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N,11051.3,3824.1,404.8,
N,10830.4,3649.7,402.5,
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N,10247.9,3322,383.3,
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L-101 SB On Ramp, 6
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L-101 NB Off Ramp, 8
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L-Frontage Road NB prt1, 9
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L-Frontage Road NB prt2, 10
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N,15158.3,2733.7,354.8,
N,15319.4,2513.9,354.8,
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L-Frontage Road SB prt1, 11
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N,12754.7,4890.4,376.1,
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N,14006.2,4335.8,364,
N,14157.6,4127.3,363.4,
N,14317.6,3904.2,362.1,
N,14488.7,3667.1,360.6,
N,14653.8,3434.3,361.3,
N,14821.3,3195,357.2,
L-Frontage Road SB prt2, 12
N,14821.3,3195,357.2,
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N,15310.2,2504.9,354.8,
N,15431.3,2344.2,354.2,
N,15585.5,2124,353.2,
L-Thompson NB prt1, 13
N,14580.4,8119.7,362.7,
N,14697.7,7984.1,362.7,
N,14800.8,7863.6,365.3,
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N,15954.2,6519.6,374.3,
N,16090.3,6363,374.3,
N,16213.3,6219.4,374.3,
L-Thompson NB prt2, 14
N,16213.3,6219.4,374.3,
N,16368.3,6035.5,374.3,
N,16501.1,5877.2,374.3,
L-Thompson SB prt1, 15
N,14573.3,8114.6,362.7,
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N,15947.1,6514.5,374.3,
N,16083.2,6357.9,374.3,
N,16206.2,6214.4,374.3,
L-Thompson SB prt2, 16
N,16206.2,6214.4,374.3,
N,16361.1,6030.5,374.3,
N,16493.9,5872.1,374.3,
B-101 SB Barrier prt 2, 1 , 2 , 0 , 0
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14795.0,3365.5,360.5,360.5,
B-Willow WB Barrier prt2, 2 , 2 , 0 , 0
13101.1,5670.6,349.4,349.4,
12810.0,5419.3,367.2,367.2,
12565.2,5207.1,382.8,382.8,
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11024.2,3852.1,404.8,404.8,
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10551.9,3514.2,392.1,392.1,
10249.2,3355.1,383.3,383.3,
B-Willow WB Barrier prt3, 3 , 2 , 0 , 0
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9935.7,3241.6,385.5,385.5,
9659.8,3178.5,392,392,
9360.5,3133.6,398.4,398.4,
9050.0,3120,404.9,404.9,
8737.9,3135.3,412.4,412.4,
8422.0,3155.5,418.7,418.7,
8091.2,3176.7,419.8,419.8,
7741.1,3193.2,418.5,418.5,
7431.8,3203.9,416.9,416.9,
7107.1,3212.1,410.9,410.9,
B-Willow EB Barrier prt2, 4 , 2 , 0 , 0
13134.8,5631,349.4,349.4,
12843.7,5379.7,367.2,367.2,
12598.9,5169.2,382.8,382.8,
12294.1,4905.5,390,390,
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11643.1,4330.2,385.6,385.6,
11369.8,4088.9,397.5,397.5,
11058.0,3816.7,404.8,404.8,
10837.7,3636.2,402.5,402.5,
10580.5,3471.2,392.1,392.1,
10252.9,3309.4,383.3,383.3,
B-Willow EB Barrier prt3, 5 , 2 , 0 , 0
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9367.1,3083.6,398.4,398.4,
9047.9,3069.3,404.9,404.9,
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7739.0,3142.5,418.5,418.5,
7429.8,3153.2,416.9,416.9,
7105.0,3161.4,410.9,410.9,
B-Thompson Barrier prt1, 6 , 2 , 0 , 0
14586.5,8124.3,362.7,362.7,
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B-Thompson Barrier prt2, 7 , 2 , 0 , 0
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B-101 SB Barrier, 8 , 2 , 0 ,0
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13062.9,5323.7,374.1,374.1,
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B-Frontage NB Barrier, 9 , 2 , 0 ,0
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B-Frontage SB Barrier, 10 , 2 , 0 ,0
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R, 1 , 67 ,500
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R, 2 , 67 ,500
10582.2,4456.5,425.0,20
R, 3 , 67 ,500
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D, 4.5
ALL,ALL
C,C

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
Willow Road Future CEQA Conditions Part 1

1

BARRIER DATA

BAR ELE	BARRIER HEIGHTS							BAR ID	LENGTH	TYPE
	0	1	2	3	4	5	6			
1	-	0.*							B1 P1	333.4
2	-	0.*							B1 P2	283.1
3	-	0.*							B1 P3	302.7
4	-	0.*							B1 P4	310.9
5	-	0.*							B1 P5	312.6
6	-	0.*							B1 P6	316.6
7	-	0.*							B1 P7	331.5
8	-	0.*							B1 P8	350.5
9	-	0.*							B1 P9	309.5
10	-	0.*							B1 P10	324.9
11	-	0.*							B2 P1	327.6
12	-	0.*							B2 P2	307.6
13	-	0.*							B2 P3	317.1
14	-	0.*							B2 P4	149.3
15	-	0.*							B2 P5	174.4
16	-	0.*							B2 P6	196.1
17	-	0.*							B2 P7	212.8
18	-	0.*							B2 P8	233.4
19	-	0.*							B2 P9	218.1
20	-	0.*							B2 P10	274.7
21	-	0.*							B3 P1	367.6
22	-	0.*							B3 P2	340.4
23	-	0.*							B3 P3	345.3
24	-	0.*							B4 P1	333.4
25	-	0.*							B4 P2	271.1
26	-	0.*							B4 P3	313.3
27	-	0.*							B4 P4	319.6
28	-	0.*							B4 P5	312.6
29	-	0.*							B4 P6	316.6
30	-	0.*							B4 P7	331.4
31	-	0.*							B4 P8	350.6
32	-	0.*							B4 P9	309.4
33	-	0.*							B4 P10	325.0
34	-	0.*							B5 P1	327.5
35	-	0.*							B5 P2	307.7
36	-	0.*							B5 P3	317.1
37	-	0.*							B5 P4	149.3
38	-	0.*							B5 P5	174.3
39	-	0.*							B5 P6	196.2
40	-	0.*							B5 P7	212.8

41	-	0.*	B6 P1	285.3
42	-	0.*	B6 P2	274.1
43	-	0.*	B6 P3	194.7
44	-	0.*	B6 P4	314.8
45	-	0.*	B7 P1	241.2
46	-	0.*	B7 P2	213.2
47	-	0.*	B7 P3	213.0
48	-	0.*	B7 P4	231.4
49	-	0.*	B7 P5	227.3
50	-	0.*	B8 P1	206.5
51	-	0.*	B8 P2	184.8
52	-	0.*	B8 P3	160.1
53	-	0.*	B8 P4	181.5
54	-	0.*	B8 P5	139.8
55	-	0.*	B8 P6	232.6
56	-	0.*	B9 P1	192.6
57	-	0.*	B9 P2	166.6
58	-	0.*	B9 P3	145.7
59	-	0.*	B9 P4	175.6
60	-	0.*	B9 P5	199.5
61	-	0.*	B10 P1	188.0
62	-	0.*	B10 P2	166.6
63	-	0.*	B10 P3	156.4
64	-	0.*	B10 P4	175.6
65	-	0.*	B10 P5	199.4

	0	1	2	3	4	5	6	7
1								
REC REC ID	DNL	PEOPLE	LEQ(CAL)					
1 1	67.	500.	63.8					
2 2	67.	500.	65.2					
3 3	67.	500.	61.4					
4 4	67.	500.	63.4					
5 5	67.	500.	64.1					
6 6	67.	500.	60.6					
7 7	67.	500.	69.1					
8 8	67.	500.	66.0					
9 9	67.	500.	62.2					
BARRIER HEIGHT INDEX FOR EACH BARRIER SECTION								
1 1								
1 1								
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								
CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION								
0. 0.								
0. 0.								
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.								

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 2

1

BARRIER DATA

BAR ELE	0	1	BARRIER HEIGHTS							BAR ID	LENGTH	TYPE
			2	3	4	5	6	7				
1	-	0.*							B1 P1	385.0		
2	-	0.*							B1 P2	323.2		
3	-	0.*							B1 P3	403.1		
4	-	0.*							B1 P4	437.3		
5	-	0.*							B1 P5	431.6		
6	-	0.*							B1 P6	364.8		
7	-	0.*							B1 P7	414.0		
8	-	0.*							B1 P8	284.8		
9	-	0.*							B1 P9	305.8		
10	-	0.*							B1 P10	365.5		
11	-	0.*							B2 P1	333.4		
12	-	0.*							B2 P2	271.1		
13	-	0.*							B2 P3	313.3		
14	-	0.*							B2 P4	319.6		
15	-	0.*							B2 P5	312.6		
16	-	0.*							B2 P6	316.6		
17	-	0.*							B2 P7	331.4		
18	-	0.*							B2 P8	350.6		
19	-	0.*							B2 P9	309.4		
20	-	0.*							B2 P10	325.0		
21	-	0.*							B3 P1	163.4		
22	-	0.*							B3 P2	139.2		
23	-	0.*							B3 P3	121.8		
24	-	0.*							B3 P4	142.4		
25	-	0.*							B3 P5	141.5		
26	-	0.*							B3 P6	173.3		
27	-	0.*							B3 P7	155.8		
28	-	0.*							B4 P1	153.8		
29	-	0.*							B4 P2	143.5		
30	-	0.*							B4 P3	146.4		
31	-	0.*							B4 P4	184.8		
32	-	0.*							B4 P5	174.3		
33	-	0.*							B4 P6	165.3		
34	-	0.*							B4 P7	187.4		
35	-	0.*							B4 P8	226.6		
36	-	0.*							B4 P9	215.6		
37	-	0.*							B4 P10	223.2		
38	-	0.*							B5 P1	170.3		
39	-	0.*							B5 P2	162.4		
40	-	0.*							B5 P3	154.2		
41	-	0.*							B5 P4	177.5		

42	-	0.*	B5 P5	161.5
43	-	0.*	B5 P6	162.5
44	-	0.*	B5 P7	177.4
45	-	0.*	B5 P8	223.9
46	-	0.*	B5 P9	208.6
47	-	0.*	B5 P10	220.3

 0 1 2 3 4 5 6 7

1

REC	REC ID	DNL	PEOPLE	LEQ(CAL)
1	10	67.	500.	56.0
2	11	67.	500.	52.1
3	12	67.	500.	60.0
4	13	67.	500.	53.3
5	14	67.	500.	53.2
6	15	67.	500.	60.9
7	16	67.	500.	58.8
8	17	67.	500.	57.0
9	18	67.	500.	54.3
10	22	67.	500.	55.5

BARRIER HEIGHT INDEX FOR EACH BARRIER SECTION

1
 1

CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION

0.
 0.

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions part 3

1

BARRIER DATA

| BAR
ELE | 0 | 1 | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|---|-----|-----------------|---|---|---|---|---|--------|-----------|--------|------|
| | | | 2 | 3 | 4 | 5 | 6 | 7 | | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 277.7 | | |
| 2 | - | 0.* | | | | | | | B2 P1 | 385.0 | | |
| 3 | - | 0.* | | | | | | | B2 P2 | 324.3 | | |
| 4 | - | 0.* | | | | | | | B2 P3 | 403.0 | | |
| 5 | - | 0.* | | | | | | | B2 P4 | 433.7 | | |
| 6 | - | 0.* | | | | | | | B2 P5 | 431.5 | | |
| 7 | - | 0.* | | | | | | | B2 P6 | 370.2 | | |
| 8 | - | 0.* | | | | | | | B2 P7 | 414.0 | | |
| 9 | - | 0.* | | | | | | | B2 P8 | 276.0 | | |
| 10 | - | 0.* | | | | | | | B2 P9 | 305.8 | | |
| 11 | - | 0.* | | | | | | | B2 P10 | 342.1 | | |
| 12 | - | 0.* | | | | | | | B3 P1 | 333.4 | | |
| 13 | - | 0.* | | | | | | | B3 P2 | 283.1 | | |
| 14 | - | 0.* | | | | | | | B3 P3 | 302.7 | | |
| 15 | - | 0.* | | | | | | | B3 P4 | 310.9 | | |
| 16 | - | 0.* | | | | | | | B3 P5 | 312.6 | | |
| 17 | - | 0.* | | | | | | | B3 P6 | 316.6 | | |
| 18 | - | 0.* | | | | | | | B3 P7 | 331.5 | | |
| 19 | - | 0.* | | | | | | | B3 P8 | 350.5 | | |
| 20 | - | 0.* | | | | | | | B3 P9 | 309.5 | | |
| 21 | - | 0.* | | | | | | | B3 P10 | 324.9 | | |
| 22 | - | 0.* | | | | | | | B4 P1 | 385.0 | | |
| 23 | - | 0.* | | | | | | | B4 P2 | 323.2 | | |
| 24 | - | 0.* | | | | | | | B4 P3 | 403.1 | | |
| 25 | - | 0.* | | | | | | | B4 P4 | 437.3 | | |
| 26 | - | 0.* | | | | | | | B4 P5 | 431.6 | | |
| 27 | - | 0.* | | | | | | | B4 P6 | 364.8 | | |
| 28 | - | 0.* | | | | | | | B4 P7 | 414.0 | | |
| 29 | - | 0.* | | | | | | | B4 P8 | 284.8 | | |
| 30 | - | 0.* | | | | | | | B4 P9 | 305.8 | | |
| 31 | - | 0.* | | | | | | | B4 P10 | 365.5 | | |
| 32 | - | 0.* | | | | | | | B5 P1 | 333.4 | | |
| 33 | - | 0.* | | | | | | | B5 P2 | 271.1 | | |
| 34 | - | 0.* | | | | | | | B5 P3 | 313.3 | | |
| 35 | - | 0.* | | | | | | | B5 P4 | 319.6 | | |
| 36 | - | 0.* | | | | | | | B5 P5 | 312.6 | | |
| 37 | - | 0.* | | | | | | | B5 P6 | 316.6 | | |
| 38 | - | 0.* | | | | | | | B5 P7 | 331.4 | | |
| 39 | - | 0.* | | | | | | | B5 P8 | 350.6 | | |
| 40 | - | 0.* | | | | | | | B5 P9 | 309.4 | | |
| 41 | - | 0.* | | | | | | | B5 P10 | 325.0 | | |

1
1
1 1 1 1 1 1 1 1 1 1 1
CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION
0.
0.
0.
0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.

APPENDIX C

SOUND32 TRAFFIC NOISE MODEL PRINTOUTS FOR FUTURE (2030) WITH PROJECT WITH SOUND WALLS

Willow Road Future CEQA Conditions Part 1 with 6 foot wall

T-Willow WB prt2, 1
537 , 50 , 12 , 50 , 31 , 45
T-Willow WB prt3, 2
537 , 50 , 12 , 50 , 31 , 45
T-Willow EB prt2, 3
537 , 50 , 12 , 50 , 31 , 45
T-Willow EB prt3, 4
537 , 50 , 12 , 50 , 31 , 45
T-Hetrick NB prt1, 5
176 , 40 , 4 , 40 , 10 , 40
T-Hetrick NB prt2, 6
176 , 40 , 4 , 40 , 10 , 40
T-Hetrick SB prt1, 7
176 , 40 , 4 , 40 , 10 , 40
T-Hetrick SB prt2, 8
162 , 40 , 4 , 40 , 9 , 40
T-Pomeroy NB prt1, 9
162 , 40 , 4 , 40 , 9 , 40
T-Pomeroy NB prt2, 10
162 , 40 , 4 , 40 , 9 , 40
T-Pomeroy SB prt1, 11
162 , 40 , 4 , 40 , 9 , 40
T-Pomeroy SB prt2, 12
162 , 40 , 4 , 40 , 9 , 40

L-Willow WB prt2, 1
N,11618.9,4360,385.6,
N,11348.1,4114.5,397.5,
N,11036.3,3842.3,404.8,
N,10817.0,3669.4,402.5,
N,10559.7,3504.5,392.1,
N,10239.8,3345.5,383.3,
N,9926.3,3232.1,385.5,
N,9665.7,3167.4,392,
N,9362.7,3120.4,398.4,
N,9049.3,3106.8,404.9,
N,8737.2,3122.1,412.4,
N,8421.3,3142.3,418.7,
N,8090.5,3163.5,419.8,
N,7740.4,3180,418.5,
N,7431.1,3190.7,416.9,
N,7106.4,3198.9,410.9,
L-Willow WB prt3, 2
N,7106.4,3198.9,410.9,
N,6779.4,3207.9,394.9,
N,6472.3,3216.2,378.2,
N,6155.4,3225,370.6,
N,6006.3,3217.3,371.2,
N,5835.8,3180.6,374.5,
N,5645.9,3131.8,379.1,

N,5438.0,3087,385.2,
N,5204.7,3082.3,392,
N,4986.7,3088.2,393,
N,4712.9,3098,393.2,
N,4345.6,3113.2,393.2,
N,4005.4,3123.4,393.2,
N,3660.1,3123.5,393.2,
L-Willow EB prt2, 3
N,11635.5,4342.3,385.6,
N,11360.6,4099.1,397.5,
N,11051.3,3824.1,404.8,
N,10830.4,3649.7,402.5,
N,10571.7,3483,392.1,
N,10247.9,3322,383.3,
N,9933.0,3208.5,385.5,
N,9674.3,3142.9,392,
N,9365.5,3096.6,398.4,
N,9048.6,3083.8,404.9,
N,8736.5,3099.1,412.4,
N,8420.6,3119.3,418.7,
N,8089.8,3140.4,419.8,
N,7739.7,3157,418.9,
N,7430.7,3166,416.9,
N,7105.7,3175.9,410.9,
L-Willow EB prt3, 4
N,7105.7,3175.9,410.9,
N,6778.6,3184.9,394.9,
N,6472.2,3192.6,378.2,
N,6154.7,3201.9,370.6,
N,6009.0,3193.5,371.2,
N,5840.5,3157.9,374.5,
N,5651.1,3109.1,379.1,
N,5441.6,3064,385.2,
N,5204.0,3059.2,392,
N,4986.0,3065.2,393,
N,4712.9,3072.6,393.2,
N,4344.0,3086.2,393.2,
N,4005.4,3096.3,393.2,
N,3658.4,3101.4,393.2,
L-Hetrick NB prt1, 5
N,9133.5,4216.9,397.1,
N,9227.0,4032.9,397.1,
N,9299.7,3862.9,397.1,
N,9368.6,3718.5,397.1,
N,9447.9,3555.1,401.3,
N,9507.3,3428.6,402.2,
N,9579.1,3258.7,398.3,
L-Hetrick NB prt2, 6
N,9671.6,3044.4,391.1,
N,9743.4,2869.8,391.2,

N,9800.1,2709.3,392.6,
N,9809.5,2559.2,390.2,
N,9806.7,2383.6,388.5,
N,9801.4,2184.3,386.8,
L-Hetrick SB prt1, 7
N,9125.1,4212.3,397.1,
N,9218.5,4028.2,397.1,
N,9291.3,3858.3,397.1,
N,9360.2,3713.8,397.1,
N,9439.4,3550.5,401.3,
N,9498.9,3423.9,402.2,
N,9563.2,3252.2,398.3,
L-Hetrick SB prt2, 8
N,9653.8,3039.7,391.1,
N,9735.0,2865.1,391.2,
N,9791.7,2708.4,392.6,
N,9801.1,2558.3,390.2,
N,9798.2,2382.7,388.5,
N,9793.0,2183.3,386.8,
L-Pomeroy NB prt1, 9
N,5912.6,4256.4,375,
N,6070.8,4019,375,
N,6209.0,3782.3,375,
N,6227.3,3593.2,375,
N,6223.8,3389.7,375,
N,6225.0,3278.6,371,
L-Pomeroy NB prt2, 10
N,6223.6,3171.8,367.2,
N,6222.4,2930.7,361.4,
N,6213.4,2717.7,360.3,
N,6212.7,2504.7,361.3,
N,6214.3,2273.3,361.3,
N,6203.1,2046.3,361.3,
L-Pomeroy SB prt1, 11
N,5899.2,4256.4,375,
N,6057.4,4019,375,
N,6195.5,3782.3,375,
N,6213.9,3593.2,375,
N,6210.3,3389.7,375,
N,6213.7,3276.1,371,
L-Pomeroy SB prt2, 12
N,6210.2,3171.8,367.2,
N,6208.9,2930.7,361.4,
N,6199.9,2717.7,360.3,
N,6199.2,2504.7,361.3,
N,6200.8,2273.3,361.3,
N,6189.7,2046.3,361.3,
B-Willow WB Barrier prt3, 1 , 2 , 0 , 0
10249.2,3355.1,383.3,383.3,
9935.7,3241.6,385.5,385.5,

9659.8,3178.5,392,392,
9360.5,3133.6,398.4,398.4,
9050.0,3120,404.9,404.9,
8737.9,3135.3,412.4,412.4,
8422.0,3155.5,418.7,418.7,
8091.2,3176.7,419.8,419.8,
7741.1,3193.2,418.5,418.5,
7431.8,3203.9,416.9,416.9,
7107.1,3212.1,410.9,410.9,
B-Willow WB Barrier prt4, 2 , 2 , 0 , 0
7107.1,3212.1,410.9,410.9,
6780.0,3221.1,394.9,394.9,
6473.0,3229.4,378.2,378.2,
6156.1,3238.2,370.6,370.6,
6007.0,3230.5,371.2,371.2,
5836.5,3193.8,374.5,374.5,
5646.6,3145,379.1,379.1,
5438.7,3100.2,385.2,385.2,
5205.4,3095.5,392,392,
4987.4,3101.4,393.2,393.2,
4712.9,3111.7,393.2,393.2,
B-Willow WB Barrier prt5, 3 , 2 , 0 , 0
4712.9,3111.7,393.2,393.2,
4345.6,3126.9,393.2,393.2,
4005.4,3137.1,393.2,393.2,
3660.1,3137.1,393.2,393.2,
B-Willow EB Barrier prt3, 4 , 2 , 0 , 0
10252.9,3309.4,383.3,383.3,
9939.4,3196,385.5,385.5,
9677.3,3127,392,392,
9367.1,3083.6,398.4,398.4,
9047.9,3069.3,404.9,404.9,
8735.8,3084.6,412.4,412.4,
8419.9,3104.8,418.7,418.7,
8089.2,3125.9,419.8,419.8,
7739.0,3142.5,418.5,418.5,
7429.8,3153.2,416.9,416.9,
7105.0,3161.4,410.9,410.9,
B-Willow EB Barrier prt4, 5 , 2 , 0 , 0
7105.0,3161.4,410.9,410.9,
6778.0,3170.4,394.9,394.9,
6470.9,3178.6,378.2,378.2,
6154.0,3187.4,370.6,370.6,
6004.9,3179.8,371.2,371.2,
5834.5,3143.1,374.5,374.5,
5644.5,3094.3,379.1,379.1,
5436.6,3049.5,385.2,385.2,
B-Pomeroy NB Barrier, 6 , 2 , 0 , 0
5924.6,4256.4,375,375,
6082.8,4019,375,375,

6221.0,3782.3,375,375,
6239.0,3588.4,375,375,
6240.9,3273.6,371,371,
B-Pomeroy SBE Barrier, 7 , 2 , 0 ,0
6236.2,3171.8,367.2,367.2,
6234.9,2930.7,361.4,361.4,
6226.0,2717.7,360.3,360.3,
6225.3,2504.7,361.3,361.3,
6226.9,2273.3,361.3,361.3,
6215.7,2046.3,361.3,361.3,
B-Hetrick NB Barrier, 8 , 2 , 0 ,0
9112.9,4209.1,397.1,397.1,
9206.4,4025,397.1,397.1,
9279.1,3855.1,397.1,397.1,
9348.1,3710.6,397.1,397.1,
9427.3,3547.3,401.3,401.3,
9486.8,3420.8,402.2,402.2,
9561.8,3200.7,398.3,398.3,
B-Hetrick SBW Barrier, 9 , 2 , 0 ,0
9644.3,3035,391.1,391.1,
9725.5,2860.3,391.2,391.2,
9782.1,2703.6,392.6,392.6,
9792.7,2558.3,390.2,390.2,
9789.9,2382.7,388.5,388.5,
9784.7,2183.3,386.8,386.8,
B-Hetrick SBE Barrier, 10 , 2 , 0 ,0
9680.0,3046.9,391.1,391.1,
9755.3,2874.6,391.2,391.2,
9811.9,2717.9,392.6,392.6,
9821.3,2561.8,390.2,390.2,
9818.5,2386.2,388.5,388.5,
9813.3,2186.9,386.8,386.8,
B-B-Soundwall 1, 11 , 2 , 0 ,0
5012.0,3148.1,403,409,
5020.8,3139.9,403,409,
5127.1,3135.2,403,409,
5135.2,3142.6,403,409,
B-Soundwall 2, 12 , 2 , 0 ,0
8470.2,3181.4,419.3,425.3,
8565.7,3174.5,418,424,
8687.3,3167.7,415,421,
8787.3,3162,412.5,418.5,
R, 1 , 67 ,500
5049,3162,409.0,1
R, 2 , 67 ,500
6387.3,3101.6,374.7,2
R, 3 , 67 ,500
6593.6,3023.0,395.5,3
R, 4 , 67 ,500
6701.6,3070.2,402.6,4

R, 5 , 67 ,500
6933.2,3094.3,411.5,5
R, 6 , 67 ,500
6330.4,3506.2,375.1,6
R, 7 , 67 ,500
7007.4,3256.1.6,419.2,7
R, 8 , 67 ,500
8581.5,3209.6,420.0,8
R, 9 , 67 ,500
8912.8,2947.4,424.5,9
D, 4.5
ALL,ALL
C,C

Willow Road Future CEQA Conditions Part 2 with 6 foot wall

T-Willow WB prt1, 1
176 , 50 , 4 , 50 , 10 , 45
T-Willow WB prt2, 2
537 , 50 , 12 , 50 , 31 , 45
T-Willow EB prt1, 3
176 , 50 , 4 , 50 , 10 , 45
T-Willow EB prt2, 4
537 , 50 , 12 , 50 , 31 , 45
T-101 SB Off Ramp, 5
269 , 45 , 6 , 45 , 16 , 40
T-101 SB On Ramp, 6
273 , 45 , 6 , 45 , 16 , 40
T-101 NB On Ramp, 7
213 , 45 , 5 , 45 , 12 , 40
T-101 NB Off Ramp, 8
227 , 45 , 5 , 45 , 13 , 40
T-Frontage NB prt1, 9
181 , 40 , 4 , 40 , 11 , 40
T-Frontage NB prt2, 10
181 , 40 , 4 , 40 , 11 , 40
T-Frontage SB prt1, 11
181 , 40 , 4 , 40 , 11 , 40
T-Frontage SB prt2, 12
181 , 40 , 4 , 40 , 11 , 40
T-Thompson NB prt1, 13
250 , 45 , 5 , 45 , 15 , 40
T-Thompson NB prt2, 14
250 , 45 , 5 , 45 , 15 , 40
T-Thompson SB prt1, 15
250 , 45 , 5 , 45 , 15 , 40
T-Thompson SB prt2, 16
250 , 45 , 5 , 45 , 15 , 40
L-Willow WB prt1, 1
N,15273.5,7200.3,374,
N,15134.4,7082.8,367.2,
N,14952.2,6968.8,356.8,
N,14765.2,6894,349.2,
N,14503.8,6793,344.1,
N,14306.8,6680.5,341,
N,14124.8,6534.3,338.1,
N,13936.0,6372.7,338.8,
N,13668.4,6141.1,340,
N,13376.4,5890.4,341.3,
N,13110.6,5661.7,349.4,
N,12819.5,5410.4,367.2,
N,12575.6,5199,382.8,
N,12270.8,4935.4,390,
N,11942.7,4645.3,384.7,
11618.9,4360,385.6,

L-Willow WB prt2, 2
N,11618.9,4360,385.6,
N,11348.1,4114.5,397.5,
N,11036.3,3842.3,404.8,
N,10817.0,3669.4,402.5,
N,10559.7,3504.5,392.1,
N,10239.8,3345.5,383.3,
N,9926.3,3232.1,385.5,
N,9665.7,3167.4,392,
N,9362.7,3120.4,398.4,
N,9049.3,3106.8,404.9,
N,8737.2,3122.1,412.4,
N,8421.3,3142.3,418.7,
N,8090.5,3163.5,419.8,
N,7740.4,3180,418.5,
N,7431.1,3190.7,416.9,
N,7106.4,3198.9,410.9,
L-Willow EB prt1, 3
N,15288.5,7182.1,374,
N,15148.2,7062.3,367.2,
N,14961.9,6947.4,356.8,
N,14773.6,6871,349.2,
N,14512.2,6770.2,344.1,
N,14320.8,6662.5,341,
N,14139.8,6517.1,338.1,
N,13952.3,6355,338.8,
N,13683.9,6124.7,340,
N,13392.1,5871.4,341.3,
N,13126.9,5643.7,349.4,
N,12835.3,5392.4,367.2,
N,12589.3,5180.5,382.8,
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N,11957.2,4628.4,384.7,
N,11635.5,4342.3,385.6,
L-Willow EB prt2, 4
N,11635.5,4342.3,385.6,
N,11360.6,4099.1,397.5,
N,11051.3,3824.1,404.8,
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N,12780.2,5660.6,379,
N,12734.9,5745.3,380.4,
N,12713.9,5840.1,377,
N,12717.3,6002.9,383.4,
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N,12526.0,6544.2,373.1,
N,12419.4,6727.1,373.1,
L-101 SB On Ramp, 6
N,12964.8,5457.5,362,
N,13071.4,5334.1,374.1,
N,13162.9,5229.2,377.3,
N,13257.7,5152.9,375.1,
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N,13749.4,4802.1,366,
N,13879.5,4641.9,366.4,
N,14035.6,4437.9,365.4,
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N,13170.3,6003.1,345,
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N,14044.3,4663.1,363,
N,14150.9,4482.5,364,
L-Frontage Road NB prt1, 9
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N,14497.9,3676.1,360.6,
N,14663.3,3441.7,361.3,
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L-Frontage Road NB prt2, 10
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N,15440.5,2350.7,354.2,
N,15594.7,2132.9,353.2,
L-Frontage Road SB prt1, 11
N,12474.8,5023.2,387.8,
N,12600.2,4919.2,378.3,
N,12754.7,4890.4,376.1,
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N,13730.9,4669.3,364.2,
N,13874.5,4513,363.1,
N,14006.2,4335.8,364,
N,14157.6,4127.3,363.4,
N,14317.6,3904.2,362.1,
N,14488.7,3667.1,360.6,
N,14653.8,3434.3,361.3,
N,14821.3,3195,357.2,
L-Frontage Road SB prt2, 12
N,14821.3,3195,357.2,
N,14984.6,2961.4,354.1,
N,15148.6,2727.7,354.8,
N,15310.2,2504.9,354.8,
N,15431.3,2344.2,354.2,
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L-Thompson NB prt1, 13
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N,16213.3,6219.4,374.3,
L-Thompson NB prt2, 14
N,16213.3,6219.4,374.3,
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L-Thompson SB prt1, 15
N,14573.3,8114.6,362.7,
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N,15341.7,7223.4,374.2,
N,15451.9,7099,374.5,
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N,15689.0,6820.1,374.3,
N,15815.8,6668.3,374.3,
N,15947.1,6514.5,374.3,
N,16083.2,6357.9,374.3,
N,16206.2,6214.4,374.3,
L-Thompson SB prt2, 16
N,16206.2,6214.4,374.3,
N,16361.1,6030.5,374.3,
N,16493.9,5872.1,374.3,
B-Willow EB Barrier prt2, 1 , 2 , 0 , 0
13134.8,5631,349.4,349.4,
12843.7,5379.7,367.2,367.2,
12598.9,5169.2,382.8,382.8,
12294.1,4905.5,390,390,
11966.9,4615.5,384.7,384.7,
11643.1,4330.2,385.6,385.6,
11369.8,4088.9,397.5,397.5,
11058.0,3816.7,404.8,404.8,
10837.7,3636.2,402.5,402.5,
10580.5,3471.2,392.1,392.1,
10252.9,3309.4,383.3,383.3,
B-Willow EB Barrier prt3, 2 , 2 , 0 , 0
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9939.4,3196,385.5,385.5,
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 8735.8,3084.6,412.4,412.4,
 8419.9,3104.8,418.7,418.7,
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 7739.0,3142.5,418.5,418.5,
 7429.8,3153.2,416.9,416.9,
 7105.0,3161.4,410.9,410.9,
 B-101 SB Ramp Barrier, 3 , 2 , 0 , 0
 12956.4,5447,362,362,
 13062.9,5323.7,374.1,374.1,
 13154.4,5218.8,377.3,377.3,
 13249.2,5142.4,375.1,375.1,
 13378.1,5082,371.3,371.3,
 13504.8,5019.1,372,372,
 13639.4,4910,369.2,369.2,
 13739.5,4790.7,366,366,
 B-Frontage NB Barrier, 4 , 2 , 0 , 0
 12494.8,5040.8,387.8,387.8,
 12611.1,4940.6,378.3,378.3,
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 13571.2,4830.7,369.4,369.4,
 13747.2,4688,364.2,364.2,
 13894.5,4530.6,363.1,363.1,
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 B-Frontage SB Barrier, 5 , 2 , 0 , 0
 12462.2,5011.8,387.8,387.8,
 12595.2,4905.8,378.3,378.3,
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 13721.8,4656.1,364.2,364.2,
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 B-Soundwall 3, 6 , 2 , 0 , 0
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 12081.5,4647.9,387.7,393.7,
 R, 1 , 67 , 500
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 R, 2 , 67 , 500
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 R, 3 , 67 , 500
 11604.4,4034.7,397.2,12
 R, 4 , 67 , 500

11841.0,3766.3,395.3,13
R, 5 , 67 ,500
11918.7,3850.6,395.3,14
R, 6 , 67 ,500
12005.1,4551.6,390.7,15
R, 7 , 67 ,500
12475.0,4823.9,388.4,16
R, 8 , 67 ,500
13022.2,4756.0,379.2,17
R, 9 , 67 ,500
13063.1,4611.7,379.5,18
R, 10 , 67 ,500
13195,4660,377.,22
D, 4.5
ALL,ALL
C,C

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 1 with 6 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 333.4 |
| 2 | - | 0.* | | | | | | | B1 P2 | 283.1 |
| 3 | - | 0.* | | | | | | | B1 P3 | 302.7 |
| 4 | - | 0.* | | | | | | | B1 P4 | 310.9 |
| 5 | - | 0.* | | | | | | | B1 P5 | 312.6 |
| 6 | - | 0.* | | | | | | | B1 P6 | 316.6 |
| 7 | - | 0.* | | | | | | | B1 P7 | 331.5 |
| 8 | - | 0.* | | | | | | | B1 P8 | 350.5 |
| 9 | - | 0.* | | | | | | | B1 P9 | 309.5 |
| 10 | - | 0.* | | | | | | | B1 P10 | 324.9 |
| 11 | - | 0.* | | | | | | | B2 P1 | 327.6 |
| 12 | - | 0.* | | | | | | | B2 P2 | 307.6 |
| 13 | - | 0.* | | | | | | | B2 P3 | 317.1 |
| 14 | - | 0.* | | | | | | | B2 P4 | 149.3 |
| 15 | - | 0.* | | | | | | | B2 P5 | 174.4 |
| 16 | - | 0.* | | | | | | | B2 P6 | 196.1 |
| 17 | - | 0.* | | | | | | | B2 P7 | 212.8 |
| 18 | - | 0.* | | | | | | | B2 P8 | 233.4 |
| 19 | - | 0.* | | | | | | | B2 P9 | 218.1 |
| 20 | - | 0.* | | | | | | | B2 P10 | 274.7 |
| 21 | - | 0.* | | | | | | | B3 P1 | 367.6 |
| 22 | - | 0.* | | | | | | | B3 P2 | 340.4 |
| 23 | - | 0.* | | | | | | | B3 P3 | 345.3 |
| 24 | - | 0.* | | | | | | | B4 P1 | 333.4 |
| 25 | - | 0.* | | | | | | | B4 P2 | 271.1 |
| 26 | - | 0.* | | | | | | | B4 P3 | 313.3 |
| 27 | - | 0.* | | | | | | | B4 P4 | 319.6 |
| 28 | - | 0.* | | | | | | | B4 P5 | 312.6 |
| 29 | - | 0.* | | | | | | | B4 P6 | 316.6 |
| 30 | - | 0.* | | | | | | | B4 P7 | 331.4 |
| 31 | - | 0.* | | | | | | | B4 P8 | 350.6 |
| 32 | - | 0.* | | | | | | | B4 P9 | 309.4 |
| 33 | - | 0.* | | | | | | | B4 P10 | 325.0 |
| 34 | - | 0.* | | | | | | | B5 P1 | 327.5 |
| 35 | - | 0.* | | | | | | | B5 P2 | 307.7 |
| 36 | - | 0.* | | | | | | | B5 P3 | 317.1 |
| 37 | - | 0.* | | | | | | | B5 P4 | 149.3 |
| 38 | - | 0.* | | | | | | | B5 P5 | 174.3 |
| 39 | - | 0.* | | | | | | | B5 P6 | 196.2 |
| 40 | - | 0.* | | | | | | | B5 P7 | 212.8 |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 2 with 6 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 385.0 |
| 2 | - | 0.* | | | | | | | B1 P2 | 323.2 |
| 3 | - | 0.* | | | | | | | B1 P3 | 403.1 |
| 4 | - | 0.* | | | | | | | B1 P4 | 437.3 |
| 5 | - | 0.* | | | | | | | B1 P5 | 431.6 |
| 6 | - | 0.* | | | | | | | B1 P6 | 364.8 |
| 7 | - | 0.* | | | | | | | B1 P7 | 414.0 |
| 8 | - | 0.* | | | | | | | B1 P8 | 284.8 |
| 9 | - | 0.* | | | | | | | B1 P9 | 305.8 |
| 10 | - | 0.* | | | | | | | B1 P10 | 365.5 |
| 11 | - | 0.* | | | | | | | B2 P1 | 333.4 |
| 12 | - | 0.* | | | | | | | B2 P2 | 271.1 |
| 13 | - | 0.* | | | | | | | B2 P3 | 313.3 |
| 14 | - | 0.* | | | | | | | B2 P4 | 319.6 |
| 15 | - | 0.* | | | | | | | B2 P5 | 312.6 |
| 16 | - | 0.* | | | | | | | B2 P6 | 316.6 |
| 17 | - | 0.* | | | | | | | B2 P7 | 331.4 |
| 18 | - | 0.* | | | | | | | B2 P8 | 350.6 |
| 19 | - | 0.* | | | | | | | B2 P9 | 309.4 |
| 20 | - | 0.* | | | | | | | B2 P10 | 325.0 |
| 21 | - | 0.* | | | | | | | B3 P1 | 163.4 |
| 22 | - | 0.* | | | | | | | B3 P2 | 139.2 |
| 23 | - | 0.* | | | | | | | B3 P3 | 121.8 |
| 24 | - | 0.* | | | | | | | B3 P4 | 142.4 |
| 25 | - | 0.* | | | | | | | B3 P5 | 141.5 |
| 26 | - | 0.* | | | | | | | B3 P6 | 173.3 |
| 27 | - | 0.* | | | | | | | B3 P7 | 155.8 |
| 28 | - | 0.* | | | | | | | B4 P1 | 153.8 |
| 29 | - | 0.* | | | | | | | B4 P2 | 143.5 |
| 30 | - | 0.* | | | | | | | B4 P3 | 146.4 |
| 31 | - | 0.* | | | | | | | B4 P4 | 184.8 |
| 32 | - | 0.* | | | | | | | B4 P5 | 174.3 |
| 33 | - | 0.* | | | | | | | B4 P6 | 165.3 |
| 34 | - | 0.* | | | | | | | B4 P7 | 187.4 |
| 35 | - | 0.* | | | | | | | B4 P8 | 226.6 |
| 36 | - | 0.* | | | | | | | B4 P9 | 215.6 |
| 37 | - | 0.* | | | | | | | B4 P10 | 223.2 |
| 38 | - | 0.* | | | | | | | B5 P1 | 170.3 |
| 39 | - | 0.* | | | | | | | B5 P2 | 162.4 |
| 40 | - | 0.* | | | | | | | B5 P3 | 154.2 |
| 41 | - | 0.* | | | | | | | B5 P4 | 177.5 |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 1 with 8 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 333.4 |
| 2 | - | 0.* | | | | | | | B1 P2 | 283.1 |
| 3 | - | 0.* | | | | | | | B1 P3 | 302.7 |
| 4 | - | 0.* | | | | | | | B1 P4 | 310.9 |
| 5 | - | 0.* | | | | | | | B1 P5 | 312.6 |
| 6 | - | 0.* | | | | | | | B1 P6 | 316.6 |
| 7 | - | 0.* | | | | | | | B1 P7 | 331.5 |
| 8 | - | 0.* | | | | | | | B1 P8 | 350.5 |
| 9 | - | 0.* | | | | | | | B1 P9 | 309.5 |
| 10 | - | 0.* | | | | | | | B1 P10 | 324.9 |
| 11 | - | 0.* | | | | | | | B2 P1 | 327.6 |
| 12 | - | 0.* | | | | | | | B2 P2 | 307.6 |
| 13 | - | 0.* | | | | | | | B2 P3 | 317.1 |
| 14 | - | 0.* | | | | | | | B2 P4 | 149.3 |
| 15 | - | 0.* | | | | | | | B2 P5 | 174.4 |
| 16 | - | 0.* | | | | | | | B2 P6 | 196.1 |
| 17 | - | 0.* | | | | | | | B2 P7 | 212.8 |
| 18 | - | 0.* | | | | | | | B2 P8 | 233.4 |
| 19 | - | 0.* | | | | | | | B2 P9 | 218.1 |
| 20 | - | 0.* | | | | | | | B2 P10 | 274.7 |
| 21 | - | 0.* | | | | | | | B3 P1 | 367.6 |
| 22 | - | 0.* | | | | | | | B3 P2 | 340.4 |
| 23 | - | 0.* | | | | | | | B3 P3 | 345.3 |
| 24 | - | 0.* | | | | | | | B4 P1 | 333.4 |
| 25 | - | 0.* | | | | | | | B4 P2 | 271.1 |
| 26 | - | 0.* | | | | | | | B4 P3 | 313.3 |
| 27 | - | 0.* | | | | | | | B4 P4 | 319.6 |
| 28 | - | 0.* | | | | | | | B4 P5 | 312.6 |
| 29 | - | 0.* | | | | | | | B4 P6 | 316.6 |
| 30 | - | 0.* | | | | | | | B4 P7 | 331.4 |
| 31 | - | 0.* | | | | | | | B4 P8 | 350.6 |
| 32 | - | 0.* | | | | | | | B4 P9 | 309.4 |
| 33 | - | 0.* | | | | | | | B4 P10 | 325.0 |
| 34 | - | 0.* | | | | | | | B5 P1 | 327.5 |
| 35 | - | 0.* | | | | | | | B5 P2 | 307.7 |
| 36 | - | 0.* | | | | | | | B5 P3 | 317.1 |
| 37 | - | 0.* | | | | | | | B5 P4 | 149.3 |
| 38 | - | 0.* | | | | | | | B5 P5 | 174.3 |
| 39 | - | 0.* | | | | | | | B5 P6 | 196.2 |
| 40 | - | 0.* | | | | | | | B5 P7 | 212.8 |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 2 with 8 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | B1 P1 | 385.0 | |
| 2 | - | 0.* | | | | | | B1 P2 | 323.2 | |
| 3 | - | 0.* | | | | | | B1 P3 | 403.1 | |
| 4 | - | 0.* | | | | | | B1 P4 | 437.3 | |
| 5 | - | 0.* | | | | | | B1 P5 | 431.6 | |
| 6 | - | 0.* | | | | | | B1 P6 | 364.8 | |
| 7 | - | 0.* | | | | | | B1 P7 | 414.0 | |
| 8 | - | 0.* | | | | | | B1 P8 | 284.8 | |
| 9 | - | 0.* | | | | | | B1 P9 | 305.8 | |
| 10 | - | 0.* | | | | | | B1 P10 | 365.5 | |
| 11 | - | 0.* | | | | | | B2 P1 | 333.4 | |
| 12 | - | 0.* | | | | | | B2 P2 | 271.1 | |
| 13 | - | 0.* | | | | | | B2 P3 | 313.3 | |
| 14 | - | 0.* | | | | | | B2 P4 | 319.6 | |
| 15 | - | 0.* | | | | | | B2 P5 | 312.6 | |
| 16 | - | 0.* | | | | | | B2 P6 | 316.6 | |
| 17 | - | 0.* | | | | | | B2 P7 | 331.4 | |
| 18 | - | 0.* | | | | | | B2 P8 | 350.6 | |
| 19 | - | 0.* | | | | | | B2 P9 | 309.4 | |
| 20 | - | 0.* | | | | | | B2 P10 | 325.0 | |
| 21 | - | 0.* | | | | | | B3 P1 | 163.4 | |
| 22 | - | 0.* | | | | | | B3 P2 | 139.2 | |
| 23 | - | 0.* | | | | | | B3 P3 | 121.8 | |
| 24 | - | 0.* | | | | | | B3 P4 | 142.4 | |
| 25 | - | 0.* | | | | | | B3 P5 | 141.5 | |
| 26 | - | 0.* | | | | | | B3 P6 | 173.3 | |
| 27 | - | 0.* | | | | | | B3 P7 | 155.8 | |
| 28 | - | 0.* | | | | | | B4 P1 | 153.8 | |
| 29 | - | 0.* | | | | | | B4 P2 | 143.5 | |
| 30 | - | 0.* | | | | | | B4 P3 | 146.4 | |
| 31 | - | 0.* | | | | | | B4 P4 | 184.8 | |
| 32 | - | 0.* | | | | | | B4 P5 | 174.3 | |
| 33 | - | 0.* | | | | | | B4 P6 | 165.3 | |
| 34 | - | 0.* | | | | | | B4 P7 | 187.4 | |
| 35 | - | 0.* | | | | | | B4 P8 | 226.6 | |
| 36 | - | 0.* | | | | | | B4 P9 | 215.6 | |
| 37 | - | 0.* | | | | | | B4 P10 | 223.2 | |
| 38 | - | 0.* | | | | | | B5 P1 | 170.3 | |
| 39 | - | 0.* | | | | | | B5 P2 | 162.4 | |
| 40 | - | 0.* | | | | | | B5 P3 | 154.2 | |
| 41 | - | 0.* | | | | | | B5 P4 | 177.5 | |

| | | | | |
|----|---|-----|--------|-------|
| 42 | - | 0.* | B5 P5 | 161.5 |
| 43 | - | 0.* | B5 P6 | 162.5 |
| 44 | - | 0.* | B5 P7 | 177.4 |
| 45 | - | 0.* | B5 P8 | 223.9 |
| 46 | - | 0.* | B5 P9 | 208.6 |
| 47 | - | 0.* | B5 P10 | 220.3 |
| 48 | - | 8.* | B6 P1 | 258.7 |

 0 1 2 3 4 5 6 7

1
 REC REC ID DNL PEOPLE LEQ(CAL)

| | | | | |
|----|----|-----|------|------|
| 1 | 10 | 67. | 500. | 56.0 |
| 2 | 11 | 67. | 500. | 52.0 |
| 3 | 12 | 67. | 500. | 60.0 |
| 4 | 13 | 67. | 500. | 53.3 |
| 5 | 14 | 67. | 500. | 53.2 |
| 6 | 15 | 67. | 500. | 57.3 |
| 7 | 16 | 67. | 500. | 58.8 |
| 8 | 17 | 67. | 500. | 57.0 |
| 9 | 18 | 67. | 500. | 54.3 |
| 10 | 22 | 67. | 500. | 55.5 |

BARRIER HEIGHT INDEX FOR EACH BARRIER SECTION

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION

| | | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 8. |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 2 with 10 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | B1 P1 | 385.0 | |
| 2 | - | 0.* | | | | | | B1 P2 | 323.2 | |
| 3 | - | 0.* | | | | | | B1 P3 | 403.1 | |
| 4 | - | 0.* | | | | | | B1 P4 | 437.3 | |
| 5 | - | 0.* | | | | | | B1 P5 | 431.6 | |
| 6 | - | 0.* | | | | | | B1 P6 | 364.8 | |
| 7 | - | 0.* | | | | | | B1 P7 | 414.0 | |
| 8 | - | 0.* | | | | | | B1 P8 | 284.8 | |
| 9 | - | 0.* | | | | | | B1 P9 | 305.8 | |
| 10 | - | 0.* | | | | | | B1 P10 | 365.5 | |
| 11 | - | 0.* | | | | | | B2 P1 | 333.4 | |
| 12 | - | 0.* | | | | | | B2 P2 | 271.1 | |
| 13 | - | 0.* | | | | | | B2 P3 | 313.3 | |
| 14 | - | 0.* | | | | | | B2 P4 | 319.6 | |
| 15 | - | 0.* | | | | | | B2 P5 | 312.6 | |
| 16 | - | 0.* | | | | | | B2 P6 | 316.6 | |
| 17 | - | 0.* | | | | | | B2 P7 | 331.4 | |
| 18 | - | 0.* | | | | | | B2 P8 | 350.6 | |
| 19 | - | 0.* | | | | | | B2 P9 | 309.4 | |
| 20 | - | 0.* | | | | | | B2 P10 | 325.0 | |
| 21 | - | 0.* | | | | | | B3 P1 | 163.4 | |
| 22 | - | 0.* | | | | | | B3 P2 | 139.2 | |
| 23 | - | 0.* | | | | | | B3 P3 | 121.8 | |
| 24 | - | 0.* | | | | | | B3 P4 | 142.4 | |
| 25 | - | 0.* | | | | | | B3 P5 | 141.5 | |
| 26 | - | 0.* | | | | | | B3 P6 | 173.3 | |
| 27 | - | 0.* | | | | | | B3 P7 | 155.8 | |
| 28 | - | 0.* | | | | | | B4 P1 | 153.8 | |
| 29 | - | 0.* | | | | | | B4 P2 | 143.5 | |
| 30 | - | 0.* | | | | | | B4 P3 | 146.4 | |
| 31 | - | 0.* | | | | | | B4 P4 | 184.8 | |
| 32 | - | 0.* | | | | | | B4 P5 | 174.3 | |
| 33 | - | 0.* | | | | | | B4 P6 | 165.3 | |
| 34 | - | 0.* | | | | | | B4 P7 | 187.4 | |
| 35 | - | 0.* | | | | | | B4 P8 | 226.6 | |
| 36 | - | 0.* | | | | | | B4 P9 | 215.6 | |
| 37 | - | 0.* | | | | | | B4 P10 | 223.2 | |
| 38 | - | 0.* | | | | | | B5 P1 | 170.3 | |
| 39 | - | 0.* | | | | | | B5 P2 | 162.4 | |
| 40 | - | 0.* | | | | | | B5 P3 | 154.2 | |
| 41 | - | 0.* | | | | | | B5 P4 | 177.5 | |

| | | | | | |
|----|---|------|--|--------|-------|
| 42 | - | 0.* | | B5 P5 | 161.5 |
| 43 | - | 0.* | | B5 P6 | 162.5 |
| 44 | - | 0.* | | B5 P7 | 177.4 |
| 45 | - | 0.* | | B5 P8 | 223.9 |
| 46 | - | 0.* | | B5 P9 | 208.6 |
| 47 | - | 0.* | | B5 P10 | 220.3 |
| 48 | - | 10.* | | B6 P1 | 258.7 |

 0 1 2 3 4 5 6 7

1

REC REC ID DNL PEOPLE LEQ (CAL)

| | | | | |
|----|----|-----|------|------|
| 1 | 10 | 67. | 500. | 56.0 |
| 2 | 11 | 67. | 500. | 52.0 |
| 3 | 12 | 67. | 500. | 60.0 |
| 4 | 13 | 67. | 500. | 53.2 |
| 5 | 14 | 67. | 500. | 53.2 |
| 6 | 15 | 67. | 500. | 55.7 |
| 7 | 16 | 67. | 500. | 58.7 |
| 8 | 17 | 67. | 500. | 57.0 |
| 9 | 18 | 67. | 500. | 54.3 |
| 10 | 22 | 67. | 500. | 55.5 |

BARRIER HEIGHT INDEX FOR EACH BARRIER SECTION

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION

| | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0.10. |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 2 with 10 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 385.0 |
| 2 | - | 0.* | | | | | | | B1 P2 | 323.2 |
| 3 | - | 0.* | | | | | | | B1 P3 | 403.1 |
| 4 | - | 0.* | | | | | | | B1 P4 | 437.3 |
| 5 | - | 0.* | | | | | | | B1 P5 | 431.6 |
| 6 | - | 0.* | | | | | | | B1 P6 | 364.8 |
| 7 | - | 0.* | | | | | | | B1 P7 | 414.0 |
| 8 | - | 0.* | | | | | | | B1 P8 | 284.8 |
| 9 | - | 0.* | | | | | | | B1 P9 | 305.8 |
| 10 | - | 0.* | | | | | | | B1 P10 | 365.5 |
| 11 | - | 0.* | | | | | | | B2 P1 | 333.4 |
| 12 | - | 0.* | | | | | | | B2 P2 | 271.1 |
| 13 | - | 0.* | | | | | | | B2 P3 | 313.3 |
| 14 | - | 0.* | | | | | | | B2 P4 | 319.6 |
| 15 | - | 0.* | | | | | | | B2 P5 | 312.6 |
| 16 | - | 0.* | | | | | | | B2 P6 | 316.6 |
| 17 | - | 0.* | | | | | | | B2 P7 | 331.4 |
| 18 | - | 0.* | | | | | | | B2 P8 | 350.6 |
| 19 | - | 0.* | | | | | | | B2 P9 | 309.4 |
| 20 | - | 0.* | | | | | | | B2 P10 | 325.0 |
| 21 | - | 0.* | | | | | | | B3 P1 | 163.4 |
| 22 | - | 0.* | | | | | | | B3 P2 | 139.2 |
| 23 | - | 0.* | | | | | | | B3 P3 | 121.8 |
| 24 | - | 0.* | | | | | | | B3 P4 | 142.4 |
| 25 | - | 0.* | | | | | | | B3 P5 | 141.5 |
| 26 | - | 0.* | | | | | | | B3 P6 | 173.3 |
| 27 | - | 0.* | | | | | | | B3 P7 | 155.8 |
| 28 | - | 0.* | | | | | | | B4 P1 | 153.8 |
| 29 | - | 0.* | | | | | | | B4 P2 | 143.5 |
| 30 | - | 0.* | | | | | | | B4 P3 | 146.4 |
| 31 | - | 0.* | | | | | | | B4 P4 | 184.8 |
| 32 | - | 0.* | | | | | | | B4 P5 | 174.3 |
| 33 | - | 0.* | | | | | | | B4 P6 | 165.3 |
| 34 | - | 0.* | | | | | | | B4 P7 | 187.4 |
| 35 | - | 0.* | | | | | | | B4 P8 | 226.6 |
| 36 | - | 0.* | | | | | | | B4 P9 | 215.6 |
| 37 | - | 0.* | | | | | | | B4 P10 | 223.2 |
| 38 | - | 0.* | | | | | | | B5 P1 | 170.3 |
| 39 | - | 0.* | | | | | | | B5 P2 | 162.4 |
| 40 | - | 0.* | | | | | | | B5 P3 | 154.2 |
| 41 | - | 0.* | | | | | | | B5 P4 | 177.5 |

| | | | | | |
|----|---|------|--|--------|-------|
| 42 | - | 0.* | | B5 P5 | 161.5 |
| 43 | - | 0.* | | B5 P6 | 162.5 |
| 44 | - | 0.* | | B5 P7 | 177.4 |
| 45 | - | 0.* | | B5 P8 | 223.9 |
| 46 | - | 0.* | | B5 P9 | 208.6 |
| 47 | - | 0.* | | B5 P10 | 220.3 |
| 48 | - | 10.* | | B6 P1 | 258.7 |

 0 1 2 3 4 5 6 7

1
 REC REC ID DNL PEOPLE LEQ (CAL)

| | | | | |
|----|----|-----|------|------|
| 1 | 10 | 67. | 500. | 56.0 |
| 2 | 11 | 67. | 500. | 52.0 |
| 3 | 12 | 67. | 500. | 60.0 |
| 4 | 13 | 67. | 500. | 53.2 |
| 5 | 14 | 67. | 500. | 53.2 |
| 6 | 15 | 67. | 500. | 55.7 |
| 7 | 16 | 67. | 500. | 58.7 |
| 8 | 17 | 67. | 500. | 57.0 |
| 9 | 18 | 67. | 500. | 54.3 |
| 10 | 22 | 67. | 500. | 55.5 |

BARRIER HEIGHT INDEX FOR EACH BARRIER SECTION

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION

| | | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
| 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0.10. |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 1 with 12 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 333.4 |
| 2 | - | 0.* | | | | | | | B1 P2 | 283.1 |
| 3 | - | 0.* | | | | | | | B1 P3 | 302.7 |
| 4 | - | 0.* | | | | | | | B1 P4 | 310.9 |
| 5 | - | 0.* | | | | | | | B1 P5 | 312.6 |
| 6 | - | 0.* | | | | | | | B1 P6 | 316.6 |
| 7 | - | 0.* | | | | | | | B1 P7 | 331.5 |
| 8 | - | 0.* | | | | | | | B1 P8 | 350.5 |
| 9 | - | 0.* | | | | | | | B1 P9 | 309.5 |
| 10 | - | 0.* | | | | | | | B1 P10 | 324.9 |
| 11 | - | 0.* | | | | | | | B2 P1 | 327.6 |
| 12 | - | 0.* | | | | | | | B2 P2 | 307.6 |
| 13 | - | 0.* | | | | | | | B2 P3 | 317.1 |
| 14 | - | 0.* | | | | | | | B2 P4 | 149.3 |
| 15 | - | 0.* | | | | | | | B2 P5 | 174.4 |
| 16 | - | 0.* | | | | | | | B2 P6 | 196.1 |
| 17 | - | 0.* | | | | | | | B2 P7 | 212.8 |
| 18 | - | 0.* | | | | | | | B2 P8 | 233.4 |
| 19 | - | 0.* | | | | | | | B2 P9 | 218.1 |
| 20 | - | 0.* | | | | | | | B2 P10 | 274.7 |
| 21 | - | 0.* | | | | | | | B3 P1 | 367.6 |
| 22 | - | 0.* | | | | | | | B3 P2 | 340.4 |
| 23 | - | 0.* | | | | | | | B3 P3 | 345.3 |
| 24 | - | 0.* | | | | | | | B4 P1 | 333.4 |
| 25 | - | 0.* | | | | | | | B4 P2 | 271.1 |
| 26 | - | 0.* | | | | | | | B4 P3 | 313.3 |
| 27 | - | 0.* | | | | | | | B4 P4 | 319.6 |
| 28 | - | 0.* | | | | | | | B4 P5 | 312.6 |
| 29 | - | 0.* | | | | | | | B4 P6 | 316.6 |
| 30 | - | 0.* | | | | | | | B4 P7 | 331.4 |
| 31 | - | 0.* | | | | | | | B4 P8 | 350.6 |
| 32 | - | 0.* | | | | | | | B4 P9 | 309.4 |
| 33 | - | 0.* | | | | | | | B4 P10 | 325.0 |
| 34 | - | 0.* | | | | | | | B5 P1 | 327.5 |
| 35 | - | 0.* | | | | | | | B5 P2 | 307.7 |
| 36 | - | 0.* | | | | | | | B5 P3 | 317.1 |
| 37 | - | 0.* | | | | | | | B5 P4 | 149.3 |
| 38 | - | 0.* | | | | | | | B5 P5 | 174.3 |
| 39 | - | 0.* | | | | | | | B5 P6 | 196.2 |
| 40 | - | 0.* | | | | | | | B5 P7 | 212.8 |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 2 with 12 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | B1 P1 | 385.0 | |
| 2 | - | 0.* | | | | | | B1 P2 | 323.2 | |
| 3 | - | 0.* | | | | | | B1 P3 | 403.1 | |
| 4 | - | 0.* | | | | | | B1 P4 | 437.3 | |
| 5 | - | 0.* | | | | | | B1 P5 | 431.6 | |
| 6 | - | 0.* | | | | | | B1 P6 | 364.8 | |
| 7 | - | 0.* | | | | | | B1 P7 | 414.0 | |
| 8 | - | 0.* | | | | | | B1 P8 | 284.8 | |
| 9 | - | 0.* | | | | | | B1 P9 | 305.8 | |
| 10 | - | 0.* | | | | | | B1 P10 | 365.5 | |
| 11 | - | 0.* | | | | | | B2 P1 | 333.4 | |
| 12 | - | 0.* | | | | | | B2 P2 | 271.1 | |
| 13 | - | 0.* | | | | | | B2 P3 | 313.3 | |
| 14 | - | 0.* | | | | | | B2 P4 | 319.6 | |
| 15 | - | 0.* | | | | | | B2 P5 | 312.6 | |
| 16 | - | 0.* | | | | | | B2 P6 | 316.6 | |
| 17 | - | 0.* | | | | | | B2 P7 | 331.4 | |
| 18 | - | 0.* | | | | | | B2 P8 | 350.6 | |
| 19 | - | 0.* | | | | | | B2 P9 | 309.4 | |
| 20 | - | 0.* | | | | | | B2 P10 | 325.0 | |
| 21 | - | 0.* | | | | | | B3 P1 | 163.4 | |
| 22 | - | 0.* | | | | | | B3 P2 | 139.2 | |
| 23 | - | 0.* | | | | | | B3 P3 | 121.8 | |
| 24 | - | 0.* | | | | | | B3 P4 | 142.4 | |
| 25 | - | 0.* | | | | | | B3 P5 | 141.5 | |
| 26 | - | 0.* | | | | | | B3 P6 | 173.3 | |
| 27 | - | 0.* | | | | | | B3 P7 | 155.8 | |
| 28 | - | 0.* | | | | | | B4 P1 | 153.8 | |
| 29 | - | 0.* | | | | | | B4 P2 | 143.5 | |
| 30 | - | 0.* | | | | | | B4 P3 | 146.4 | |
| 31 | - | 0.* | | | | | | B4 P4 | 184.8 | |
| 32 | - | 0.* | | | | | | B4 P5 | 174.3 | |
| 33 | - | 0.* | | | | | | B4 P6 | 165.3 | |
| 34 | - | 0.* | | | | | | B4 P7 | 187.4 | |
| 35 | - | 0.* | | | | | | B4 P8 | 226.6 | |
| 36 | - | 0.* | | | | | | B4 P9 | 215.6 | |
| 37 | - | 0.* | | | | | | B4 P10 | 223.2 | |
| 38 | - | 0.* | | | | | | B5 P1 | 170.3 | |
| 39 | - | 0.* | | | | | | B5 P2 | 162.4 | |
| 40 | - | 0.* | | | | | | B5 P3 | 154.2 | |
| 41 | - | 0.* | | | | | | B5 P4 | 177.5 | |

| | | | | |
|----|---|------|--------|-------|
| 42 | - | 0.* | B5 P5 | 161.5 |
| 43 | - | 0.* | B5 P6 | 162.5 |
| 44 | - | 0.* | B5 P7 | 177.4 |
| 45 | - | 0.* | B5 P8 | 223.9 |
| 46 | - | 0.* | B5 P9 | 208.6 |
| 47 | - | 0.* | B5 P10 | 220.3 |
| 48 | - | 12.* | B6 P1 | 258.7 |

 0 1 2 3 4 5 6 7

1

| REC | REC ID | DNL | PEOPLE | LEQ (CAL) |
|-----|--------|-----|--------|-----------|
| 1 | 10 | 67. | 500. | 56.0 |
| 2 | 11 | 67. | 500. | 52.0 |
| 3 | 12 | 67. | 500. | 60.0 |
| 4 | 13 | 67. | 500. | 53.2 |
| 5 | 14 | 67. | 500. | 53.2 |
| 6 | 15 | 67. | 500. | 54.5 |
| 7 | 16 | 67. | 500. | 58.7 |
| 8 | 17 | 67. | 500. | 57.0 |
| 9 | 18 | 67. | 500. | 54.3 |
| 10 | 22 | 67. | 500. | 55.4 |

BARRIER HEIGHT INDEX FOR EACH BARRIER SECTION

1
 1

CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION

0.
 0.12.

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 1 with 14 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | B1 P1 | 333.4 | |
| 2 | - | 0.* | | | | | | B1 P2 | 283.1 | |
| 3 | - | 0.* | | | | | | B1 P3 | 302.7 | |
| 4 | - | 0.* | | | | | | B1 P4 | 310.9 | |
| 5 | - | 0.* | | | | | | B1 P5 | 312.6 | |
| 6 | - | 0.* | | | | | | B1 P6 | 316.6 | |
| 7 | - | 0.* | | | | | | B1 P7 | 331.5 | |
| 8 | - | 0.* | | | | | | B1 P8 | 350.5 | |
| 9 | - | 0.* | | | | | | B1 P9 | 309.5 | |
| 10 | - | 0.* | | | | | | B1 P10 | 324.9 | |
| 11 | - | 0.* | | | | | | B2 P1 | 327.6 | |
| 12 | - | 0.* | | | | | | B2 P2 | 307.6 | |
| 13 | - | 0.* | | | | | | B2 P3 | 317.1 | |
| 14 | - | 0.* | | | | | | B2 P4 | 149.3 | |
| 15 | - | 0.* | | | | | | B2 P5 | 174.4 | |
| 16 | - | 0.* | | | | | | B2 P6 | 196.1 | |
| 17 | - | 0.* | | | | | | B2 P7 | 212.8 | |
| 18 | - | 0.* | | | | | | B2 P8 | 233.4 | |
| 19 | - | 0.* | | | | | | B2 P9 | 218.1 | |
| 20 | - | 0.* | | | | | | B2 P10 | 274.7 | |
| 21 | - | 0.* | | | | | | B3 P1 | 367.6 | |
| 22 | - | 0.* | | | | | | B3 P2 | 340.4 | |
| 23 | - | 0.* | | | | | | B3 P3 | 345.3 | |
| 24 | - | 0.* | | | | | | B4 P1 | 333.4 | |
| 25 | - | 0.* | | | | | | B4 P2 | 271.1 | |
| 26 | - | 0.* | | | | | | B4 P3 | 313.3 | |
| 27 | - | 0.* | | | | | | B4 P4 | 319.6 | |
| 28 | - | 0.* | | | | | | B4 P5 | 312.6 | |
| 29 | - | 0.* | | | | | | B4 P6 | 316.6 | |
| 30 | - | 0.* | | | | | | B4 P7 | 331.4 | |
| 31 | - | 0.* | | | | | | B4 P8 | 350.6 | |
| 32 | - | 0.* | | | | | | B4 P9 | 309.4 | |
| 33 | - | 0.* | | | | | | B4 P10 | 325.0 | |
| 34 | - | 0.* | | | | | | B5 P1 | 327.5 | |
| 35 | - | 0.* | | | | | | B5 P2 | 307.7 | |
| 36 | - | 0.* | | | | | | B5 P3 | 317.1 | |
| 37 | - | 0.* | | | | | | B5 P4 | 149.3 | |
| 38 | - | 0.* | | | | | | B5 P5 | 174.3 | |
| 39 | - | 0.* | | | | | | B5 P6 | 196.2 | |
| 40 | - | 0.* | | | | | | B5 P7 | 212.8 | |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 2 with 14 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 385.0 |
| 2 | - | 0.* | | | | | | | B1 P2 | 323.2 |
| 3 | - | 0.* | | | | | | | B1 P3 | 403.1 |
| 4 | - | 0.* | | | | | | | B1 P4 | 437.3 |
| 5 | - | 0.* | | | | | | | B1 P5 | 431.6 |
| 6 | - | 0.* | | | | | | | B1 P6 | 364.8 |
| 7 | - | 0.* | | | | | | | B1 P7 | 414.0 |
| 8 | - | 0.* | | | | | | | B1 P8 | 284.8 |
| 9 | - | 0.* | | | | | | | B1 P9 | 305.8 |
| 10 | - | 0.* | | | | | | | B1 P10 | 365.5 |
| 11 | - | 0.* | | | | | | | B2 P1 | 333.4 |
| 12 | - | 0.* | | | | | | | B2 P2 | 271.1 |
| 13 | - | 0.* | | | | | | | B2 P3 | 313.3 |
| 14 | - | 0.* | | | | | | | B2 P4 | 319.6 |
| 15 | - | 0.* | | | | | | | B2 P5 | 312.6 |
| 16 | - | 0.* | | | | | | | B2 P6 | 316.6 |
| 17 | - | 0.* | | | | | | | B2 P7 | 331.4 |
| 18 | - | 0.* | | | | | | | B2 P8 | 350.6 |
| 19 | - | 0.* | | | | | | | B2 P9 | 309.4 |
| 20 | - | 0.* | | | | | | | B2 P10 | 325.0 |
| 21 | - | 0.* | | | | | | | B3 P1 | 163.4 |
| 22 | - | 0.* | | | | | | | B3 P2 | 139.2 |
| 23 | - | 0.* | | | | | | | B3 P3 | 121.8 |
| 24 | - | 0.* | | | | | | | B3 P4 | 142.4 |
| 25 | - | 0.* | | | | | | | B3 P5 | 141.5 |
| 26 | - | 0.* | | | | | | | B3 P6 | 173.3 |
| 27 | - | 0.* | | | | | | | B3 P7 | 155.8 |
| 28 | - | 0.* | | | | | | | B4 P1 | 153.8 |
| 29 | - | 0.* | | | | | | | B4 P2 | 143.5 |
| 30 | - | 0.* | | | | | | | B4 P3 | 146.4 |
| 31 | - | 0.* | | | | | | | B4 P4 | 184.8 |
| 32 | - | 0.* | | | | | | | B4 P5 | 174.3 |
| 33 | - | 0.* | | | | | | | B4 P6 | 165.3 |
| 34 | - | 0.* | | | | | | | B4 P7 | 187.4 |
| 35 | - | 0.* | | | | | | | B4 P8 | 226.6 |
| 36 | - | 0.* | | | | | | | B4 P9 | 215.6 |
| 37 | - | 0.* | | | | | | | B4 P10 | 223.2 |
| 38 | - | 0.* | | | | | | | B5 P1 | 170.3 |
| 39 | - | 0.* | | | | | | | B5 P2 | 162.4 |
| 40 | - | 0.* | | | | | | | B5 P3 | 154.2 |
| 41 | - | 0.* | | | | | | | B5 P4 | 177.5 |

| | | | | | |
|----|---|------|--|--------|-------|
| 42 | - | 0.* | | B5 P5 | 161.5 |
| 43 | - | 0.* | | B5 P6 | 162.5 |
| 44 | - | 0.* | | B5 P7 | 177.4 |
| 45 | - | 0.* | | B5 P8 | 223.9 |
| 46 | - | 0.* | | B5 P9 | 208.6 |
| 47 | - | 0.* | | B5 P10 | 220.3 |
| 48 | - | 14.* | | B6 P1 | 258.7 |

 0 1 2 3 4 5 6 7

1

| REC | REC ID | DNL | PEOPLE | LEQ (CAL) |
|-----|--------|-----|--------|-----------|
| 1 | 10 | 67. | 500. | 56.0 |
| 2 | 11 | 67. | 500. | 52.0 |
| 3 | 12 | 67. | 500. | 60.0 |
| 4 | 13 | 67. | 500. | 53.2 |
| 5 | 14 | 67. | 500. | 53.1 |
| 6 | 15 | 67. | 500. | 53.6 |
| 7 | 16 | 67. | 500. | 58.7 |
| 8 | 17 | 67. | 500. | 57.0 |
| 9 | 18 | 67. | 500. | 54.3 |
| 10 | 22 | 67. | 500. | 55.4 |

BARRIER HEIGHT INDEX FOR EACH BARRIER SECTION

1
 1

CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION

0.
 0.14.

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 1 with 16 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 333.4 |
| 2 | - | 0.* | | | | | | | B1 P2 | 283.1 |
| 3 | - | 0.* | | | | | | | B1 P3 | 302.7 |
| 4 | - | 0.* | | | | | | | B1 P4 | 310.9 |
| 5 | - | 0.* | | | | | | | B1 P5 | 312.6 |
| 6 | - | 0.* | | | | | | | B1 P6 | 316.6 |
| 7 | - | 0.* | | | | | | | B1 P7 | 331.5 |
| 8 | - | 0.* | | | | | | | B1 P8 | 350.5 |
| 9 | - | 0.* | | | | | | | B1 P9 | 309.5 |
| 10 | - | 0.* | | | | | | | B1 P10 | 324.9 |
| 11 | - | 0.* | | | | | | | B2 P1 | 327.6 |
| 12 | - | 0.* | | | | | | | B2 P2 | 307.6 |
| 13 | - | 0.* | | | | | | | B2 P3 | 317.1 |
| 14 | - | 0.* | | | | | | | B2 P4 | 149.3 |
| 15 | - | 0.* | | | | | | | B2 P5 | 174.4 |
| 16 | - | 0.* | | | | | | | B2 P6 | 196.1 |
| 17 | - | 0.* | | | | | | | B2 P7 | 212.8 |
| 18 | - | 0.* | | | | | | | B2 P8 | 233.4 |
| 19 | - | 0.* | | | | | | | B2 P9 | 218.1 |
| 20 | - | 0.* | | | | | | | B2 P10 | 274.7 |
| 21 | - | 0.* | | | | | | | B3 P1 | 367.6 |
| 22 | - | 0.* | | | | | | | B3 P2 | 340.4 |
| 23 | - | 0.* | | | | | | | B3 P3 | 345.3 |
| 24 | - | 0.* | | | | | | | B4 P1 | 333.4 |
| 25 | - | 0.* | | | | | | | B4 P2 | 271.1 |
| 26 | - | 0.* | | | | | | | B4 P3 | 313.3 |
| 27 | - | 0.* | | | | | | | B4 P4 | 319.6 |
| 28 | - | 0.* | | | | | | | B4 P5 | 312.6 |
| 29 | - | 0.* | | | | | | | B4 P6 | 316.6 |
| 30 | - | 0.* | | | | | | | B4 P7 | 331.4 |
| 31 | - | 0.* | | | | | | | B4 P8 | 350.6 |
| 32 | - | 0.* | | | | | | | B4 P9 | 309.4 |
| 33 | - | 0.* | | | | | | | B4 P10 | 325.0 |
| 34 | - | 0.* | | | | | | | B5 P1 | 327.5 |
| 35 | - | 0.* | | | | | | | B5 P2 | 307.7 |
| 36 | - | 0.* | | | | | | | B5 P3 | 317.1 |
| 37 | - | 0.* | | | | | | | B5 P4 | 149.3 |
| 38 | - | 0.* | | | | | | | B5 P5 | 174.3 |
| 39 | - | 0.* | | | | | | | B5 P6 | 196.2 |
| 40 | - | 0.* | | | | | | | B5 P7 | 212.8 |

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:

Willow Road Future CEQA Conditions Part 2 with 16 foot wall

1

BARRIER DATA

| BAR
ELE | BARRIER HEIGHTS | | | | | | | BAR
ID | LENGTH | TYPE |
|------------|-----------------|-----|---|---|---|---|---|-----------|--------|-------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| 1 | - | 0.* | | | | | | | B1 P1 | 385.0 |
| 2 | - | 0.* | | | | | | | B1 P2 | 323.2 |
| 3 | - | 0.* | | | | | | | B1 P3 | 403.1 |
| 4 | - | 0.* | | | | | | | B1 P4 | 437.3 |
| 5 | - | 0.* | | | | | | | B1 P5 | 431.6 |
| 6 | - | 0.* | | | | | | | B1 P6 | 364.8 |
| 7 | - | 0.* | | | | | | | B1 P7 | 414.0 |
| 8 | - | 0.* | | | | | | | B1 P8 | 284.8 |
| 9 | - | 0.* | | | | | | | B1 P9 | 305.8 |
| 10 | - | 0.* | | | | | | | B1 P10 | 365.5 |
| 11 | - | 0.* | | | | | | | B2 P1 | 333.4 |
| 12 | - | 0.* | | | | | | | B2 P2 | 271.1 |
| 13 | - | 0.* | | | | | | | B2 P3 | 313.3 |
| 14 | - | 0.* | | | | | | | B2 P4 | 319.6 |
| 15 | - | 0.* | | | | | | | B2 P5 | 312.6 |
| 16 | - | 0.* | | | | | | | B2 P6 | 316.6 |
| 17 | - | 0.* | | | | | | | B2 P7 | 331.4 |
| 18 | - | 0.* | | | | | | | B2 P8 | 350.6 |
| 19 | - | 0.* | | | | | | | B2 P9 | 309.4 |
| 20 | - | 0.* | | | | | | | B2 P10 | 325.0 |
| 21 | - | 0.* | | | | | | | B3 P1 | 163.4 |
| 22 | - | 0.* | | | | | | | B3 P2 | 139.2 |
| 23 | - | 0.* | | | | | | | B3 P3 | 121.8 |
| 24 | - | 0.* | | | | | | | B3 P4 | 142.4 |
| 25 | - | 0.* | | | | | | | B3 P5 | 141.5 |
| 26 | - | 0.* | | | | | | | B3 P6 | 173.3 |
| 27 | - | 0.* | | | | | | | B3 P7 | 155.8 |
| 28 | - | 0.* | | | | | | | B4 P1 | 153.8 |
| 29 | - | 0.* | | | | | | | B4 P2 | 143.5 |
| 30 | - | 0.* | | | | | | | B4 P3 | 146.4 |
| 31 | - | 0.* | | | | | | | B4 P4 | 184.8 |
| 32 | - | 0.* | | | | | | | B4 P5 | 174.3 |
| 33 | - | 0.* | | | | | | | B4 P6 | 165.3 |
| 34 | - | 0.* | | | | | | | B4 P7 | 187.4 |
| 35 | - | 0.* | | | | | | | B4 P8 | 226.6 |
| 36 | - | 0.* | | | | | | | B4 P9 | 215.6 |
| 37 | - | 0.* | | | | | | | B4 P10 | 223.2 |
| 38 | - | 0.* | | | | | | | B5 P1 | 170.3 |
| 39 | - | 0.* | | | | | | | B5 P2 | 162.4 |
| 40 | - | 0.* | | | | | | | B5 P3 | 154.2 |
| 41 | - | 0.* | | | | | | | B5 P4 | 177.5 |

| | | | | | |
|----|---|------|--|--------|-------|
| 42 | - | 0.* | | B5 P5 | 161.5 |
| 43 | - | 0.* | | B5 P6 | 162.5 |
| 44 | - | 0.* | | B5 P7 | 177.4 |
| 45 | - | 0.* | | B5 P8 | 223.9 |
| 46 | - | 0.* | | B5 P9 | 208.6 |
| 47 | - | 0.* | | B5 P10 | 220.3 |
| 48 | - | 16.* | | B6 P1 | 258.7 |

 0 1 2 3 4 5 6 7

1

| REC | REC ID | DNL | PEOPLE | LEQ (CAL) |
|-----|--------|-----|--------|-----------|
| 1 | 10 | 67. | 500. | 56.0 |
| 2 | 11 | 67. | 500. | 52.0 |
| 3 | 12 | 67. | 500. | 60.0 |
| 4 | 13 | 67. | 500. | 53.2 |
| 5 | 14 | 67. | 500. | 53.1 |
| 6 | 15 | 67. | 500. | 53.0 |
| 7 | 16 | 67. | 500. | 58.7 |
| 8 | 17 | 67. | 500. | 57.0 |
| 9 | 18 | 67. | 500. | 54.3 |
| 10 | 22 | 67. | 500. | 55.4 |

BARRIER HEIGHT INDEX FOR EACH BARRIER SECTION

1
 1

CORRESPONDING BARRIER HEIGHTS FOR EACH SECTION

0.
 0.16.

APPENDIX D

**SOUND LEVEL METER
CALIBRATION CERTIFICATIONS**

Certificate of Calibration and Conformance

Certificate Number 2002-42719

Instrument Model CAL200, Serial Number 3228, was calibrated on 07-11-2002. The instrument meets factory specifications according to Larson Davis Test Procedure D0001.8190.

New Instrument

Date Calibrated: 07-11-2002

Calibration due: 09-11-2003

Calibration Standards Used

| MANUFACTURER | MODEL | SERIAL NUMBER | INTERVAL | CAL. DUE | TRACEABILITY NO. |
|-----------------|--------------|---------------|-----------|------------|------------------|
| Hewlett Packard | 34401A | US36033460 | 12 Months | 08/10/2002 | 217176 |
| Larson Davis | MTS1000/2201 | 0111 | 12 Months | 09/12/2002 | 09121-2001 |
| Larson Davis | PRM902 | 0480 | 12 Months | 09/13/2002 | 2001-36863 |
| Larson Davis | PRM915 | 0112 | 12 Months | 10/03/2002 | 2001-37260 |
| Larson Davis | 2559 | 2504 | 12 Months | 03/22/2003 | 10476-1 |
| Larson Davis | 2900 | 0661 | 12 Months | 04/05/2003 | 2002-40830 |
| Schaevitz | P3061-15PSI | 17590 | 12 Months | 04/17/2003 | 233890 |
| Hewlett Packard | 34401A | 3146A10352 | 12 Months | 05/17/2003 | 236846 |

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 22 ° Centigrade

Relative Humidity: 30 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Larson Davis Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

Due to state-of-the-art limitations, 4:1 calibration ratios are not possible on pressure measurement standards, microphones and acoustic calibrators. Calibration ratios for these types of devices are limited to 1:1.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of Larson Davis Laboratories.

Technician: Scott Montgomery
Service Center: Larson Davis Laboratories, Utah

Signed: 



LARSON DAVIS LABORATORIES

1681 West 820 North · Provo, Utah · 84601 · Phone (801) 375-0177

Certificate of Calibration and Conformance

Certificate Number 2002-42919

Instrument Model 824, Serial Number 1612, was calibrated on 07-19-2002. The instrument meets factory specifications according to Larson Davis Test Procedure D0001.8046, ANSI S1.4 1983, IEC 651-1979 Type 1, IEC 804-1985 Type 1, IEC 1260-1995 Class 1, and ANSI S1.11-1986 Type 1D.

New Instrument

Date Calibrated: 07-19-2002

Calibration due: 09-19-2003

Calibration Standards Used

| MANUFACTURER | MODEL | SERIAL NUMBER | INTERVAL | CAL. DUE | TRACEABILITY NO. |
|--------------|--------------|---------------|-----------|------------|------------------|
| Larson Davis | LDSigGn/2209 | 0653 / 0113 | 12 Months | 11/09/2002 | 2001-37940 |

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 24 ° Centigrade

Relative Humidity: 32 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Larson Davis Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

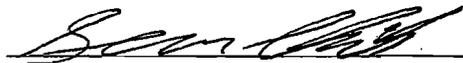
This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

Due to state-of-the-art limitations, 4:1 calibration ratios are not possible on pressure measurement standards, microphones and acoustic calibrators. Calibration ratios for these types of devices are limited to 1:1.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of Larson Davis Laboratories.

Technician: Sean Childs

Service Center: Larson Davis Laboratories, Utah

Signed: 



LARSON DAVIS LABORATORIES

1681 West 820 North · Provo, Utah · 84601 · Phone (801) 375-0177

Certificate of Calibration and Conformance

Certificate Number 2002-43666

Microphone Model 2541, Serial Number 7104, was calibrated on 08-29-2002. The microphone meets current factory specifications per Test Procedure D0001.8167.

New Instrument

Date Calibrated: 08-29-2002

Calibration due: 10-29-2003

Calibration Standards Used

| MANUFACTURER | MODEL | SERIAL NUMBER | INTERVAL | CAL. DUE | TRACEABILITY NO. |
|-----------------|----------------|---------------|-----------|------------|------------------|
| Hewlett Packard | 34401A | 3146A62099 | 12 Months | 10/19/2002 | 222499 |
| Larson Davis | PRM915 | 0102 | 12 Months | 11/20/2002 | 2001-38099 |
| Larson Davis | PRM902 | 0206 | 12 Months | 11/20/2002 | 2001-38101 |
| Larson Davis | PRM916 | 0102 | 12 Months | 11/20/2002 | 2001-38103 |
| Larson Davis | MTS1000 / 2201 | 1000 / 0100 | 12 Months | 11/27/2002 | 11271-2001 |
| Larson Davis | CAL250 | 0102 | 12 Months | 12/04/2002 | 2001-38364 |
| Larson Davis | 2250M | 225102 | 12 Months | 03/14/2003 | 2002-40285 |
| Larson Davis | 2559 | 2504 | 12 Months | 03/22/2003 | 10476-1 |
| Larson Davis | 2900 | 0575 | 12 Months | 06/28/2003 | 2002-42522 |

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Environmental test conditions as printed on microphone calibration chart.

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

Due to state-of-the-art limitations, 4:1 calibration ratios are not possible on pressure measurement standards, microphones and acoustic calibrators. Calibration ratios for these types of devices are limited to 1:1.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

Technician: Scott McIlrath

Service Center: Larson Davis Laboratories, Utah

Signed: _____



LARSON DAVIS LABORATORIES

1681 West 820 North · Provo, Utah · 84601 · Phone (801) 375-0177