

Noise Assessment For:  
**West Valley Specific  
Plan**  
**CITY OF COLTON**

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## 1.0 EXISTING SETTING

### 1.1 Project Description

The West Valley Specific Plan Amendment is located in the western part of the City of Colton in western San Bernardino County. It is adjacent to and east of the Rialto city boundary. From a regional perspective, this project site is located approximately one mile west of downtown Colton, four miles southwest of downtown San Bernardino, nine miles north of the City of Riverside, and fifty-five miles east of the City of Los Angeles. The southern boundary of the West Valley Specific Plan Amendment area is located adjacent to the Interstate 10 Freeway with primary access from an interchange at Pepper Avenue. A second interchange, at I-10 and Riverside Avenue, is less than 1/4 mile from the western boundary of the site. Both interchanges are planned for major improvements. The northern boundary of the site is defined by San Bernardino Avenue, the east side by Hermosa Avenue, and the west side by the City of Colton and Rialto boundary.

The existing West Valley Specific Plan consists of two Subareas: the West Subarea of approximately 476 acres and the East Subarea of approximately 152 acres which are separated by a section of land owned by the County of San Bernardino. The West Subarea is bounded by San Bernardino Avenue on the north, the city boundary on the west, the San Bernardino I-10 Freeway on the south, and the Southern Pacific Railroad on the east. The East Subarea is bounded by "C" Street on its uppermost northern parts, Grand Avenue on the west, the San Bernardino I-10 Freeway on the south, and the Union Pacific and Santa Fe Railroad tracks near Pennsylvania Avenue on the east. The West Valley Specific Plan Amendment is revising and amending a portion of the West Subarea of the existing West Valley Specific Plan area; the East Subarea will remain unaffected by this amendment. Of the West Subarea, approximately 373 acres of the total 476 acre is affected by this amendment. The difference of 103 acres is the result of excluding the areas encompassed by the Arrowhead Regional Medical Center and the existing Hermosa Memorial Cemetery, uses expected to remain for the long term and that are compatible with the goals and policies of the City General Plan. Exhibit 1 (Local Vicinity Map) shows the location of the project. The project calls for the construction of an unspecified number of residential, commercial (e.g. retail, office) and open space (e.g. park, detention, habitat) uses in the West Subarea of the project site. The conceptual site plan is provided in Exhibit 2.

### 1.2 Background Information on Noise

#### 1.2.1 Noise Criteria Background

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the "A-weighted decibel," abbreviated dBA. Exhibit 3 provides examples of various noises and their typical A-weighted noise level.

Sound levels decrease as a function of distance from the source as a result of wave divergence, atmospheric absorption and ground attenuation. As the sound wave form travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound power of the wave. Atmospheric absorption also influences the levels that are received by the observer. The greater the distance traveled, the greater the influence and the resultant fluctuations. The degree of absorption is a function of the frequency of the sound as well as the humidity and temperature of the air. Turbulence and gradients of wind, temperature and humidity also play a significant role in determining the degree of attenuation. Intervening topography can also have a substantial effect on the effective perceived noise levels.

Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. This criteria is based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses and annoyance. Each of these potential noise impacts on people are briefly discussed in the following narratives:

**HEARING LOSS** is not a concern in community noise situations of this type. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.

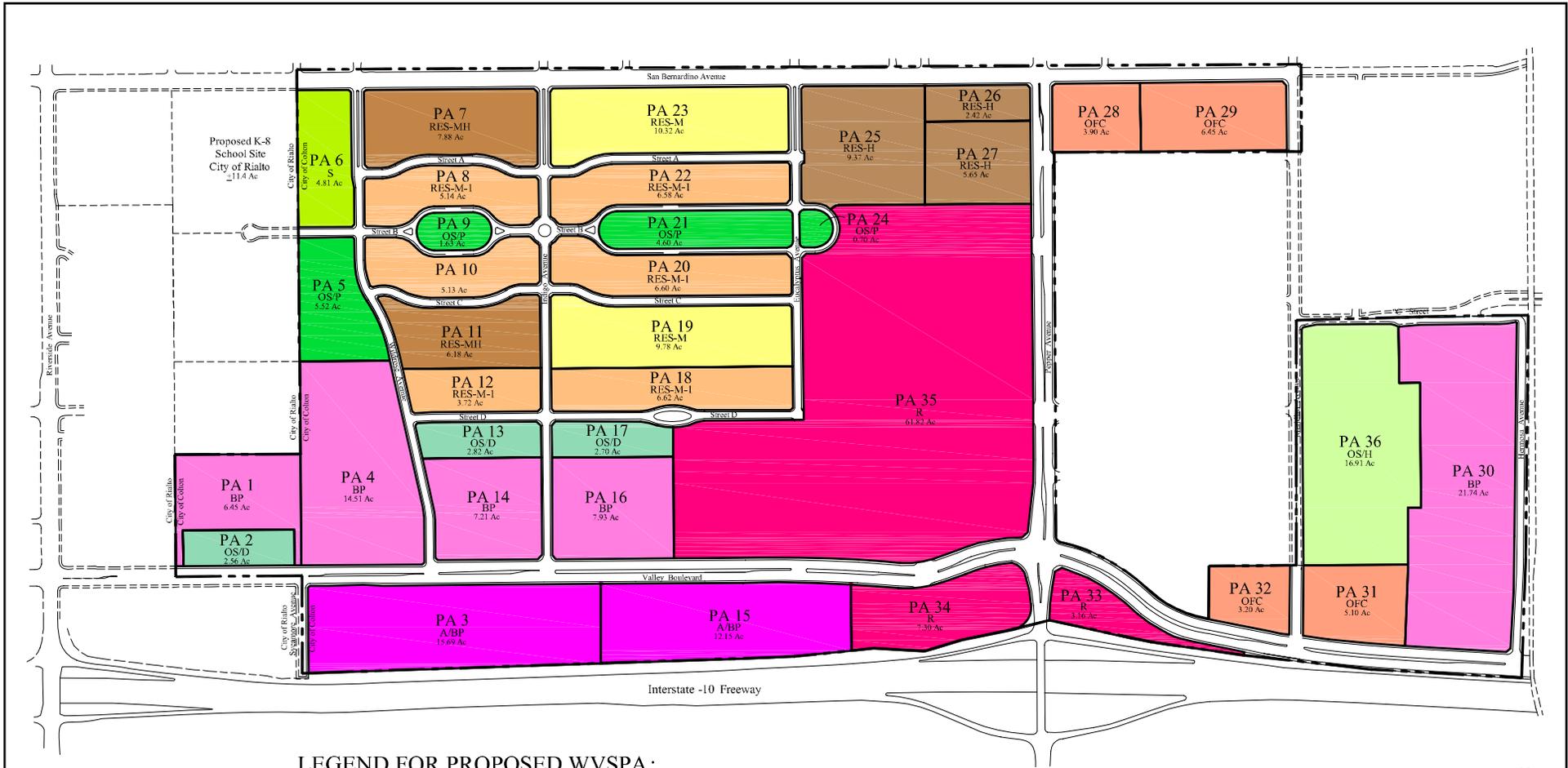
**SPEECH INTERFERENCE** is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

**SLEEP INTERFERENCE** is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

**PHYSIOLOGICAL RESPONSES** are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are sign of harm.

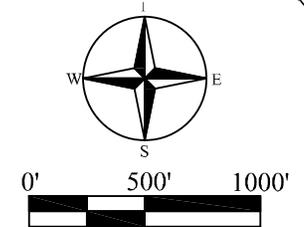


**Exhibit 1**  
**Vicinity Map**



**LEGEND FOR PROPOSED WVSPA:**

- RES-M (Medium)
- RES-M-1 (Medium 1)
- RES-MH (Medium High)
- RES-H (High)
  
- R Retail
- BP Business Park
- A/BP Auto / Business Park
- OFC Office
  
- OS/P Open Space / Park
- OS/D Open Space / Detention
- OS/H Open Space / Habitat
  
- S School



**Exhibit 2  
Conceptual Site Plan**

## SOUND LEVELS AND LOUDNESS OF ILLUSTRATIVE NOISES IN INDOOR AND OUTDOOR ENVIRONMENTS

Numbers in Parentheses are the A-Scale Weighted Sound Levels<sup>†</sup> for that Noise Event

dB(A) <sup>†</sup>	OVER-ALL LEVEL CHARACTERIZATION	COMMUNITY (Outdoor)	HOME OR INDUSTRY	LOUDNESS Human Judgement of Different Sound Levels
130		Military Jet Aircraft Take-Off With After-Burner From Aircraft Carrier @ 50 Ft. (130)	Oxygen Torch (121)	120 dB(A) 32 Times as Loud
120 110	UNCOMFORTABLY LOUD	Ambulance Siren (120) Concord Takeoff (113)* Leaf Blower (110)	Riveting Machine (110) Baby Crying on Shoulder (110) Rock-N-Roll Band (108-114)	110 dB(A) 16 Times as Loud
100		Boeing 747-200 Takeoff (101)*		100 dB(A) 8 Times as Loud
90	VERY LOUD	Power Mower (96) DC-10-30 Takeoff (96)* Motorcycle @25 Ft. (90)	Newspaper Press (97) Shouted Conversation (90)	90 dB(A) 4 Times as Loud
80		Car Wash @ 20 Ft. (89) Boeing 727 w/ Hushkit Takeoff (96)* Diesel Truck, 40 MPH @ 50 Ft. (84) Diesel Train, 45 MPH @ 100 Ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	80 dB(A) 2 Times as Loud
70	MODERATELY LOUD	Passenger Car, 65 MPH @ 25 Ft. (77) Freeway @ 50 Ft. From Edge (70-82) Boeing 757 Takeoff (76)*	Living Room Music or TV (70-75) Vacuum Cleaner (65-85)	70 dB(A)
60		Propeller Airplane Takeoff (67)* Air Conditioning Unit @ 100 Ft. (60)	Sewing Machine (60) Dishwasher (55-70) Normal Conversation (60-65)	60 dB(A) 1/2 as Loud
50	QUIET	Large Transformers @ 100 Ft. (50)	Refridgerator (50)	50 dB(A) 1/4 as Loud
40		Bird Calls (44) Quiet Residential Area (40)		40 dB(A) 1/8 as Loud
30				
20	JUST AUDIBLE	Desert at Night Rustling of Leaves (20)	Whispering at 5 feet (20)	
10	THRESHOLD OF HEARING			

<sup>†</sup> Sound Pressure Level Reference: 0.0002 Microbars

\*Aircraft takeoff noise measured 6,500 meters from beginning of takeoff roll

SOURCES: League for the Hard of Hearing, [www.lhh.org](http://www.lhh.org)  
 Handbook of Noise Control, Edited by Cyril Harris, 1979  
 Noise And Vibration Control, Leo L. Beranek, 1971  
 Aircraft Levels From FAA Advisory Circular AC-36-3G  
 Measurements by Mestre Greve Associates

**Mestre Greve Associates**

**EXHIBIT 3**  
**TYPICAL A-WEIGHTED NOISE LEVELS**

**ANNOYANCE** is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

### **1.2.2 Noise Assessment Metrics**

The description, analysis and reporting of community noise levels around communities is made difficult by the complexity of human response to noise and the myriad of noise metrics that have been developed for describing noise impacts. Each of these metrics attempts to quantify noise levels with respect to community response. Most of the metrics use the A-Weighted noise level to quantify noise impacts on humans. A-Weighting is a frequency weighting that accounts for human sensitivity to different frequencies.

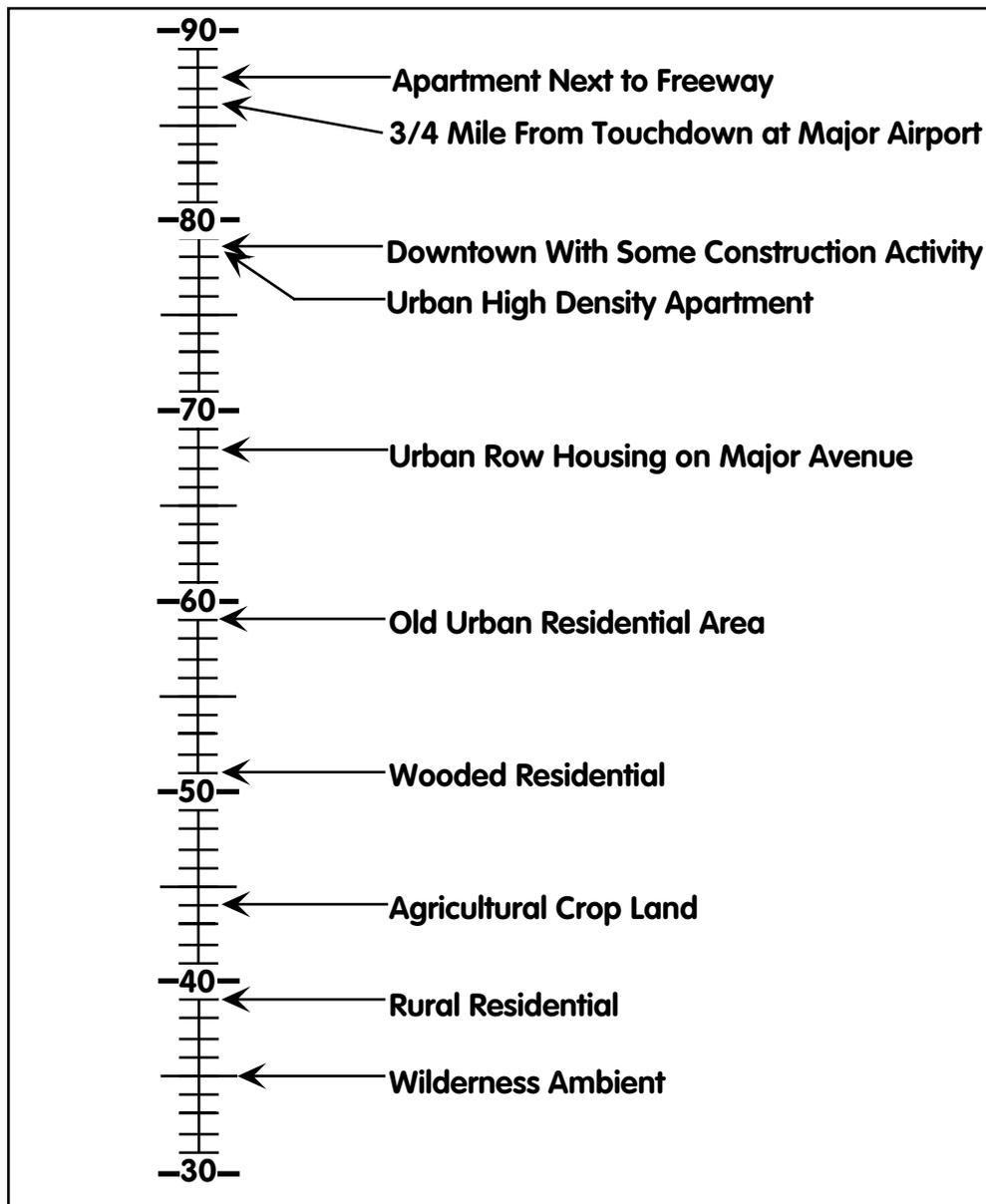
Noise metrics can be divided into two categories: single event and cumulative. Single-event metrics describe the noise levels from an individual event such as an aircraft fly over or perhaps a heavy equipment pass-by. Cumulative metrics average the total noise over a specific time period, which is typically 1 or 24-hours for community noise problems. For this type of analysis, cumulative noise metrics will be used.

Several rating scales have been developed for measurement of community noise. These account for: (1) the parameters of noise that have been shown to contribute to the effects of noise on man, (2) the variety of noises found in the environment, (3) the variations in noise levels that occur as a person moves through the environment, and (4) the variations associated with the time of day. They are designed to account for the known health effects of noise on people described previously. Based on these effects, the observation has been made that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. Two of the predominate noise scales are the: Equivalent Noise Level (LEQ) and the Community Noise Equivalent Level (CNEL). These scales are described in the following paragraphs.

**LEQ** is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. LEQ is the "energy" average noise level during the time period of the sample. LEQ can be measured for any time period, but is typically measured for 1 hour. This 1-hour noise level can also be referred to as the Hourly Noise Level (HNL). It is the energy sum of all the events and background noise levels that occur during that time period.

**CNEL**, Community Noise Equivalent Level, is the predominant rating scale now in use in California for land use compatibility assessment. The CNEL scale represents a time weighted 24-hour average noise level based on the A-weighted decibel. Time weighted refers to the fact that noise that occurs during certain sensitive time periods is penalized for occurring at these times. The evening time period (7 p.m. to 10 p.m.) penalizes noises by 5 dBA, while nighttime (10 p.m. to 7 a.m.) noises are penalized by 10 dBA. These time periods and penalties were selected to reflect people's increased sensitivity to noise during these time periods. A CNEL noise level may be reported as a "CNEL of 60 dBA," "60 dBA CNEL," or simply "60 CNEL." Typical noise levels in terms of the CNEL scale for different types of communities are presented in Exhibit 4.

## CNEL Outdoor Location



Source: U.S. Environmental Protection Agency, "Impact Characterization of Noise Including Implications of Identifying and Achieving Levels of Cumulative Noise Exposure," EPA Report NTID 73.4, 1973.

# EXHIBIT 4 TYPICAL OUTDOOR NOISE LEVELS

**Ldn**, the day-night scale is similar to the CNEL scale except that evening noises are not penalized. It is a measure of the overall noise experienced during an entire day. The time-weighted refers to the fact that noise that occurs during certain sensitive time periods is penalized for occurring at these times. In the Ldn scale, those noise levels that occur during the night (10 pm to 7 am) are penalized by 10 dB. This penalty was selected to attempt to account for increased human sensitivity to noise during the quieter period of a day, where home and sleep is the most probable activity.

**L(%)** is a statistical method of describing noise which accounts for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period. For example since 5 minutes is 25% of 20 minutes, L(25) is the noise level that is equal to or exceeded for five minutes in a twenty-minute measurement period. It is L(%) that is used for most Noise Ordinance standards. For example most daytime County, state and City Noise Ordinances use an ordinance standard of 55 dBA for 30 minutes per hour or an L(50) level of 55 dBA. In other words, the Noise Ordinance states that no noise level should exceed 55 dBA for more that fifty percent of a given period.

## 1.3 Noise Criteria

### 1.3.1 Noise Element

The City of Colton General Plan Noise Element specifies outdoor and indoor noise standards for various land uses impacted by transportation noise sources. The City's noise standards are consistent with the State of California's noise standards. The interior and exterior noise standards are in terms of the Community Noise Equivalent Level (CNEL). The standards state that for residential land use, the exterior noise exposure level shall not exceed 65 CNEL and the interior noise exposure level shall not exceed 45 CNEL. The City has not adopted noise standards for commercial uses. The County of San Bernardino Noise Element specifies an interior noise standard of 45 CNEL for office uses and will be used to evaluate impacts on these uses.

### 1.3.2 County of San Bernardino Noise Ordinance

A noise ordinance is designed to control unnecessary, excessive and annoying sounds from stationary (non-transportation) noise sources. Noise ordinance requirements cannot be applied to mobile noise sources such as heavy trucks when traveling on public roadways. Federal and state laws preempt control of mobile noise sources on public roads. Noise ordinance standards typically apply to industrial and commercial noise sources impacting residential areas. They are also applicable to noise generated at parks and schools impacting residential areas.

The City of Colton's municipal code prohibits the production of excessive noise, but the wording of the code describing noise violations is qualitative and nonspecific in regards to the level of noise that would constitute a violation. Since the City of Colton is under the jurisdiction of the County of San Bernardino, and the County of San Bernardino does have a noise ordinance that provides maximum permissible noise levels that are quantifiable, the County of San Bernardino

noise ordinance will be applied to this project to determine potential noise impacts. The County of San Bernardino noise ordinance has applied 55 dBA Leq (1-hour) daytime (7 a.m. to 10 p.m.) and 45 dBA Leq(1-hour) nighttime (10 p.m. to 7 a.m.) standards to fixed (stationary) noise sources. This means that a fixed noise source cannot cause the Leq noise level for a 1-hour measurement to exceed 55 dBA during the daytime or 45 dBA during the nighttime at the nearest residential property line or other sensitive land uses. Additionally, the Lmax noise levels cannot exceed 75 dBA for the daytime and 65 dBA for the nighttime at the nearest residential land uses.

**Table 1 County Of San Bernardino Noise Ordinance Standards**

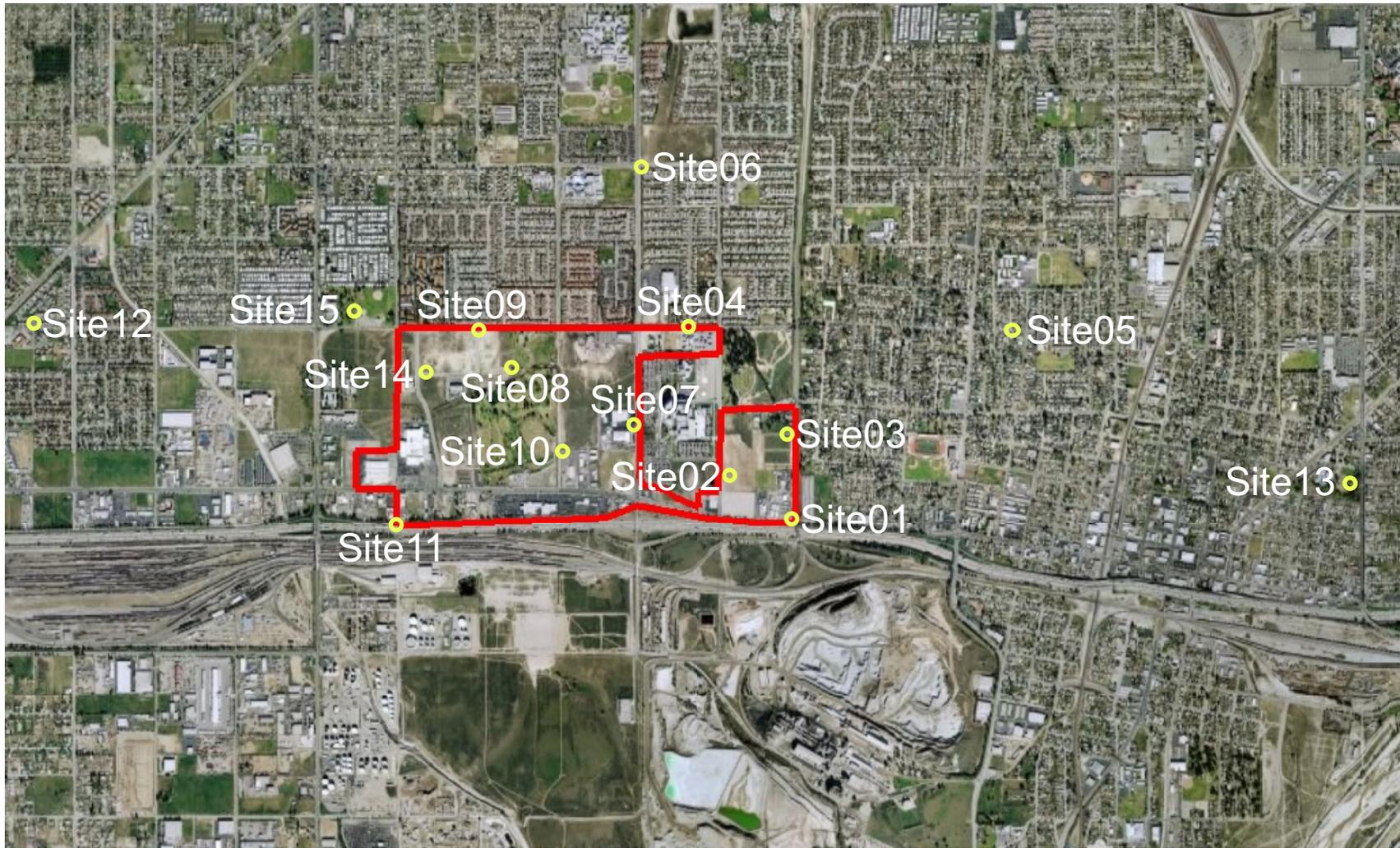
Affected Land Uses (Receiving Noise)	7 am – 10 pm		10 pm – 7 am	
	Leq	Lmax	Leq	Lmax
Residential	55 dB(A)	75 dB(A)	45 dB(A)	65 dB(A)
Professional Services	55 dB(A)	75 dB(A)	55 dB(A)	75 dB(A)
Other Commercial	60 dB(A)	80 dB(A)	60 dB(A)	80 dB(A)
Industrial	70 dB(A)	90 dB(A)	70 dB(A)	90 dB(A)

The county noise ordinance exempts noise from temporary construction, repair, or demolition activities between 7:00 a.m. and 7:00 p.m. except Sundays and Federal Holidays.

#### 1.4 Existing Noise Measurements

The existing noise levels in the vicinity of the West Valley project are needed to establish the current baseline noise levels. A noise measurement survey of the project site and the surrounding area was conducted to determine the location of a set of noise measurement sites that would provide a noise profile of the area in the vicinity of the project site. Several criteria were used in the site selection process including, but not limited to, the proximity of a measurement site to sensitive land uses as well as its proximity to significant noise generators. Two of the significant noise generators near the project site included the I-10 Freeway and the railroad. To provide noise measurement coverage of the area, measurement sites were chosen within the confines of the project site, on the border of the project site and exterior to the project site. After the site selection process was over, a series of short-term noise measurements were taken at the chosen sites. The measurement sites are displayed in Exhibit 5.

Fifteen short-term noise measurements were taken. Nine of the measurement sites were on, or adjacent to, the project site. The remaining six measurement sites were conducted in residential areas to the east, north and west of the project site. The first twelve of the short-term measurements were taken on August 7, 2008 between the hours of 9:44 a.m. and 3:41 p.m. The remaining three measurements were taken on August 11, 2008 between the hours of 10:30 a.m. and 12:13 p.m. The site locations are as follows: corner of Hermosa Avenue and Valley Boulevard, Meridian Avenue, Hermosa Avenue, San Bernardino Avenue, corner of Olive Street and Lydon Drive, corner of Pepper Avenue and Randall Avenue, Pepper Avenue, George E. Brown Jr. Park, corner of Indigo Avenue and San Bernardino Avenue, Eucalyptus Avenue, Sycamore Avenue, corner of San Bernardino Avenue and Idyllwild Avenue, Caesar Chavez Park, corner of Wildrose Avenue and Woodpine Avenue, and Rialto City Park.



**Exhibit 5**  
**Measurement Site Map**

Measurements at all measurement sites were performed using a Brüel & Kjær Model 2236 automated digital noise data acquisition system and sound meter mounted on a tripod. During measurements, a large windscreen covered the sound meter's microphone to dampen-out the effect of unwanted wind-generated noise. For each measurement site, at least 15 minutes of data were collected and stored internally within the sound meter for subsequent downloading and post-processing on a computer. Both before and after each set of measurements were taken, a Brüel & Kjær calibrator with calibrations traceable to the National Institute of Standards and Technology was used to calibrate the sound meter to ensure that the measured sound levels readings were accurate. Sound level data samples were recorded at 1-second intervals. At the conclusion of each set of measurements, the Leq, Lmin, Lmax, L25, L50 and L90 values for the full time period were written down on a data sheet and then the buffer on the sound meter was reset to prepare it for the set of measurements at the next site. Prevailing weather conditions were noted along with any other factors that might adversely affect the noise measurements. Table 2 shows the results of the measurements.

**Table 2 Existing Noise Measurements (dBA)**

Site	Time	Leq	Lmax	Lmin	L25	L50	L90
1	9:44	73.9	77.8	69.2	74.5	73.5	71.5
2	10:24	61.3	74.8	53.6	61.0	59.0	56.5
3	10:55	51.1	69.1	46.3	50.5	50.0	48.0
4	11:23	64.8	81.5	45.1	58.5	58.5	47.5
5	11:54	60.4	79.1	43.9	59.0	53.5	46.5
6	12:26	72.7	86.7	45.5	72.5	67.5	56.0
7	12:58	70.4	85.6	50.2	70.5	65.5	54.5
8	13:31	48.8	62.6	44.1	48.0	47.0	45.5
9	14:01	63.2	80.2	49.1	62.5	60.0	53.5
10	14:27	55.4	69.8	51.4	55.5	54.5	53.0
11	14:52	80.2	87.0	72.4	81.0	79.5	76.5
12	15:25	64.0	82.2	47.1	62.5	57.0	50.5
13	10:33	58.5	77.3	48.2	57.5	55.5	51.5
14	11:19	57.9	71.5	45.8	57.5	53.0	47.5
15	11:53	50.8	65.4	44.4	51.0	49.5	46.5

**Site 1: Corner of Hermosa Avenue and Valley Boulevard**

At the northwest corner of Hermosa Avenue and Valley Boulevard adjacent to PA30 about 200 north of the centerline of the I-10 Freeway is the location of Site 1. Heavy traffic including trucks, cars and buses from both Valley Boulevard and the I-10 Freeway accounted for most of the noise that occurred at this site. During the measurement period, a nearby train sounded its horn and produced a noise that measured 74.7 dBA, although the Lmax that occurred during the measurement period was 77.7 dBA. This site had the 2<sup>nd</sup> highest Leq with a value of 73.9 dBA. The freeway was the dominant source in the area. The railroad, which is on the far side of the freeway, rarely could be heard except when a train used its horn.

**Site 2: Meridian Avenue**

To the east and south of the Arrowhead Regional Medical Center in a vacant field (PA36), 65 feet east of the centerline of Meridian Avenue, 550 feet north of the centerline of Valley

Boulevard and about 700 north of the centerline of the I-10 Freeway was the location of this site. Despite the fact that this site was so far from the I-10 Freeway, the sound of traffic traveling along the freeway was still noticeable. Traffic along Meridian Avenue also contributed to the noise at this site. A passing trash truck produced the highest noise level at this site. The Lmax was 74.8 dBA. The Leq at this site measured 61.3 dBA.

### **Site 3: Hermosa Avenue**

On the west side of Hermosa Avenue about 400 feet south of C Street on a vacant field (PA30) was the location of Site 3. The meter was setup adjacent to the roadway a few feet from a telephone pole. North-south running railroad tracks lie just east of Hermosa Avenue about 80 feet away from the measurement site. No trains could be heard by during the measurement period. Hermosa Avenue experiences only low volume roadway traffic. The loudest event that occurred during the measurement period was caused by an SUV as it drove by. The SUV produced an Lmax of 69.1 dBA. An airplane also flew near the site, although the noise that it produced was not significantly different from the background noise. This site had the 3<sup>rd</sup> lowest average noise level with an Leq of 51.1 dBA.

### **Site 4: San Bernardino Avenue**

On a small grassy strip on the north side of San Bernardino Avenue under a tree about a half block west of Meridian Avenue and across the street from PA29 is the location of Site 4. The traffic that was traveling along San Bernardino Avenue was the main source of noise at this site. The Lmax occurred when one pickup truck passed another pickup truck. The noise level due to this event measured 81.1 dBA. The Leq for this site was 64.8 dBA.

### **Site 5: Corner of Olive Street and Lydon Drive**

This site, which is located near the northeastern curb of Olive Street and Lydon Drive in a residential neighborhood 0.9 miles east of the project site, experienced a slight wind. During the measurement period, a nearby train sounded its horn 21 times over a period of about 10 minutes, although the train horn wasn't the loudest noise source. A passing UPS truck produced the Lmax of 79.1 dBA. Other noticeable sound events included a barking dog and loud music emanating from a passing car. The Leq at this site measured 60.4 dBA. Between all of these events, this site got very quiet. At 43.9 dBA, this site had the lowest Lmin of all sites.

### **Site 6: Corner of Pepper Avenue and Randall Avenue**

At the southeastern corner of Pepper Avenue and Randall Avenue north of the project is the location of this site. The noise that occurred during the measurement period was due to very heavy truck traffic that was traveling on Pepper Avenue. Two cars passed by the sound meter and blasted loud music. This site had the 3<sup>rd</sup> highest average noise level with an Leq of 72.7 dBA and the 2<sup>nd</sup> highest Lmax with a value of 86.7 dBA.

### **Site 7: Pepper Avenue**

This site was located on the west side of Pepper Avenue in front of a Mormon church (PA35) and across Pepper Avenue from the Arrowhead Regional Medical Center. Traffic vehicles on Pepper Avenue accounted for most the noise that occurred here. Although this site was located

on the same street as Site 6, the average noise level at this site was a little bit quieter because the truck traffic was less. An extremely loud small car passed by the sound meter and generated the Lmax of 85.6 dBA. Other notable events included loud banging noises that emanated from a nearby factory. The Leq for this site measured 70.4 dBA.

**Site 8: George E. Brown Jr. Park.**

Slightly north of the southwest corner of George E. Brown Jr. Park, nestled between the Colton Golf Course and a small north side bluff about 650 feet south of San Bernardino Avenue is the location of Site 8 (PA22). There was a breeze in the air. Bird chirping, leaves rustling, faint conversation, and a school bus were some of the sounds that occurred during the measurement period. The combination of the topography of the site and the distance of the site from the nearest roadway were responsible for the relative quiet that this site experienced. This site had the lowest average noise level of all measurement sites; the Leq was 48.8 dBA. This site also had the 2<sup>nd</sup> lowest Lmin with a value of 44.1 dBA. The Lmax occurred when a jet plane flew overhead and caused the noise level to reach a value of 62.6 dBA. The Lmax for this site was the lowest Lmax of all sites measured.

**Site 9: Corner of Indigo Avenue and San Bernardino Avenue**

On a vacant field (PA23) a few feet from the southeast corner of Indigo Avenue and San Bernardino is the location of Site 9. The main source of noise at this site was due to traffic that was traveling along San Bernardino Avenue. The Leq at this site measured 63.2 dBA. The Lmax occurred when a FedEx trucks drove by at the same time that a helicopter flew overhead. The Lmax measured 80.2 dBA. Loud music emanating from a passing car occurred no less than four times during the measurement period.

**Site 10: Eucalyptus Avenue**

On Eucalyptus Avenue where it dead-ends about 600 feet north of Valley Boulevard is the location of Site 10. Eucalyptus Avenue is not well traveled, nor well maintained. Because of the absence of vehicles traffic on Eucalyptus Avenue, and the fact that this site was far from the nearest traffic-bearing road (e.g. Valley Boulevard), traffic noise did not contribute much to the ambient noise level. A facility that operated heavy trucks was adjacent to and east of Eucalyptus Avenue (PA35). During the measurement period, a jet flew over momentarily producing a noise level of 59.1 dBA. On the west side of Eucalyptus Avenue (also PA35) is the Colton Golf Course. The sound of yelling golfers could be heard, and one of the yells produced the highest noise level causing the Lmax to reach 69.8 dBA. This site had the 4<sup>th</sup> quietest average noise level with an Leq of 55.4 dBA.

**Site 11: Sycamore Avenue**

At the south dead-end of Sycamore Avenue just north of the I-10 Freeway at the western border of PA9 is the location of Site 11. From the measurement site, a good view of the freeway could be seen. A couple of trees, a chain-link fence and a utility meter pole were the only obstructions between the freeway and the measurement site. Freeway noise was the dominant noise source at this site, due mainly to the fact that the distance of the site from the centerline of the I-10 Freeway is only about 115 feet. Besides freeway noise, there were no other noticeable noise

events. The railroad yard located on the opposite side of the freeway was not audible. This site had the highest average noise level with an Leq of 80.2 dBA. This site also had the highest Lmax and Lmin. The Lmax was recorded at 87.0 dBA, and the Lmin was recorded at 72.4 dBA.

**Site 12: San Bernardino Avenue and Idyllwild Avenue**

This site was located at the northwestern corner of San Bernardino Avenue and Idyllwild Avenue in a residential area west of the project site. On three separate occasions, a high-altitude jet plane flew overhead. There was a dog near the measurement site, and it started barking. The Leq at this site measured 64.0 dBA. A passing bus produced the highest noise level; the Lmax reached 82.2 dBA.

**Site 13: Caesar Chavez Park**

This measurement was taken within the boundaries of Caesar Chavez Park about 1.7 miles to the east of the project site. The main source of noise at this site was from vehicles traveling along Mount Vernon Avenue and E Street. When there was a lull in traffic on these nearby streets, freeway noise could be heard as well as the sound of chirping birds. Some local workers who had assembled near the measurement site started banging objects together. Also during the measurement period an aircraft flew over the site, although this was a minor noise event, and the noise that it produced was not significant. This site had an Leq of 58.5 dBA. A siren was heard in the distance, and shortly afterward an ambulance passed by the site and produced the Lmax of 77.3 dBA.

**Site 14: Wildrose Avenue and Woodpine Avenue**

At the northeast corner of Wildrose Avenue and Woodpine Avenue is the location of this site. North of the measurement site was a vacant field (PA8) and south of the measurement site was a vacant field (PA10). To the west of the measurement site was a vacant field (PA6), but slightly south of PA6 on PA5 about 180 feet from the measurement site was a shop/warehouse where people were working. Music that was playing at the warehouse was audible. Local traffic accounted for some of the noise at this site, although the traffic volume wasn't high, so birds could be heard chirping. A helicopter flew near this site, as did a small plane, although both of these were minor noise events, and the sound that they generated did not significantly change the ambient noise level. Dogs that were at the warehouse started yipping. This sound generated the highest noise level recorded at this site; the Lmax was 71.5 dBA. This site had an Leq of 57.9 dBA.

**Site 15: Rialto City Park**

Cattycorner to PA6 at the northwest border of the project site is Rialto City Park. Within the boundary of Rialto City Park about 300 feet north of San Bernardino Avenue and about 750 feet west of Sycamore Avenue is the location of this measurement site. There were a number of noise sources at this site. Some of the noises included car doors slamming, aircraft flyovers, voices and a train horn. The train horn blew 22 times during a 14-minute period. There was a structure resembling a hanger/shelter located midway between the measurement site and San Bernardino Avenue. During the last five minutes of the measurement period, a group of skateboarders congregated under the shelter, started talking and making noise on a nearly continuous basis. It was during this period that the highest noise level occurred. An Lmax of

65.4 dBA was recorded, although it was the 2<sup>nd</sup> lowest L<sub>max</sub> of all measurement sites. Despite all of the apparent perceived racket that was produced by the skateboarders, the Leq, which measured 50.8 dBA, was also the 2<sup>nd</sup> lowest of all measurement sites.

## 1.5 Existing Roadway Noise Levels

The highway noise levels projected in this report were computed using the Highway Noise Model published by the Federal Highway Administration (“FHWA Highway Traffic Noise Prediction Model,” FHWA-RD-77-108, December, 1978). The FHWA Model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute the “equivalent noise level.” A computer code has been written which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these noise levels and summing them results in the CNEL for the traffic projections used. CNEL contours are found by iterating over many distances until the distances to the 60, 65, 70, and 75 CNEL contours are found. For the roadway analysis, worst-case assumptions about future motor vehicle traffic and noise levels have been made and were incorporated in the modeling effort. Specifically, no reductions in motor vehicle noise have been assumed in spite of legislation requiring quieter vehicles at the time of manufacture.

Traffic volumes and estimated speeds were used with the FHWA Model to estimate the noise levels in terms of CNEL. Existing traffic volumes for arterials utilized were obtained from the traffic study prepared by Kunzman Associates. The distances to the CNEL contours for the roadways in the vicinity of the project site are given in Table 3. These numbers represent the distance from the centerline of the road to the contour value shown. Note that the values given in Table 3 do not take into account the effect of any noise barriers or topography that may affect ambient noise levels.

**Table 3 Modeled Existing Roadway Traffic Noise Levels**

Roadway Segment	CNEL @ 100' †	Distance To CNEL Contour from Centerline of Roadway (feet)			
		75 CNEL	70 CNEL	65 CNEL	60 CNEL
<b>Agua Mansa Road</b>					
El Rivino Road to Riverside Avenue	68.3	36	77	166	358
Riverside Avenue to Dunn Ranch Road	67.6	32	69	149	320
Dunn Ranch Road to Rancho Avenue	66.3	26	56	121	262
<b>Baseline Road</b>					
Cactus Avenue to Riverside Avenue	68.6	38	81	175	377
Riverside Avenue to Acacia Avenue	68.8	39	84	180	389
Acacia Avenue to Pepper Avenue	68.6	38	81	175	377
Pepper Avenue to Meridian Avenue	68.3	36	78	167	360
<b>Bloomington Avenue</b>					
Cedar Avenue to San Bernardino Avenue	67.3	30	66	141	305
San Bernardino Avenue to Riverside Avenue	63.5	17	37	79	170
<b>C Street</b>					
Meridian Avenue to Hermosa Avenue	62.4	15	31	67	145

**Table 3 – Modeled Existing Roadways Traffic Noise Levels (Continued)**

Roadway Segment	CNEL @ 100' †	Distance To CNEL Contour from Centerline of Roadway (feet)			
		75 CNEL	70 CNEL	65 CNEL	60 CNEL
<b>Cedar Avenue</b>					
Etiwanda Avenue to Foothill Boulevard	69.0	40	85	184	396
Foothill Boulevard to Rialto Avenue	69.2	41	88	190	409
Rialto Avenue to Merrill Avenue	68.5	37	79	171	368
Merrill Avenue to San Bernardino Avenue	70.0	46	100	216	465
San Bernardino Avenue to Bloomington Avenue	70.1	47	102	219	473
Bloomington Avenue to Valley Boulevard	71.6	59	128	276	594
Valley Boulevard to I-10 Freeway	74.0	86	185	400	861
I-10 Freeway to Slover Avenue	71.4	57	124	267	574
Slover Avenue to Santa Ana Avenue	70.7	52	112	241	518
<b>Columbia Avenue</b>					
Main Street to Orange Street	66.4	27	57	124	267
<b>Etiwanda Avenue</b>					
Cactus Avenue to Riverside Avenue	61.7	13	28	60	130
Riverside Avenue to Acacia Avenue	61.6	13	27	59	127
<b>Foothill Boulevard</b>					
Maple Avenue to Cedar Avenue	70.3	49	105	226	487
Cedar Avenue to Cactus Avenue	70.4	49	106	229	494
Cactus Avenue to Riverside Avenue	69.4	43	92	198	426
Riverside Avenue to Acacia Avenue	69.7	45	96	207	446
Acacia Avenue to Pepper Avenue	69.7	44	96	206	444
Pepper Avenue to Meridian Avenue	69.0	40	86	185	399
<b>Hermosa Avenue</b>					
C Street to Valley Boulevard	52.8	RW	RW	15	33
<b>Highland Avenue</b>					
Oakdale Avenue to Pepper Avenue	66.4	27	57	123	265
Pepper Avenue to Macy Street	66.3	26	57	122	264
<b>Jurupa Avenue</b>					
Willow Avenue to Riverside Avenue	61.7	13	28	60	130
<b>La Cadena Drive</b>					
Herr Street to Rancho Avenue	67.9	34	73	156	337
Rancho Avenue to Litton Avenue	70.8	52	113	242	522
Litton Avenue to I-215 Freeway	68.5	37	80	172	371
I-215 Freeway to Main Street	70.4	49	106	229	494
<b>Main Street</b>					
Placentia Lane to Columbia Avenue	70.2	48	104	224	482
Columbia Avenue to SR-60 Freeway	70.4	49	107	230	495
SR-60 Freeway to Spruce Street	69.9	46	99	213	458
<b>Meridian Avenue</b>					
Randall Avenue to Olive Street	65.6	24	51	110	237
Olive Street to Violet Street	66.2	26	56	120	258
Violet Street to Valley Boulevard	64.7	20	44	95	204

**Table 3 – Modeled Existing Roadways Traffic Noise Levels (Continued)**

Roadway Segment	CNEL @ 100' †	Distance To CNEL Contour from Centerline of Roadway (feet)			
		75 CNEL	70 CNEL	65 CNEL	60 CNEL
<b>Merill Avenue</b>					
Cactus Avenue to Riverside Avenue	65.7	24	52	111	239
Riverside Avenue to Acacia Avenue	66.4	27	57	123	265
Acacia Avenue to Pepper Avenue	65.6	23	51	109	235
Pepper Avenue to John Juarez Way	66.2	26	56	121	261
<b>Mount Vernon Avenue</b>					
Fairway Drive to Valley Boulevard	67.7	32	70	151	324
I-10 Freeway to M Street	69.1	40	87	188	404
<b>Olive Street</b>					
Meridian Avenue to Hermosa Avenue	62.9	16	34	73	157
Hermosa Avenue to Rancho Avenue	62.7	15	32	70	151
Rancho Avenue to Pennsylvania Avenue	61.6	13	28	60	128
<b>Pepper Avenue</b>					
SR-210 Freeway to Baseline Road	61.0	12	25	55	117
Baseline Road to Foothill Boulevard	67.1	30	64	137	296
Foothill Boulevard to Etiwanda Avenue	67.9	33	72	155	335
Foothill Boulevard to Rialto Avenue	70.0	47	100	216	466
Rialto Avenue to Merrill Avenue	70.4	50	107	230	495
Merrill Avenue to Randall Avenue	70.2	48	103	221	477
Randall Avenue to San Bernardino Avenue	69.3	42	90	195	420
San Bernardino Avenue to Violet Street	69.3	42	90	195	420
Violet Street to Valley Boulevard	70.2	48	103	222	479
Valley Boulevard to I-10 Freeway	71.4	58	124	267	576
I-10 Freeway to Slover Avenue	62.4	15	31	68	146
<b>Rancho Avenue</b>					
Laurel Street to Olive Street	68.9	39	84	182	391
Olive Street to C Street	69.2	41	89	191	412
C Street to Valley Boulevard	69.7	44	95	205	442
I-10 Freeway to 3rd Street	69.0	40	85	184	397
3rd Street to Agua Mansa Road	68.7	38	82	178	383
Agua Mansa Road to La Cadena Drive	67.4	31	67	144	311
<b>Rialto Avenue</b>					
Linden Avenue to Cedar Avenue	63.1	16	35	75	161
Cedar Avenue to Cactus Avenue	61.6	13	28	59	128
Cactus Avenue to Riverside Avenue	63.1	16	35	75	161
Riverside Avenue to Acacia Avenue	64.1	19	40	87	187
Acacia Avenue to Pepper Avenue	65.7	24	52	111	240
Pepper Avenue to Meridian Avenue	66.9	29	62	133	287

**Table 3 – Modeled Existing Roadways Traffic Noise Levels (Continued)**

Roadway Segment	CNEL @ 100' †	Distance To CNEL Contour from Centerline of Roadway (feet)			
		75 CNEL	70 CNEL	65 CNEL	60 CNEL
<b>Riverside Avenue</b>					
Walnut Avenue to Baseline Road	70.8	53	113	244	525
Baseline Road to Etiwanda Avenue	69.7	44	95	205	441
Etiwanda Avenue to Foothill Boulevard	68.8	39	83	180	387
Foothill Boulevard to Rialto Avenue	69.1	40	87	186	402
Rialto Avenue to Merrill Avenue	69.4	43	92	198	426
Merrill Avenue to Randall Avenue	69.4	42	91	197	423
Randall Avenue to San Bernardino Avenue	69.9	46	98	211	455
San Bernardino Avenue to Value Center	71.0	54	117	252	544
Value Center to Valley Boulevard	69.9	45	98	211	454
Valley Boulevard to I-10 Freeway	71.2	56	120	259	558
I-10 Freeway to Slover Avenue	70.4	50	107	230	497
Slover Avenue to Jurupa Avenue	70.7	52	111	240	517
Jurupa Avenue to Agua Mansa Road	71.1	55	118	255	549
Agua Mansa Road to Placentia Lane	70.8	53	114	245	528
<b>San Bernardino Avenue</b>					
Linden Avenue to Cedar Avenue	63.4	17	36	78	168
Cedar Avenue to Cactus Avenue	64.0	19	40	86	186
Cactus Avenue to Riverside Avenue	64.7	21	44	95	205
Riverside Avenue to Wildrose Avenue	66.3	26	57	122	264
Wildrose Avenue to Indigo Avenue	65.6	24	51	110	238
Indigo Avenue to Pepper Avenue	65.4	23	49	106	228
Pepper Avenue to Meridian Avenue	64.6	20	43	94	202
<b>Slover Avenue</b>					
Linden Avenue to Cedar Avenue	65.6	24	51	109	236
Cedar Avenue to Larch Avenue	63.6	17	38	81	175
<b>Valley Boulevard</b>					
Linden Avenue to Cedar Avenue	71.2	55	120	257	555
Cedar Avenue to Cactus Avenue	69.3	42	90	194	419
Cactus Avenue to Riverside Avenue	70.9	53	114	246	530
Riverside Avenue to Wildrose Avenue	70.1	47	102	220	474
Wildrose Avenue to Eucalyptus Avenue	68.1	35	75	161	347
Eucalyptus Avenue to Pepper Avenue	68.9	39	84	181	390
Pepper Avenue to Meridian Avenue	66.8	28	61	131	283
Meridian Avenue to Hermosa Avenue	67.3	31	66	143	309
Hermosa Avenue to Rancho Avenue	68.3	36	77	166	358
Rancho Avenue to La Cadena Drive	67.2	30	65	140	301
La Cadena Drive to Mount Vernon Avenue	66.4	27	57	123	266
<b>Wildrose Avenue</b>					
San Bernardino Avenue to Woodpine Avenue	61.0	12	25	54	117
Woodpine Avenue to Valley Boulevard	61.6	13	28	59	128
<b>I-10 Freeway</b>					
Riverside Avenue to Rancho Avenue	82.9	334	719	1,549	3,338

† From roadway centerline

N.D. – No data available for existing traffic

RW – Noise contour falls within roadway right-of-way.

Table 3 shows the major noise corridors and arterial roadways near the project site in the area occur along the I-10 Freeway, Valley Boulevard, Pepper Avenue, Riverside Avenue, San Bernardino Avenue, Olive Street, Meridian Avenue, Hermosa Avenue, C Street, and Wildrose Avenue. Other noise corridors and arterial roadway not directly adjacent to, but within the vicinity of the project site are also included in the table.

## 1.6 Existing Aircraft Noise Levels

The closest major airport to the project site is Ontario Airport. Ontario Airport is 13 miles from the project site. The 60 CNEL noise contour of Ontario Airport is over 8 miles from the project site, so the CNEL noise levels at the project site due to Ontario Airport will be much less than 60 CNEL, and there will be no noise impact. The remaining nearby airports are only small municipal airports that typical support only small, quieter, non-jet aircraft. The closest small airport is the Rialto Municipal Airport, which is 4 miles from the project site. Aircraft do fly over the project site as was confirmed during noise measurements, however, because of the combination of the relatively low frequency of occurrence of these flyovers, the short time duration of the flyovers, the large distance of the flying aircraft to the project site (e.g. the altitude of flying aircraft), and the low intensity of the noise energy emitted by these aircraft results in noise impacts at the project site that are only sufficient to make minor alterations to the average ambient noise level. Aircraft noise does not significantly impact the project site.

## 1.7 Existing Train Noise Levels

Colton has an extensive railroad network and is the home of the Colton Crossing, which is the main thoroughfare for most trains entering or exiting California at-grade. The railroad line that travels east/west is adjacent to and south of the I-10 Freeway, which itself is south of, and adjacent to the project site. There is also a minor railroad track that is east of, and adjacent to the project site.

To determine the existing train noise levels, the Wyle Noise Model was used (“Assessment of Noise Environments Around Railroad Operations,” Wyle Laboratories Report WCR-73-5, July, 1973). The noise generated by train operations can be divided into two components; noise generated by the engine or locomotive, and noise generated the railroad cars. The characteristic frequency of the engine is different than the characteristic frequency of the cars. The noise generated by the engine is the result of the mechanical movements of the engine parts, and to a lesser extent, the exhaust system. The noise generated by the cars is a result of the interaction between the wheels and the railroad track. A zero source height is used for the car noise, and a source height of 10 feet is utilized for the locomotive.

The existing operational data presented in Table 4 was utilized in conjunction with the Wyle Noise Model to estimate train noise levels on the project site. The results of the existing train noise projections are displayed in Table 5 in terms of the distances to the 60, 65, and 70 CNEL noise contours. These numbers represent the distances from the center of the railroad line to the noise contour value shown. These projections do not include topography or barriers that may reduce the noise levels.

**Table 4 Existing Railroad Operations Modeled**

Train	Number of Cars	Speed (mph)	Number of Daytime Operations	Number of Evening Operations	Number of Nighttime Operations
Freight	66	23	28	6	26

**Table 5 Existing Railroad Noise Level Contours**

Train	Distances to Noise Contours (feet)		
	70 CNEL	65 CNEL	60 CNEL
Freight	377	713	1354

The closest distance from any portion of the project site to the center of the railroad track line south of the I-10 Freeway is about 370 feet. At this distance, the highest existing CNEL noise level at the project site due to the railroad operations is 70.2 dBA.

## 2.0 POTENTIAL NOISE IMPACTS

Potential noise impacts are commonly divided into two groups; temporary and long term. Temporary impacts are usually associated with noise generated by construction activities. Long-term impacts are further divided into impacts on surrounding land uses generated by the proposed project and those impacts that occur at the proposed project site.

### 2.1 Noise Impact Criteria

Off-site impacts from on-site activities, short-term and long-term, are measured against the Noise Ordinance criteria discussed in Section 1.3.2. Construction activities for the proposed project will be required to meet the standards along with any noise generating activities associated with the operation of the project.

Long-term off-site impacts from traffic noise are measured against two criteria. Both criteria must be met for a significant impact to be identified. First, project traffic must cause a substantial noise level increase (greater than 3 dB) on a roadway segment adjacent to a noise sensitive land use. Second the resulting future with project noise level must exceed the criteria level for the noise sensitive land use. In this case, the criteria level is 65 CNEL for residential land uses.

In community noise assessment, changes in noise levels greater than 3 dB are often identified as significant, while changes less than 1 dB will not be discernible to local residents. In the range of 1 to 3 dB, residents who are very sensitive to noise may perceive a slight change. Note that there is no scientific evidence is available to support the use of 3 dB as the significance threshold. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dB. In a community noise situation, however, noise exposures are over a long time period, and changes in noise levels occur over years, rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dB, and 3 dB appears to be appropriate for most people.

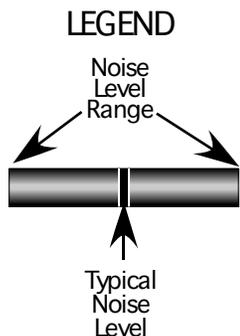
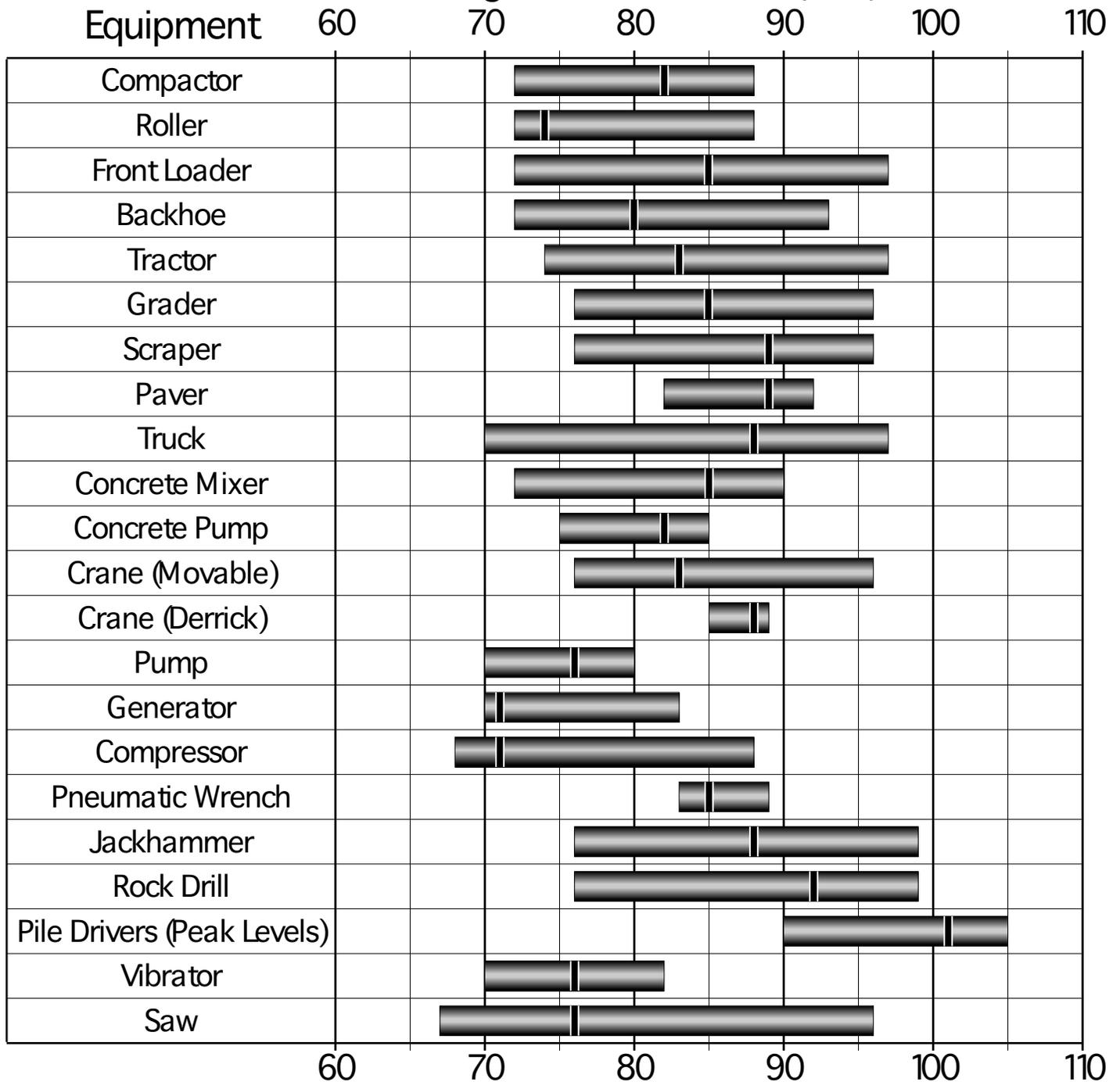
## 2.2 Temporary Impacts

### 2.2.1 Demolition And Construction Noise

Construction noise represents a short-term impact on ambient noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels. Demolition and grading activities will have similar noise levels.

Worst-case examples of construction noise at 50 feet are presented in Exhibit 6. The peak noise level for most of the equipment that will be used during the construction is 70 to 95 dBA at a distance of 50 feet. Noise levels at further distances are less. For example, at 200 feet, the peak construction noise levels range from 58 to 83 dBA. Note that these noise levels are based upon worst-case conditions. Typically, noise levels near the site will be more.

## A-Weighted Sound Level (dBA) At 50 Feet



Sources: "Handbook of Noise Control,"  
by Cyril Harris, 1979  
"Transit Noise and Vibration Impact Assessment"  
by Federal Transit Administration, 1995

# Exhibit 6

## Construction Equipment Noise Levels

Noise measurements made by Mestre Greve Associates for other projects show that the noise levels generated by commonly used grading equipment (i.e. loaders, graders and trucks) generate noise levels that typically do not exceed the middle of the range shown in Exhibit 6. However, the noise levels shown in Exhibit 6 will be used as the basis for the estimates presented here and represent a worst-case estimate.

The nearest existing residential areas that will still exist after the project is completed are on San Bernardino Avenue on the north side of the project site. These residences, which are across the street from the project site, are located a minimum of 50 feet from where construction would be taking place. Based on this distance, the nearest homes may experience worst-case unmitigated peak construction noise levels up to 95 dBA. The average noise levels are typically 5 to 15 dB lower than the peak noise levels. Average noise levels (Leq) at the nearest residences could be in the range of 85 dBA (Leq). However, it should be noted that the San Bernardino noise ordinance exempts construction noise between the hours of 7 a.m. and 7 p.m. on any day except Sunday or a national holiday. Although the San Bernardino ordinance has no legal authority in Colton, it does represent the concept that if construction noise is limited to time periods when people are less sensitive to noise than impacts can be avoided. If demolition or construction occurs during these periods, no impact will occur.

### **2.3 Long-Term Off-Site Impacts**

Increased traffic caused by the project will result in increased traffic noise levels along the roadways in the vicinity of the project. This section examines noise impacts from the proposed project on the surrounding land uses. Specifically traffic noise increases due to the project are examined.

#### **2.3.1 Traffic Noise Impacts Due to Project**

All significant traffic noise increases (i.e. noise increases greater than 3 dB) due to the project in the year 2012 were found to be less than the traffic noise increases that would be experienced in the year 2030 due to the project, so the results of the year 2012 traffic noise analysis are not included in this section. Table 6 shows the expected incremental traffic noise level increases on adjacent roadways for the project in the year 2030. The noise level increases were calculated using traffic volumes presented in the previously referenced traffic study prepared for the project by Kunzman Associates. The daytime, evening and nighttime traffic mix was calculated from Caltrans PEMS data for the I-10 Freeway adjacent to the project site for 22 days in July and August 2008. The mix of automobile, medium trucks and heavy trucks were calculated from the 2006 truck mix volumes provided by Caltrans. Both traffic volumes and the traffic mix used are presented in the appendix.

Examining the noise increase due to the project only (column 1 entitled “Increase Due To Project”) shows that this noise increase will be greater than the 3 dB threshold criteria for only one roadway segment. Table 6 shows that the project is not projected to result in a substantial noise increase (i.e. increases greater than 3 dB) along the remaining roadway segments. As Table 6 shows, much of the noise increase that will occur in 2030 along roadways adjacent to the project will be due to the regional growth in traffic that would have occurred independently of the project.

For the one roadway segment that does cause a noise increase over 3 dB, (e.g. Hermosa Avenue, C Street to Valley Boulevard), the increase in noise in the year 2030 over the noise levels in 2008 will be on the order of 8.6 dB as is shown in the 2<sup>nd</sup> column entitled “Increase Over 2008” of Table 6. It should be noted that since the projected 2030 “without project” traffic noise level along Hermosa Avenue from C Street to Valley Boulevard will decrease from the 2008 noise level, the “increase due to the project” (noise levels in 2030 with project minus the noise levels in 2030 without project) will be greater than “increase over 2008” (noise levels in 2030 with project minus the noise levels in 2008).

For the road segment Merrill Avenue, from Cactus Avenue to Riverside Avenue, the presence of the project in the year 2030 results in a decrease in noise from both the 2008 levels and from the 2030 “without project” levels. Therefore, the change in noise levels in both cases will be negative. Since without the project, the noise levels will increase slightly between 2008 and 2030, the “increase due to the project” (noise levels in 2030 with project minus the noise levels in 2030 without project) will have a greater absolute magnitude (i.e. be more negative) than the “increase over 2008” (noise levels in 2030 with project minus the noise levels in 2008).

Currently, there are residences and a school adjacent to, and west of Hermosa Avenue in the piece of land designated as PA30. According to the site plan, PA30 will be developed into a business park. If all of the PA30 land is developed into the business park, no residences or school will exist on PA30 after the project is completed, and there will be no sensitive receivers that will be impacted by the long-term 8.6 dB noise increase along Hermosa Avenue. If development of PA30 into a business park does not call for the removal of either the residences or the school, then there would be no sensitive receivers at PA30 after the completion of the project that would be impacted by the increase in traffic noise along Hermosa Avenue. Because the existing CNEL noise levels along Hermosa Avenue are 52.8 dBA at 50 feet, an increase of 8.6 dB will cause the CNEL noise level to increase to 61.4 dBA. This noise level is less than the 65 dBA noise level necessary to trigger a significant impact, therefore, there will be no significant noise impact along Hermosa Avenue due to increased traffic as a result of the project.

**Table 6 Traffic Noise CNEL Increases in 2030 (dB)**

Roadway Segment	2030	
	Increase Due To Project	Increase Over 2008
<b>Agua Mansa Road</b>		
El Rivino Road to Riverside Avenue	0.1	1.7
Riverside Avenue to Dunn Ranch Road	0.0	1.6
Dunn Ranch Road to Rancho Avenue	0.2	2.4
<b>Baseline Road</b>		
Cactus Avenue to Riverside Avenue	0.0	0.4
Riverside Avenue to Acacia Avenue	0.0	0.4
Acacia Avenue to Pepper Avenue	0.1	0.5
Pepper Avenue to Meridian Avenue	0.1	0.5

**Table 6 – Traffic Noise CNEL Increases in 2030 (dB) (Continued)**

Roadway Segment	2030	
	Increase Due To Project	Increase Over 2008
<b>Bloomington Avenue</b>		
Cedar Avenue to San Bernardino Avenue	0.0	1.2
San Bernardino Avenue to Riverside Avenue	1.8	2.9
<b>C Street</b>		
Meridian Avenue to Hermosa Avenue	0.0	1.9
<b>Cedar Avenue</b>		
Etiwanda Avenue to Foothill Boulevard	0.1	1.8
Foothill Boulevard to Rialto Avenue	0.0	2.0
Rialto Avenue to Merrill Avenue	0.0	2.2
Merrill Avenue to San Bernardino Avenue	0.1	1.8
San Bernardino Avenue to Bloomington Avenue	0.1	1.3
Bloomington Avenue to Valley Boulevard	0.1	1.2
Valley Boulevard to I-10 Freeway	0.0	1.2
I-10 Freeway to Slover Avenue	0.1	2.2
Slover Avenue to Santa Ana Avenue	0.1	1.4
<b>Columbia Avenue</b>		
Main Street to Orange Street	0.1	0.5
<b>Etiwanda Avenue</b>		
Cactus Avenue to Riverside Avenue	0.0	1.0
Riverside Avenue to Acacia Avenue	0.0	0.7
<b>Foothill Boulevard</b>		
Maple Avenue to Cedar Avenue	0.0	0.5
Cedar Avenue to Cactus Avenue	0.1	0.5
Cactus Avenue to Riverside Avenue	0.2	0.6
Riverside Avenue to Acacia Avenue	0.1	0.5
Acacia Avenue to Pepper Avenue	0.1	0.5
Pepper Avenue to Meridian Avenue	0.1	0.5
<b>Hermosa Avenue</b>		
C Street to Valley Boulevard	<b>8.6</b>	<b>6.8</b>
<b>Highland Avenue</b>		
Oakdale Avenue to Pepper Avenue	0.3	0.7
Pepper Avenue to Macy Street	0.0	0.4
<b>Jurupa Avenue</b>		
Willow Avenue to Riverside Avenue	0.1	1.7
<b>La Cadena Drive</b>		
Herr Street to Rancho Avenue	0.0	1.7
Rancho Avenue to Litton Avenue	0.2	2.4
Litton Avenue to I-215 Freeway	0.3	2.8
I-215 Freeway to Main Street	0.1	1.9
<b>Main Street</b>		
Placentia Lane to Columbia Avenue	0.3	1.7
Columbia Avenue to SR-60 Freeway	0.2	1.6
SR-60 Freeway to Spruce Street	0.0	0.9
<b>Meridian Avenue</b>		
Randall Avenue to Olive Street	0.6	1.5
Olive Street to Violet Street	0.3	1.7
Violet Street to Valley Boulevard	1.9	<b>3.5</b>

**Table 6 – Traffic Noise CNEL Increases in 2030 (dB) (Continued)**

Roadway Segment	2030	
	Increase Due To Project	Increase Over 2008
<b>Merill Avenue</b>		
Cactus Avenue to Riverside Avenue	-0.3	-0.1
Riverside Avenue to Acacia Avenue	-3.1	-0.8
Acacia Avenue to Pepper Avenue	0.5	2.2
Pepper Avenue to John Juarez Way	0.2	2.0
<b>Mount Vernon Avenue</b>		
Fairway Drive to Valley Boulevard	0.1	2.5
I-10 Freeway to M Street	-0.1	1.7
<b>Olive Street</b>		
Meridian Avenue to Hermosa Avenue	1.4	2.6
Hermosa Avenue to Rancho Avenue	1.2	2.8
Rancho Avenue to Pennsylvania Avenue	1.1	3.1
<b>Pepper Avenue</b>		
SR-210 Freeway to Baseline Road	0.6	9.5
Baseline Road to Foothill Boulevard	0.8	3.7
Foothill Boulevard to Etiwanda Avenue	0.9	2.9
Foothill Boulevard to Rialto Avenue	0.7	2.3
Rialto Avenue to Merrill Avenue	0.9	2.0
Merrill Avenue to Randall Avenue	1.2	2.9
Randall Avenue to San Bernardino Avenue	1.4	3.8
San Bernardino Avenue to Violet Street	1.8	4.5
Violet Street to Valley Boulevard	1.5	4.2
Valley Boulevard to I-10 Freeway	1.6	4.3
I-10 Freeway to Slover Avenue	0.6	3.5
<b>Rancho Avenue</b>		
Laurel Street to Olive Street	0.1	2.0
Olive Street to C Street	0.1	2.0
C Street to Valley Boulevard	0.1	2.1
I-10 Freeway to 3rd Street	0.3	2.2
3rd Street to Agua Mansa Road	0.3	2.7
Agua Mansa Road to La Cadena Drive	0.3	2.6
<b>Rialto Avenue</b>		
Linden Avenue to Cedar Avenue	0.1	4.4
Cedar Avenue to Cactus Avenue	0.1	4.4
Cactus Avenue to Riverside Avenue	0.2	2.6
Riverside Avenue to Acacia Avenue	0.1	-0.1
Acacia Avenue to Pepper Avenue	0.0	2.2
Pepper Avenue to Meridian Avenue	0.1	1.5

**Table 6 – Traffic Noise CNEL Increases in 2030 (dB) (Continued)**

Roadway Segment	2030	
	Increase Due To Project	Increase Over 2008
<b>Riverside Avenue</b>		
Walnut Avenue to Baseline Road	0.0	0.4
Baseline Road to Etiwanda Avenue	0.0	0.5
Etiwanda Avenue to Foothill Boulevard	0.1	0.6
Foothill Boulevard to Rialto Avenue	0.3	1.2
Rialto Avenue to Merrill Avenue	0.3	1.8
Merrill Avenue to Randall Avenue	-4.2	-3.0
Randall Avenue to San Bernardino Avenue	0.3	1.2
San Bernardino Avenue to Value Center	0.2	1.3
Value Center to Valley Boulevard	0.3	1.7
Valley Boulevard to I-10 Freeway	0.4	2.6
I-10 Freeway to Slover Avenue	0.3	2.1
Slover Avenue to Jurupa Avenue	0.4	2.0
Jurupa Avenue to Agua Mansa Road	0.4	2.0
Agua Mansa Road to Placentia Lane	0.3	1.7
<b>San Bernardino Avenue</b>		
Linden Avenue to Cedar Avenue	0.5	2.3
Cedar Avenue to Cactus Avenue	0.6	3.4
Cactus Avenue to Riverside Avenue	0.7	2.8
Riverside Avenue to Wildrose Avenue	1.5	2.7
Wildrose Avenue to Indigo Avenue	1.4	2.7
Indigo Avenue to Pepper Avenue	1.1	3.1
Pepper Avenue to Meridian Avenue	1.5	3.1
<b>Slover Avenue</b>		
Linden Avenue to Cedar Avenue	0.1	2.5
Cedar Avenue to Larch Avenue	0.0	2.1
<b>Valley Boulevard</b>		
Linden Avenue to Cedar Avenue	0.2	1.3
Cedar Avenue to Cactus Avenue	0.4	1.8
Cactus Avenue to Riverside Avenue	0.3	2.2
Riverside Avenue to Wildrose Avenue	1.0	1.9
Wildrose Avenue to Eucalyptus Avenue	1.4	2.8
Eucalyptus Avenue to Pepper Avenue	2.3	4.0
Pepper Avenue to Meridian Avenue	2.4	4.2
Meridian Avenue to Hermosa Avenue	1.5	3.7
Hermosa Avenue to Rancho Avenue	1.2	3.2
Rancho Avenue to La Cadena Drive	0.8	2.4
La Cadena Drive to Mount Vernon Avenue	0.7	3.5
<b>Wildrose Avenue</b>		
San Bernardino Avenue to Woodpine Avenue	1.1	2.3
Woodpine Avenue to Valley Boulevard	1.3	1.8

RW – Noise contour falls within roadway right-of-way.

N.D. – No data available for existing traffic

† From Roadway Centerline

The distances to the future (2030) with project 60, 65, 70 and 75 CNEL contours for the roadways in the vicinity of the proposed project site is presented in Table 7. The values shown

under the 60, 65, 70 and 75 CNEL columns represent the distance from the centerline of the roadway to the respective contour value. The CNEL at 100 feet from the roadway centerline is also presented. The contours do not take into account the effect of any noise barriers or topography that may reduce traffic noise levels. Traffic volumes, speeds and traffic mixes used to calculate the noise levels are presented in the appendix.

**Table 7 Future 2030 Project Traffic Noise Levels**

Roadway Segment	CNEL @ 100' †	Distance To CNEL Contour from Centerline of Roadway (feet)			
		75 CNEL	70 CNEL	65 CNEL	60 CNEL
<b>Agua Mansa Road</b>					
El Rivino Road to Riverside Avenue	70.1	47	101	217	468
Riverside Avenue to Dunn Ranch Road	69.1	41	88	189	407
Dunn Ranch Road to Rancho Avenue	68.7	38	81	175	377
<b>Baseline Road</b>					
Cactus Avenue to Riverside Avenue	69.1	40	87	187	402
Riverside Avenue to Acacia Avenue	69.3	42	90	193	416
Acacia Avenue to Pepper Avenue	69.2	41	88	189	408
Pepper Avenue to Meridian Avenue	68.8	39	84	180	389
<b>Bloomington Avenue</b>					
Cedar Avenue to San Bernardino Avenue	68.4	36	78	169	363
San Bernardino Avenue to Riverside Avenue	66.4	27	57	124	267
<b>C Street</b>					
Meridian Avenue to Hermosa Avenue	64.3	19	42	90	193
<b>Cedar Avenue</b>					
Etiwanda Avenue to Foothill Boulevard	70.7	52	112	241	520
Foothill Boulevard to Rialto Avenue	71.2	56	120	259	558
Rialto Avenue to Merrill Avenue	70.7	52	111	239	516
Merrill Avenue to San Bernardino Avenue	71.8	61	132	285	615
San Bernardino Avenue to Bloomington Avenue	71.4	58	124	268	577
Bloomington Avenue to Valley Boulevard	72.8	71	153	330	712
Valley Boulevard to I-10 Freeway	75.2	103	221	477	1,027
I-10 Freeway to Slover Avenue	73.6	80	173	372	802
Slover Avenue to Santa Ana Avenue	72.2	65	139	300	647
<b>Columbia Avenue</b>					
Main Street to Orange Street	66.9	29	62	134	289
<b>Etiwanda Avenue</b>					
Cactus Avenue to Riverside Avenue	62.7	15	33	70	152
Riverside Avenue to Acacia Avenue	62.2	14	30	65	141
<b>Foothill Boulevard</b>					
Maple Avenue to Cedar Avenue	70.8	52	113	244	525
Cedar Avenue to Cactus Avenue	71.0	54	116	249	537
Cactus Avenue to Riverside Avenue	70.0	47	101	217	467
Riverside Avenue to Acacia Avenue	70.2	48	104	224	482
Acacia Avenue to Pepper Avenue	70.2	48	104	223	481
Pepper Avenue to Meridian Avenue	69.5	43	93	200	432
<b>Hermosa Avenue</b>					
C Street to Valley Boulevard	59.6	9	20	44	94

**Table 7 - Future 2030 Project Traffic Noise Levels (Continued)**

Roadway Segment	CNEL @ 100' †	Distance To CNEL Contour from Centerline of Roadway (feet)			
		75 CNEL	70 CNEL	65 CNEL	60 CNEL
<b>Highland Avenue</b>					
Oakdale Avenue to Pepper Avenue	67.0	29	63	137	294
Pepper Avenue to Macy Street	66.7	28	61	131	281
<b>Jurupa Avenue</b>					
Willow Avenue to Riverside Avenue	63.4	17	36	78	168
<b>La Cadena Drive</b>					
Herr Street to Rancho Avenue	69.6	44	94	203	437
Rancho Avenue to Litton Avenue	73.1	75	162	349	752
Litton Avenue to I-215 Freeway	71.4	57	123	266	572
I-215 Freeway to Main Street	72.3	67	143	309	665
<b>Main Street</b>					
Placentia Lane to Columbia Avenue	71.9	62	134	289	623
Columbia Avenue to SR-60 Freeway	72.0	63	135	292	628
SR-60 Freeway to Spruce Street	70.9	53	114	246	530
<b>Meridian Avenue</b>					
Randall Avenue to Olive Street	67.2	30	65	140	301
Olive Street to Violet Street	67.8	33	72	154	332
Violet Street to Valley Boulevard	68.1	35	75	161	348
<b>Merill Avenue</b>					
Cactus Avenue to Riverside Avenue	65.6	24	51	110	236
Riverside Avenue to Acacia Avenue	65.6	24	51	110	236
Acacia Avenue to Pepper Avenue	67.8	33	71	154	331
Pepper Avenue to John Juarez Way	68.2	35	76	164	353
<b>Mount Vernon Avenue</b>					
Fairway Drive to Valley Boulevard	70.1	47	102	220	474
I-10 Freeway to M Street	70.8	53	114	245	528
<b>Olive Street</b>					
Meridian Avenue to Hermosa Avenue	65.6	23	51	109	235
Hermosa Avenue to Rancho Avenue	65.5	23	50	107	231
Rancho Avenue to Pennsylvania Avenue	64.7	21	45	96	207
<b>Pepper Avenue</b>					
SR-210 Freeway to Baseline Road	70.5	50	108	233	503
Baseline Road to Foothill Boulevard	70.8	52	113	242	522
Foothill Boulevard to Etiwanda Avenue	70.8	53	113	244	526
Foothill Boulevard to Rialto Avenue	72.4	67	144	310	668
Rialto Avenue to Merrill Avenue	72.5	68	146	314	677
Merrill Avenue to Randall Avenue	73.1	75	161	347	747
Randall Avenue to San Bernardino Avenue	73.2	75	163	350	754
San Bernardino Avenue to Violet Street	73.9	84	181	391	842
Violet Street to Valley Boulevard	74.4	91	196	422	909
Valley Boulevard to I-10 Freeway	75.7	111	239	515	1,110
I-10 Freeway to Slover Avenue	66.0	25	54	116	249

**Table 7 - Future 2030 Project Traffic Noise Levels (Continued)**

Roadway Segment	CNEL @ 100' †	Distance To CNEL Contour from Centerline of Roadway (feet)			
		75 CNEL	70 CNEL	65 CNEL	60 CNEL
<b>Rancho Avenue</b>					
Laurel Street to Olive Street	70.9	53	114	246	531
Olive Street to C Street	71.2	56	120	259	558
C Street to Valley Boulevard	71.8	61	132	284	612
I-10 Freeway to 3 <sup>rd</sup> Street	71.2	56	120	259	559
3 <sup>rd</sup> Street to Agua Mansa Road	71.4	58	125	269	579
Agua Mansa Road to La Cadena Drive	70.0	46	99	214	461
<b>Rialto Avenue</b>					
Linden Avenue to Cedar Avenue	67.5	32	69	148	318
Cedar Avenue to Cactus Avenue	66.1	25	55	118	254
Cactus Avenue to Riverside Avenue	65.7	24	52	111	240
Riverside Avenue to Acacia Avenue	64.0	19	40	86	185
Acacia Avenue to Pepper Avenue	67.9	34	73	156	337
Pepper Avenue to Meridian Avenue	68.4	36	78	169	364
<b>Riverside Avenue</b>					
Walnut Avenue to Baseline Road	71.2	56	121	260	561
Baseline Road to Etiwanda Avenue	70.1	47	102	219	472
Etiwanda Avenue to Foothill Boulevard	69.4	42	91	196	423
Foothill Boulevard to Rialto Avenue	70.3	49	105	226	487
Rialto Avenue to Merrill Avenue	71.2	56	121	260	560
Merrill Avenue to Randall Avenue	66.4	27	57	124	267
Randall Avenue to San Bernardino Avenue	71.0	54	117	252	544
San Bernardino Avenue to Value Center	72.3	66	143	308	663
Value Center to Valley Boulevard	71.6	59	128	276	594
Valley Boulevard to I-10 Freeway	73.8	84	180	388	836
I-10 Freeway to Slover Avenue	72.5	69	148	318	685
Slover Avenue to Jurupa Avenue	72.7	70	150	324	698
Jurupa Avenue to Agua Mansa Road	73.1	74	160	345	743
Agua Mansa Road to Placentia Lane	72.6	69	148	319	688
<b>San Bernardino Avenue</b>					
Linden Avenue to Cedar Avenue	65.6	24	51	110	238
Cedar Avenue to Cactus Avenue	67.4	31	68	146	314
Cactus Avenue to Riverside Avenue	67.4	31	68	146	314
Riverside Avenue to Wildrose Avenue	69.0	40	86	184	397
Wildrose Avenue to Indigo Avenue	68.3	36	77	166	358
Indigo Avenue to Pepper Avenue	68.4	36	79	169	365
Pepper Avenue to Meridian Avenue	67.7	33	70	152	327
<b>Slover Avenue</b>					
Linden Avenue to Cedar Avenue	68.1	35	75	161	346
Cedar Avenue to Larch Avenue	65.7	24	52	111	239

**Table 7 - Future 2030 Project Traffic Noise Levels (Continued)**

Roadway Segment	CNEL @ 100' †	Distance To CNEL Contour from Centerline of Roadway (feet)			
		75 CNEL	70 CNEL	65 CNEL	60 CNEL
<b>Valley Boulevard</b>					
Linden Avenue to Cedar Avenue	72.4	67	145	312	673
Cedar Avenue to Cactus Avenue	71.2	55	120	257	555
Cactus Avenue to Riverside Avenue	73.1	75	161	346	746
Riverside Avenue to Wildrose Avenue	72.0	63	137	294	634
Wildrose Avenue to Eucalyptus Avenue	70.9	53	114	246	531
Eucalyptus Avenue to Pepper Avenue	72.9	72	155	334	720
Pepper Avenue to Meridian Avenue	71.0	54	117	251	541
Meridian Avenue to Hermosa Avenue	71.1	55	118	254	547
Hermosa Avenue to Rancho Avenue	71.5	58	126	271	584
Rancho Avenue to La Cadena Drive	69.6	44	94	202	435
La Cadena Drive to Mount Vernon Avenue	69.9	46	98	211	455
<b>Wildrose Avenue</b>					
San Bernardino Avenue to Woodpine Avenue	63.3	17	36	77	166
Woodpine Avenue to Valley Boulevard	63.4	17	36	78	168
<b>I-10 Freeway</b>					
Riverside Avenue to Rancho Avenue	82.9	334	719	1,549	3,338

### **2.3.2 Off-site Impacts From On-site Activities**

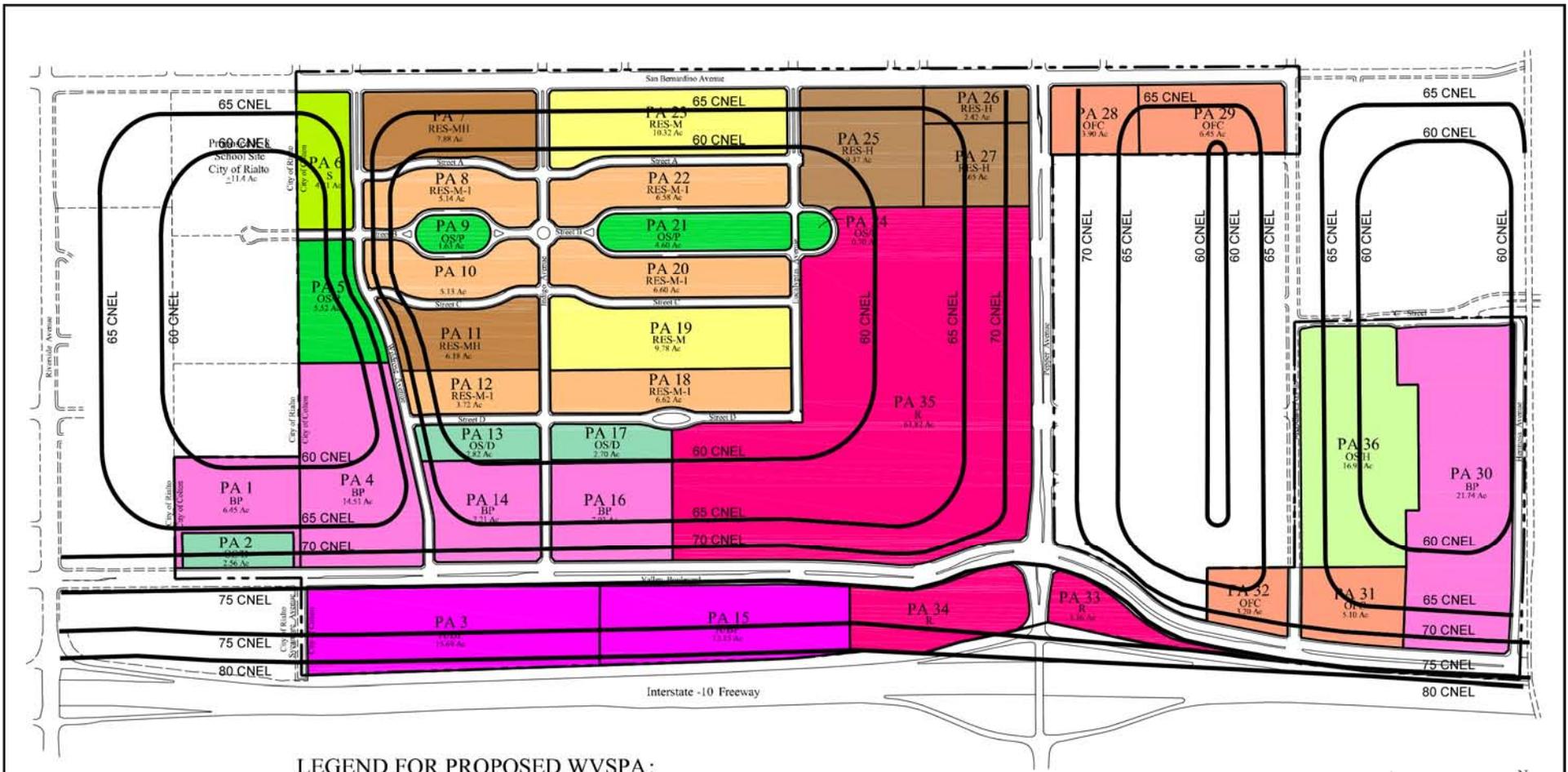
In addition to roadway traffic noise, on-site activities have the potential to generate off-site impacts. Specifically, the activities associated with retail establishments such as large air conditioning units and delivery trucks are of concern. Retail establishments will be built in planning areas 33, 34, and 35. Planning Area 35 is across Pepper Avenue from the ARMC, and the width of Pepper is large enough so that noise from retail activities will not impact the ARMC. None of these retail establishments are adjacent to sensitive use locations. The closest distance from retail activities to the any off-site sensitive use location is at least 450 feet. This distance is sufficiently great such that the noise levels at these sensitive use locations due to the on-site activities will not make a significant impact. There will be no significant off-site noise impacts from on-site activities.

## **2.4 Long-Term On-Site Impacts**

This section examines noise impacts to the project site itself due to activities that occur exterior to the project as well as activities that are confined within the project's boundaries. Specifically, we will examine traffic and train noise levels that might impact the proposed uses.

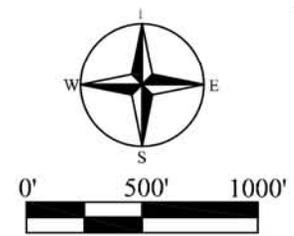
### **2.4.1 On-Site Roadway Traffic Noise Exposure**

The project site is adjacent to busy arterial roadways. In addition, the I-10 Freeway is just south of the project site. The distances to the future 60, 65, 70 and 75 CNEL contours for the roadways in the vicinity of the proposed project site were presented previously in Table 7. Exhibit 7 shows the on-site noise exposure for the project site. Note that the contours do not include the shielding



**LEGEND FOR PROPOSED WVSPA:**

- RES-M (Medium)
- RES-M-1 (Medium 1)
- RES-MH (Medium High)
- RES-H (High)
  
- R Retail
- BP Business Park
- A/BP Auto / Business Park
- OFC Office
  
- OS/P Open Space / Park
- OS/D Open Space / Detention
- OS/H Open Space / Habitat
  
- S School



**Exhibit 7**  
**Future On-Site CNEL Noise Contrours**

effects of buildings, topography, or sound barriers that would lower the noise levels from what is shown in the Exhibit 7, and therefore represent a worst-case estimate.

The largest source of traffic noise near the project site is the I-10 Freeway, so all areas that are near the I-10 Freeway have the potential to be significantly impacted. Noise levels along the I-10 Freeway are as high as 80 CNEL. Areas PA3, PA15, PA34, and PA33 are located at the southern portion of the project site adjacent to the I-10 Freeway. Because of this, these areas will experience higher traffic noise levels than the other project areas that are further away from the I-10 Freeway. PA3 and PA15 are particularly affected by the traffic noise, and the CNEL noise levels along the southern border of these areas are in excess of 80 dBA.

Retail establishments are planned for areas PA33 and PA34. The highest traffic-related CNEL noise levels at these areas are slightly less than 80 dBA, and the CNEL noise level will always be above 70 dBA. Offices in these planning areas could be significantly impacted. An office with a noise exposure of 80 CNEL would have an indoor noise level of 55 CNEL with typical construction. This would be unacceptable for most offices. Other retail uses are sensitive to noise. See Section 3.3 for mitigation measures.

New residential units will be built at many locations within the project site. Those residential units that will be impacted the most will be contained within those areas that are adjacent to noise producing sources. In particular, any residential units bordering major roadways will experience high traffic noise levels. Residences on smaller roads may also experience high enough traffic volumes to be impacted. Residences will be located along San Bernardino Avenue, Pepper Avenue and Wildrose Avenue. All new residences that will be located on these streets would experience CNEL noise levels in excess of 65 dBA at their property line. At the property line of residences along Pepper Avenue, the CNEL noise levels would be in excess of 70 dBA. These noise levels are high enough to trigger a significant impact, so some form of mitigation would be necessary to reduce the noise levels to an acceptable level. Noise levels would exceed the outdoor noise standard of 65 CNEL and the indoor noise criteria of 45 CNEL without some form of mitigation. See Section 3.3 for mitigation measures.

#### **2.4.2 Future Train Noise Exposure**

Just like as was done to estimate current railroad operations noise, the Wyle Noise Model was employed to project future railroad operations noise. Future projected train operations for the Union Pacific railroads were obtained from the OnTrac Trade Impact Study. “National Economic Significance of Rail Capacity and Homeland Security on the Alameda Corridor East”, dated September 11, 2003. The projected future year 2025 operational data that is presented in Table 8 was utilized in conjunction with the Wyle Noise Model to project future train noise levels on the project site.

The results of the future train noise projections are displayed in Table 9 in terms of the distances to the 60, 65, and 70 CNEL noise contours. These numbers represent the distances from the center of the railroad line to the noise contour value shown. These projections do not include topography or barriers that may reduce the noise levels.

**Table 8 Future Railroad Operations Modeled**

Train	Number of Cars	Speed (mph)	Number of Daytime Operations	Number of Evening Operations	Number of Nighttime Operations
Freight	66	23	64	14	59

**Table 9 Future Railroad Noise Level Contours**

Train	Distances to Noise Contours (feet)		
	70 CNEL	65 CNEL	60 CNEL
Freight	594	1127	2145

Using the future projected number of train operations, the projected future CNEL noise level at the portion of the project site that is closest to the center of the railroad line (e.g. 370 feet) is 73.7 dBA. This noise level is about 3.5 dB higher than the existing estimated train noise level at the same location.

Despite the fact that the noise from train operations will increase in the future, the future noise level due to train operations will still be significantly lower than the noise level generated by the I-10 Freeway. By comparison, the highest future CNEL noise level at the same portion of the project site due to the traffic traveling on the I-10 Freeway will be about 83.2 dBA. Because of the topography of the project site near the railroad, the same conclusion about railroad noise producing significantly lower noise levels than that due to the I-10 Freeway can be extended to include all portions of the project site. Because the noise level due to the I-10 Freeway is significantly higher than that due to railroad yard, the noise contribution from railroad operations will not be the critical factor in determining future noise impacts at the project site.

### **2.4.3 Noise Conflicts Within The Specific Plan**

Residential uses directly adjacent to less noise sensitive land uses, such as commercial or industrial uses, can result in noise impacts to the residences. For the proposed project, residences are separated from commercial uses by roadways except for one area. PA35, a proposed retail use, will be directly adjacent to the residential PA25 and PA27. The retail use main noise generators are likely to be parking lots, truck deliveries, and air conditioning equipment. Each of these potential sources of noise is evaluated in the following paragraphs.

In addition to street traffic noise, residences occupying properties adjacent to, or near a parking lot could be impacted by activities that would occur in the parking lot. Traffic associated with parking lots is not usually of sufficient volume to exceed community noise standards that are based on a time averaged scale such as the CNEL scale. However, the instantaneous maximum sound levels generated by car door slamming, engine start-up, alarm activation and car pass-bys can exceed the noise standard. Tire squeal may also be a problem depending on the type of parking surface. Estimates of the maximum noise levels associated with some parking lot activities are presented in Table 10. These levels are based on measurements conducted by Mestre Greve Associates. The noise levels presented are for a distance of 50 feet from the source, and are the maximum noise level generated. A range is given to reflect the variability of noise generated by various automobile types and driving styles.

**Table 10 Maximum Noise Levels Generated By Parking Lots (dBA at 50 feet)**

Event	Lmax
Door Slam	60 to 70
Car Alarm Activation	65 to 70
Engine Start-up	60 to 70
Car pass-by	55 to 70

Due to the unavailability of detailed plans, the exact locations of all parking lots within the boundaries of each property are not yet known. For the purposes of determining worst-case noise impacts to residences due to parking lot related activities, it will be assumed that a parking lot could be located anywhere within the confines of the property containing the parking lot. PA35 is allocated for retail use, so it will probably contain a parking lot. This is the only retail unit near residences, and the only one that could contain a parking lot that would generate sufficient noise levels to impact residences. All other commercial units are too far away to impact residences. Residences are planned to occupy PA18, PA19 and PA20. These residences would be close to PA35, but a street would be in-between these residences and the retail space on PA35. The distance between these residential units and the retail space would be at least 50 feet. For residential areas, the noise ordinance specifies that the maximum noise level (Lmax) cannot exceed 75 dBA. At 50 feet from the noise source, Table 10 shows that the maximum noise level due to parking lot related activities would be less than 75 dBA. There would be no noise impacts at PA18, PA19, and PA20 due to parking lot related activities in PA35.

Residential units are also planned for PA25 and PA27. These lots are adjacent to PA35. Because of this, the closest distance of a residence in PA25 or PA27 to a parking lot in PA35 could be less than 10 feet. At this reduced distance, parking lot related activities would generate noise that is significantly louder than what is shown in Table 10, and maximum sound levels could be as high as 84 dBA. Since an 84 dBA noise level at a residential property would exceed the noise standard, some form of noise mitigation would be required. Noise mitigation measures are recommended in Section 3.3.

Truck deliveries, loading dock activities and air conditioning noise are difficult to assess at this stage of the project. Loading dock noise includes the movement of the goods into the store and possibly forklift operations. Truck delivery noise is generated when the truck drives to, or from, the loading dock. Delivery truck drivers also formerly could leave the truck idling during unloading operations, however, trucks are now prohibited from idling for more than 5 minutes per the South Coast Air Quality Management District regulations. Mechanical equipment noise is associated with the heating, ventilation, and air conditioning system (HVAC).

The number of truck deliveries and the time of day that unloading would occur is not known. Nighttime operations can be particularly annoying to residences. However, noise levels could be loud enough that they would be disturbing to the residences. HVAC equipment is sometimes located on the ground and sometimes located on the roof of the buildings. The type, size and number of mechanical equipment are not known at this time. If the equipment is located on the roof, often parapet walls are used to control the noise from the equipment. Similarly, sound

walls can be located around HVAC equipment that is located on the ground. Without mitigation, impacts could occur. Mitigation measures such as providing sound walls and requiring further studies for the commercial zone are presented in Section 3.3

## 3.0 MITIGATION MEASURES

### 3.1 Temporary Impacts

#### 3.1.1 Construction Noise

The analysis presented in Section 2.2.1 shows that project demolition and construction noise could result in significant impacts to nearby residences if uncontrolled. The most effective method of controlling construction noise is through limiting construction hours. The County of San Bernardino Noise Ordinance does have restrictions on construction hours. Therefore, the following mitigation measure is proposed and is consistent with the San Bernardino Noise Ordinance.

**Mitigation Measure N-1:**

Control of Construction Hours – All construction activities should be limited to the hours between 7 a.m. and 7 p.m. Monday through Saturday. Construction and demolition should be prohibited on Sundays or national holidays.

### 3.2 Long Term Off-Site Impacts

#### 3.2.1 Traffic Noise

The analysis presented in Section 2.3.1 showed that in spite of the fact that the noise level along Hermosa Avenue would increase by 8.6 dB due to an increase in traffic as a result of the project, there would be no noise impacts to nearby residences because the absolute outdoor noise level would still be less than what is allowed by the noise standard. No mitigation is necessary.

#### 3.2.2 On-Site Activities

The analysis of Section 2.3.2 showed that the retail establishments PA33, PA34, and PA35 will be far enough away from off-site sensitive locations such that there will not be a significant noise impact. No mitigation is necessary.

#### 3.2.3 Cumulative Impacts

Cumulative off-site traffic noise impacts will not be significant and therefore mitigation measures are not proposed.

### 3.3 Long Term On-Site Impacts

The analysis presented in Section 2.4 concluded that all lots containing newly constructed residential units facing Wildrose Avenue or San Bernardino Avenue would be subject to CNEL noise levels from roadway traffic in excess of 65 dBA, and any residential unit facing Pepper Avenue would be experience a CNEL noise level from roadway traffic in excess of 70 dBA.

Therefore, 10 dB of noise reduction would be required to achieve the noise standard along some of these roads. Noise barriers provide at least 5 dB of reduction when they break line of sight between the observer and the noise source, and 5 dB of reduction needed is readily feasible. Therefore, noise barriers would need to be higher than 5 feet in to achieve the noise standard and mitigate the impact. Since the plans are not yet sufficiently detailed, the exact barrier heights necessary to achieve mitigation cannot yet be calculated. Noise barriers in the 6 to 10 foot range would likely be needed for these areas. Mitigation Measure N-2 will ensure that these uses meet the City's outdoor noise standards and mitigate the potential significant impact.

**Mitigation Measure N-2:**

Prior to issuance of building permits for residences located along Wildrose Avenue, San Bernardino Avenue and Pepper Avenue a detailed noise assessment shall be prepared to show that noise levels in those areas will not exceed the 65 CNEL outdoor noise criteria and the 45 CNEL indoor noise standard. The noise assessment shall be prepared by a qualified acoustical consultant and shall document the sources of noise impacting the areas and describe any measures required to meet the standard. These measures will be incorporated into the project plans. The report shall be completed and approved by the City prior to issuance of building permits.

The analysis presented in Section 2.4.3 concluded that, activities around PA35 have the potential to generate excessive noise levels at adjacent residential areas. At this time, there is not enough project detail to determine if the specific project design could result in significant impacts. The following mitigation measure will ensure a significant impact is not created as a result of these sources.

**Mitigation Measure N-3:**

Prior to issuance of building permits, city staff will review the proposed commercial center design. Loading docks, truck delivery routes and HVAC equipment within 100 feet of any residence may result in impacts. A detailed noise assessment shall be prepared to ensure that these sources do not exceed 55 dBA (Leq) and 75 dBA (Lmax) during the daytime (7 a.m. to 10 p.m.), and 45 dBA (Leq) and 65 dBA (Lmax) during the nighttime (10 p.m. to 7 a.m.). The assessment shall be prepared by a qualified acoustical engineer and shall document the noise generation characteristics of the proposed equipment and the projected noise levels at the nearest use. Compliance with the these levels shall be demonstrated and any measures required to comply with the Noise Ordinance will be included in the project plans. The report shall be completed and approved by the City prior to issuance of building permits.

Rooftop air conditioning units have the potential to generate excessive noise levels. One strategy to lower the noise levels is to move the air conditioning units. Placement of the air conditioning units on the ground instead of the rooftop will result in lower noise impacts to nearby residences, but further mitigation may still be necessary to reduce the sound levels. Other strategies that might be employed to reduce the air conditioning noise is the use of quieter units, and timers to eliminate nighttime use. The following mitigation measure is proposed.

**Mitigation Measure N-4:**

Prior to issuance of building permits for any building on the project site, a detailed noise assessment shall be prepared to determine the exact placement of the air conditioning units, the model of units to be used, and any other sound control features necessary to mitigate the noise impacts from their operation and ensure that the outdoor noise level at the property line of the nearest residence will not be excessive. The noise assessment shall be prepared by a qualified acoustical consultant and shall document the sources of noise emanating from the air conditioning units and the placement of noise barriers so that the noise level does not exceed 55 dBA (Leq) and 75 dBA (Lmax) during the daytime (7 a.m. to 10 p.m.), and 45 dBA (Leq) and 65 dBA (Lmax) during the nighttime (10 p.m. to 7 a.m.). These measures will be incorporated into the project plans. The report shall be completed and approved by the City prior to issuance of building permits.

The noise levels along the I-10 Freeway will exceed 80 CNEL in some locations, and office buildings located in this area may be adversely impacted unless properly constructed. The interior noise levels of buildings that are located in those portions of the project areas that have high noise levels could be significant. The construction of the building is the factor determining indoor noise levels. Typical construction achieves at least 20 dB of outdoor-to-indoor noise reduction with windows closed. With windows open outdoor-to-indoor noise reduction falls to 12 dB. Therefore, buildings requiring more than 12 dB of noise reduction require adequate ventilation per the Uniform Building Code to allow windows to remain closed. Typically this is provided through mechanical ventilation. Windows do not need to be sealed shut, but closeable at the occupants' discretion. The following mitigation measure is proposed.

**Mitigation Measure N-5**

Prior to issuance of building permits, a detailed acoustical report using architectural plans shall be prepared by a qualified acoustical consultant and submitted to the City for office structures in PA3, PA15, PA33 and PA34. This report shall describe and quantify the noise sources impacting the building(s), the amount of outdoor-to-indoor noise reduction provided by the design in the architectural plans, and any upgrades required so that the noise level does not exceed 45 CNEL for indoor office areas. The measures described in the report shall be incorporated into the architectural plans for the buildings and implemented with building construction. Measures to be considered include window upgrades, additional wall and ceiling insulation, upgraded doors, and a soundwall.

#### **4.0 UNAVOIDABLE SIGNIFICANT IMPACTS**

The mitigation measures described above will mitigate all significant impacts to a level of insignificance.

# APPENDIX

**Table A-1 Traffic Volumes Used For Noise Modeling (ADT's in units of 1,000's)**

Road Segment	SPEED (mph)	Existing Year 2008	Without Project Year 2012	With Project Year 2012	Without Project Year 2030	With Project Year 2030
<b>Agua Mansa Road</b>						
El Rivino Road to Riverside Avenue	45	13.1	17.8	18.3	19.1	19.6
Riverside Avenue to Dunn Ranch Road	45	11.1	14.4	14.5	15.8	15.9
Dunn Ranch Road to Rancho Avenue	45	8.2	10.2	10.7	13.7	14.2
<b>Baseline Road</b>						
Cactus Avenue to Riverside Avenue	40	16.8	18.7	18.7	18.5	18.5
Riverside Avenue to Acacia Avenue	40	17.6	20.3	20.4	19.4	19.5
Acacia Avenue to Pepper Avenue	40	16.8	19.4	19.8	18.5	18.9
Pepper Avenue to Meridian Avenue	40	15.7	17.8	18.1	17.3	17.6
<b>Bloomington Avenue</b>						
Cedar Avenue to San Bernardino Avenue	40	12.2	13.3	13.4	15.8	15.9
San Bernardino Avenue to Riverside Avenue	40	5.1	8.0	8.0	6.6	10.0
<b>C Street</b>						
Meridian Avenue to Hermosa Avenue	30	4.5	4.9	4.9	6.9	6.9
<b>Cedar Avenue</b>						
Etiwanda Avenue to Foothill Boulevard	40	18.1	21.1	21.7	26.6	27.2
Foothill Boulevard to Rialto Avenue	40	19.0	22.1	22.1	30.3	30.3
Rialto Avenue to Merrill Avenue	40	16.2	19.5	19.5	26.9	26.9
Merrill Avenue to San Bernardino Avenue	40	23.0	27.0	27.9	34.1	35.0
San Bernardino Avenue to Bloomington Avenue	40	23.6	26.9	27.5	31.2	31.8
Bloomington Avenue to Valley Boulevard	40	33.2	37.4	38.1	42.9	43.6
Valley Boulevard to I-10 Freeway	40	58.0	66.2	66.2	75.6	75.6
I-10 Freeway to Slover Avenue	40	31.6	40.1	41.3	50.9	52.1
Slover Avenue to Santa Ana Avenue	40	27.1	33.2	34.1	36.9	37.8
<b>Columbia Avenue</b>						
Main Street to Orange Street	40	10.0	10.9	11.2	11.0	11.3
<b>Etiwanda Avenue</b>						
Cactus Avenue to Riverside Avenue	30	3.8	4.1	4.1	4.8	4.8
Riverside Avenue to Acacia Avenue	30	3.7	4.0	4.0	4.3	4.3
<b>Foothill Boulevard</b>						
Maple Avenue to Cedar Avenue	40	24.7	26.7	27.0	27.3	27.6
Cedar Avenue to Cactus Avenue	40	25.2	27.7	28.6	27.7	28.6
Cactus Avenue to Riverside Avenue	40	20.2	22.3	23.3	22.2	23.2
Riverside Avenue to Acacia Avenue	40	21.6	23.7	24.2	23.8	24.3
Acacia Avenue to Pepper Avenue	40	21.5	23.4	23.9	23.7	24.2
Pepper Avenue to Meridian Avenue	40	18.3	19.9	20.4	20.1	20.6
<b>Hermosa Avenue</b>						
C Street to Valley Boulevard	25	0.6	0.6	3.1	0.4	2.9
<b>Highland Avenue</b>						
Oakdale Avenue to Pepper Avenue	35	11.9	12.9	13.7	13.1	13.9
Pepper Avenue to Macy Street	35	11.8	12.7	12.7	13.0	13.0
<b>Jurupa Avenue</b>						
Willow Avenue to Riverside Avenue	40	3.4	3.7	3.8	4.9	5.0
<b>La Cadena Drive</b>						
Herr Street to Rancho Avenue	50	10.2	13.3	13.3	15.1	15.1
Rancho Avenue to Litton Avenue	50	19.7	25.7	27.0	32.7	34.0
Litton Avenue to I-215 Freeway	50	11.8	17.5	18.8	21.3	22.6
I-215 Freeway to Main Street	50	18.1	30.8	31.5	27.6	28.3
<b>Main Street</b>						
Placentia Lane to Columbia Avenue	45	20.5	30.6	32.6	28.1	30.1
Columbia Avenue to SR-60 Freeway	45	21.3	31.4	33.0	28.9	30.5

Road Segment	SPEED (mph)	Existing Year 2008	Without Project Year 2012	With Project Year 2012	Without Project Year 2030	With Project Year 2030
SR-60 Freeway to Spruce Street	45	19.0	21.5	21.7	23.4	23.6
<b>Meridian Avenue</b>						
Randall Avenue to Olive Street	40	8.4	9.1	10.7	10.4	12.0
Olive Street to Violet Street	40	9.5	10.3	11.1	13.1	13.9
Violet Street to Valley Boulevard	40	6.7	7.2	12.4	9.7	14.9
<b>Merill Avenue</b>						
Cactus Avenue to Riverside Avenue	35	10.2	14.2	14.4	10.8	10.0
Riverside Avenue to Acacia Avenue	35	11.9	13.3	13.4	20.2	10.0
Acacia Avenue to Pepper Avenue	35	9.9	11.1	13.0	14.7	16.6
Pepper Avenue to John Juarez Way	35	11.6	12.9	13.7	17.5	18.3
<b>Mount Vernon Avenue</b>						
Fairway Drive to Valley Boulevard	35	16.1	21.4	22.3	27.5	28.4
I-10 Freeway to M Street	35	22.4	24.2	24.2	34.4	33.4
<b>Olive Street</b>						
Meridian Avenue to Hermosa Avenue	35	5.4	7.2	9.9	7.2	9.9
Hermosa Avenue to Rancho Avenue	35	5.1	6.9	9.2	7.4	9.7
Rancho Avenue to Pennsylvania Avenue	35	4.0	5.0	6.9	6.3	8.2
<b>Pepper Avenue</b>						
SR-210 Freeway to Baseline Road	50	2.1	2.9	5.4	16.1	18.6
Baseline Road to Foothill Boulevard	50	8.4	10.4	13.6	16.5	19.7
Foothill Boulevard to Etiwanda Avenue	50	10.1	12.6	16.2	16.3	19.9
Foothill Boulevard to Rialto Avenue	50	16.6	19.7	24.2	24.0	28.5
Rialto Avenue to Merill Avenue	50	18.2	21.3	26.5	23.9	29.1
Merill Avenue to Randall Avenue	50	17.2	20.2	28.1	25.8	33.7
Randall Avenue to San Bernardino Avenue	50	14.2	17.5	27.0	24.7	34.2
San Bernardino Avenue to Violet Street	50	14.2	16.7	30.2	26.8	40.3
Violet Street to Valley Boulevard	50	17.3	20.1	33.5	31.8	45.2
Valley Boulevard to I-10 Freeway	50	22.8	25.0	43.9	42.1	61.0
I-10 Freeway to Slover Avenue	50	2.9	3.1	4.0	5.6	6.5
<b>Rancho Avenue</b>						
Laurel Street to Olive Street	45	15.0	17.8	18.6	22.9	23.7
Olive Street to C Street	45	16.2	18.8	19.2	25.1	25.5
C Street to Valley Boulevard	45	18.0	20.5	21.1	28.7	29.3
I-10 Freeway to 3rd Street	45	15.3	19.2	21.8	23.8	25.6
3rd Street to Agua Mansa Road	45	14.5	18.6	20.3	25.3	27.0
Agua Mansa Road to La Cadena Drive	45	10.6	14.7	16.0	17.9	19.2
<b>Rialto Avenue</b>						
Linden Avenue to Cedar Avenue	25	6.5	7.2	7.5	17.7	18.0
Cedar Avenue to Cactus Avenue	25	4.6	5.2	5.5	12.5	12.8
Cactus Avenue to Riverside Avenue	25	6.5	7.2	7.7	11.3	11.8
Riverside Avenue to Acacia Avenue	25	8.1	9.1	9.3	7.8	8.0
Acacia Avenue to Pepper Avenue	25	11.8	13.1	13.3	19.4	19.6
Pepper Avenue to Meridian Avenue	25	15.4	16.8	17.3	21.5	22.0
<b>Riverside Avenue</b>						
Walnut Avenue to Baseline Road	45	23.3	28.8	28.9	25.6	25.7
Baseline Road to Etiwanda Avenue	30	23.8	30.0	30.2	26.2	26.4
Etiwanda Avenue to Foothill Boulevard	30	19.6	25.5	26.0	21.9	22.4
Foothill Boulevard to Rialto Avenue	30	20.7	28.4	30.0	26.0	27.6
Rialto Avenue to Merill Avenue	30	22.6	37.0	39.4	31.7	34.1
Merill Avenue to Randall Avenue	40	20.0	31.9	34.6	26.6	10.0
Randall Avenue to San Bernardino Avenue	40	22.3	33.7	35.5	27.3	29.1
San Bernardino Avenue to Value Center	40	29.1	40.0	41.9	37.3	39.2

Road Segment	SPEED (mph)	Existing Year 2008	Without Project Year 2012	With Project Year 2012	Without Project Year 2030	With Project Year 2030
Value Center to Valley Boulevard	40	22.2	32.6	34.5	31.3	33.2
Valley Boulevard to I-10 Freeway	40	30.3	41.0	46.1	50.4	55.5
I-10 Freeway to Slover Avenue	40	25.4	44.4	47.2	38.4	41.2
Slover Avenue to Jurupa Avenue	50	19.4	35.8	38.5	27.7	30.4
Jurupa Avenue to Agua Mansa Road	50	21.2	35.8	38.4	30.8	33.4
Agua Mansa Road to Placentia Lane	50	20.0	34.5	36.6	27.7	29.8
<b>San Bernardino Avenue</b>						
Linden Avenue to Cedar Avenue	35	6.0	8.0	9.1	9.0	10.1
Cedar Avenue to Cactus Avenue	35	7.0	9.9	11.8	13.4	15.3
Cactus Avenue to Riverside Avenue	35	8.1	8.8	11.2	12.9	15.3
Riverside Avenue to Wildrose Avenue	35	11.8	14.9	21.1	15.6	21.8
Wildrose Avenue to Indigo Avenue	35	10.1	13.1	16.3	13.5	18.7
Indigo Avenue to Pepper Avenue	35	9.5	12.5	16.9	14.8	19.2
Pepper Avenue to Meridian Avenue	35	7.9	9.9	14.6	11.6	16.3
<b>Slover Avenue</b>						
Linden Avenue to Cedar Avenue	40	8.3	10.4	10.7	14.5	14.8
Cedar Avenue to Larch Avenue	40	5.3	7.7	7.7	8.5	8.5
<b>Valley Boulevard</b>						
Linden Avenue to Cedar Avenue	45	25.3	28.5	30.0	32.3	33.8
Cedar Avenue to Cactus Avenue	45	16.6	21.3	23.5	23.1	25.3
Cactus Avenue to Riverside Avenue	45	23.6	27.1	29.5	37.1	39.5
Riverside Avenue to Wildrose Avenue	45	20.0	23.0	29.5	24.4	30.9
Wildrose Avenue to Eucalyptus Avenue	45	12.5	14.8	21.5	17.0	23.7
Eucalyptus Avenue to Pepper Avenue	45	14.9	17.4	33.0	21.8	37.4
Pepper Avenue to Meridian Avenue	45	9.2	12.7	22.9	14.2	24.4
Meridian Avenue to Hermosa Avenue	45	10.5	14.1	21.4	17.5	24.8
Hermosa Avenue to Rancho Avenue	45	13.1	16.9	23.6	20.6	27.3
Rancho Avenue to La Cadena Drive	45	10.1	13.0	15.8	14.8	17.6
La Cadena Drive to Mount Vernon Avenue	45	8.4	11.2	14.0	16.0	18.8
<b>Wildrose Avenue</b>						
San Bernardino Avenue to Woodpine Avenue	25	4.0	4.3	5.8	5.3	6.8
Woodpine Avenue to Valley Boulevard	25	4.6	5.0	6.8	5.1	6.9

**Table A-2 Traffic Vehicle Mix Used For Noise Modeling**

	Day	Eve	Night
Auto	61.07%	11.81%	17.12%
Medium Truck	1.66%	0.32%	0.47%
Heavy Truck	5.12%	0.99%	1.44%