

# NOISE IMPACT ANALYSIS

SAN DIMAS CANYON RESIDENTIAL AND RETAIL DEVELOPMENT

CITY OF SAN DIMAS, CALIFORNIA



LSA

May 2009

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# SAN DIMAS CANYON RESIDENTIAL AND RETAIL DEVELOPMENT

## INTRODUCTION

This noise impact analysis has been prepared to evaluate the potential noise impacts and mitigation measures associated with the proposed mixed-use development at the northwest corner of San Dimas Canyon Road and Bonita Avenue in the City of San Dimas (City) in Los Angeles County (County), California. This report is intended to satisfy the City's requirement for a project-specific noise impact analysis by examining the impacts of the vehicular traffic and commercial uses on the proposed noise-sensitive residential uses and evaluating the mitigation measures incorporated as part of the project design.

### Project Location

The project site is located north of Bonita Avenue and west of San Dimas Canyon Road. Regional access to the project site is provided via State Route 57 (SR-57), located approximately 1.5 miles (mi) to the west, and Interstate 210 (I-210) less than 1 mi to the north. The project site location is shown in Figure 1.

The project site was developed with commercial uses but has been demolished. There is currently no active use on site. Surrounding land uses include existing residential uses to the north, west, south (across Bonita Avenue), and east (across San Dimas Canyon Road).

### Project Description

The project proposes the construction of 156 apartment dwelling units and 19,969 square feet (sf) of retail use. Figure 2 shows the site plan of the proposed project.

Access to the retail portion of the project site will be provided via a full-access driveway from San Dimas Canyon Road on the east side of the project site and a full-access driveway that allows eastbound vehicles along Bonita Avenue to make a left turn into and out of the commercial development from Bonita Avenue. Access to the residential portion of the project site will be provided via a full-access driveway (west leg) at the intersection of San Dimas Canyon Road and Dickens Lane. A residential fire lane will be provided on the west side of the project, accessing Bonita Avenue.

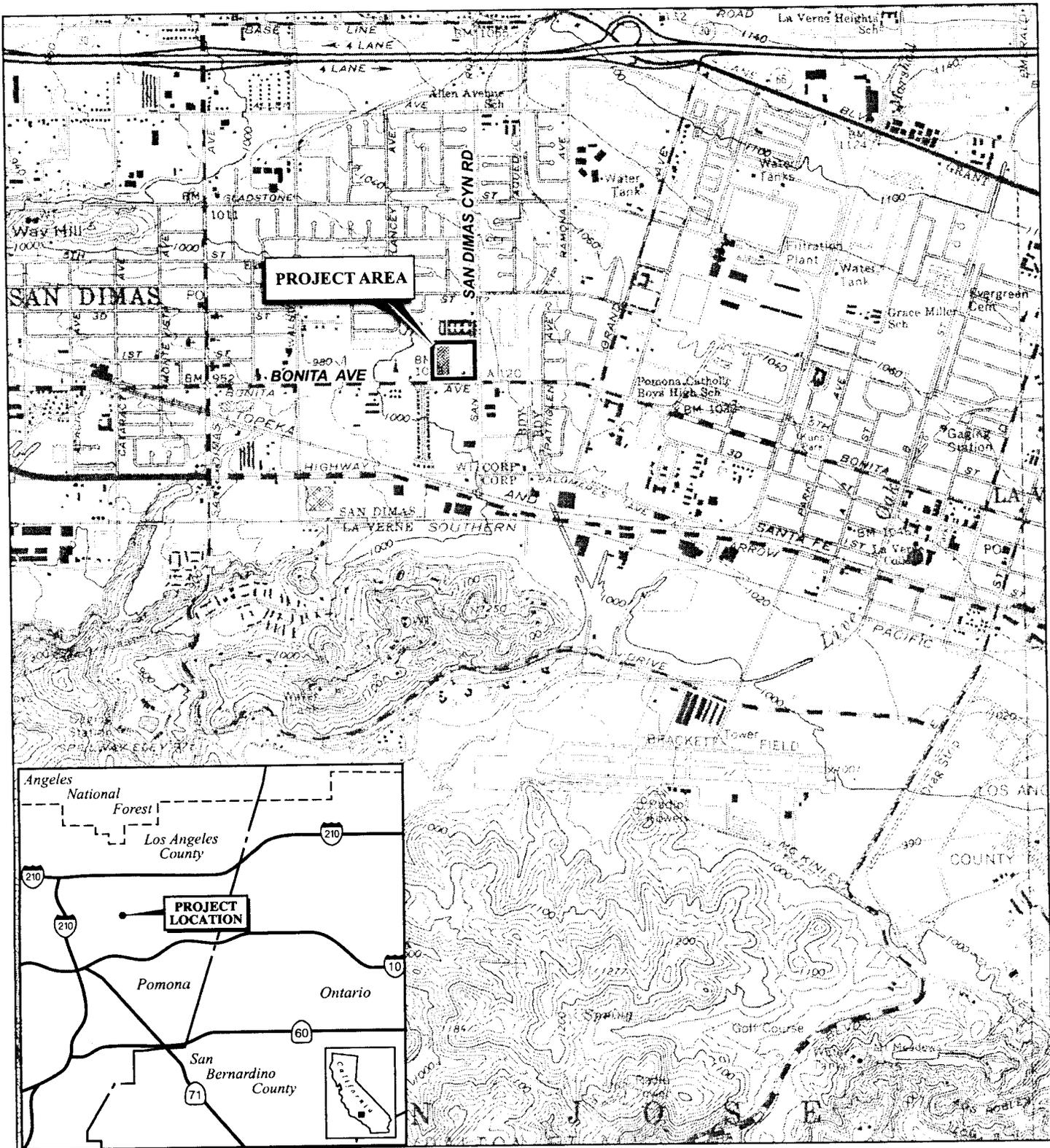
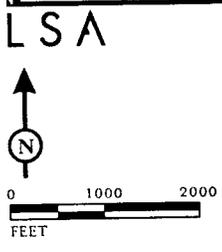


FIGURE 1



San Dimas Canyon Residential and Retail Development

Project Location

SOURCE: USGS 7.5' Quad, San Dimas, Ca.

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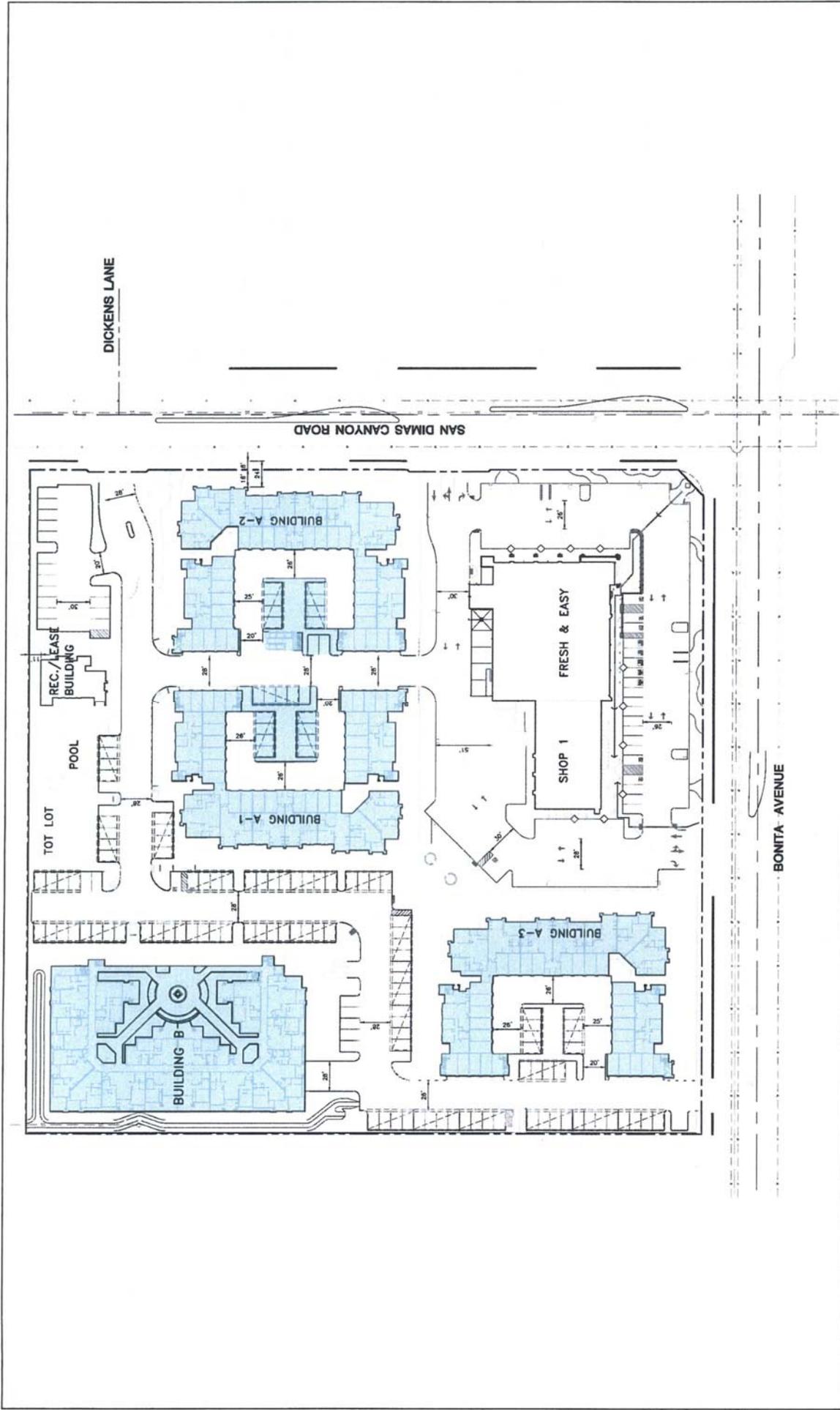


FIGURE 2

LSA

LEGEND  
 Residential



SOURCE: KKE Architects

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## **Methodology Related to Noise Impact Assessment**

Evaluation of noise impacts associated with a proposed mixed-use project typically includes the following:

- Determine the short-term construction noise impacts on off-site noise-sensitive uses.
- Determine the long-term noise impacts, including vehicular traffic and commercial uses, on on-site noise-sensitive uses.
- Determine the required mitigation measures to reduce long-term on-site noise impacts from all sources.

## **Characteristics of Sound**

Sound in the environment is increasing to such disagreeable levels that it can threaten quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave resulting in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves, combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

## **Measurement of Sound**

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units, such as inches or pounds, decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 decibels (dB) are 10 times more intense than 1 dB, 20 dB are 100 times more intense, and 30 dB are 1,000 times more intense. Thirty decibels (30 dB) represent 1,000 times as much acoustic energy as 1 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source, such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source, noise in a relatively flat environment with absorptive vegetation, decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level ( $L_{eq}$ ) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the  $L_{eq}$  and community noise equivalent level (CNEL) or the day-night average level ( $L_{dn}$ ) based on A-weighted decibels (dBA). CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly  $L_{eq}$  for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours).  $L_{dn}$  is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and  $L_{dn}$  are within 1 dBA of each other and are normally exchangeable. The City of San Dimas noise standards in its Noise Element of the General Plan uses the  $L_{dn}$  noise scale for long-term noise impact assessment.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level ( $L_{max}$ ), which is the highest exponential time averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by  $L_{max}$ .  $L_{max}$  reflects peak operating conditions and addresses the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the  $L_{10}$  noise level represents the noise level exceeded 10 percent of the time during a stated period. The  $L_{50}$  noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The  $L_{90}$  noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the  $L_{eq}$  and  $L_{50}$  are approximately the same.

Noise impacts can be described in three categories. The first is audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1.0 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

### **Physiological Effects of Noise**

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in

permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160 to 165 dBA will result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying less developed areas.

Table A lists "Definitions of Acoustical Terms," and Table B shows "Common Sound Levels and Their Noise Sources." Table C shows "Land Use Compatibility for Exterior Community Noise" recommended by the California Department of Health, Office of Noise Control.

### **Fundamentals of Groundborne Vibration**

Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernable, but without the effects associated with the shaking of a building there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by the occupants as motion of building surfaces, rattling of items on shelves or hanging on walls, or as a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Building damage is not a factor for normal projects, with the occasional exception of blasting and pile driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by up to 10 dB. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with groundborne vibration and noise from these sources are usually localized to within about 100 ft of the vibration source, although there are examples of groundborne vibration causing interference out to distances greater than 200 ft, as described in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment (FTA, April 1995). When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for this project that the roadway surface will be smooth enough that groundborne vibration from street traffic will not exceed the impact criteria; however, construction of the proposed project could result in groundborne vibration that could be perceptible and annoying. Groundborne noise is not likely to be a problem because noise arriving via the normal airborne path usually will be greater than groundborne noise.

**Table A: Definitions of Acoustical Terms**

Term	Definition
Decibel, dB	A unit of level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L <sub>01</sub> , L <sub>10</sub> , L <sub>50</sub> , L <sub>90</sub>	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period.
Equivalent Continuous Noise Level, L <sub>eq</sub>	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L <sub>dn</sub>	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L <sub>max</sub> , L <sub>min</sub>	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, 1991.

**Table B: Common Sound Levels and Their Noise Sources**

Noise Source	A-Weighted Sound Level (dB)	Noise Environment	Subjective Evaluation
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	
Near Freeway Auto Traffic	70	Moderately Loud	Reference Level
Average Office	60	Quiet	½ as loud
Suburban Street	55	Quiet	
Light Traffic; Soft Radio Music in Apartment	50	Quiet	¼ as loud
Large Transformer	45	Quiet	
Average Residence without Stereo Playing	40	Faint	⅛ as loud
Soft Whisper	30	Faint	
Rustling Leaves	20	Very Faint	
Human Breathing	10	Very Faint	Threshold of Hearing
	0	Very Faint	

Source: Compiled by LSA Associates, Inc. 2003.

dB = decibel

**Table C: Land Use Compatibility for Exterior Community Noise**

Land Use Category	Noise Range ( $L_{dn}$ or CNEL), dB			
	I <sup>1</sup>	II <sup>2</sup>	III <sup>3</sup>	IV <sup>4</sup>
Passively used open spaces	50	50–55	55–70	70+
Auditoriums, concert halls, amphitheaters	45–50	50–65	65–70	70+
Residential: low-density single-family, duplex, mobile homes	50–55	55–70	70–75	75+
Residential: multifamily	50–60	60–70	70–75	75+
Transient lodging: motels, hotels	50–60	60–70	70–80	80+
Schools, libraries, churches, hospitals, nursing homes	50–60	60–70	70–80	80+
Actively used open spaces: playgrounds, neighborhood parks	50–67	—	67–73	73+
Golf courses, riding stables, water recreation, cemeteries	50–70	—	70–80	80+
Office buildings, business commercial and professional	50–67	67–75	75+	—
Industrial, manufacturing, utilities, agriculture	50–70	70–75	75+	—

Source: Office of Noise Control, California Department of Health, 1976.

<sup>1</sup> Noise Range I—Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

<sup>2</sup> Noise Range II—Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

<sup>3</sup> Noise Range III—Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

<sup>4</sup> Noise Range IV—Clearly Unacceptable: New construction or development should generally not be undertaken.

CNEL = community noise equivalent level

dB = decibel

$L_{dn}$  = day-night average noise level

Groundborne vibration has the potential to disturb people as well as to damage buildings. Although it is rare for traffic-induced groundborne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitude to damage nearby buildings (FTA 1995). Groundborne vibration is usually measured in terms of vibration velocity, either the root-mean-square (rms) velocity or peak particle velocity (PPV). The rms velocity is best for characterizing human response to building vibration, and PPV is used to characterize potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where “ $L_v$ ” is the velocity in decibels (VdB), “ $V$ ” is the rms velocity amplitude, and “ $V_{ref}$ ” is the reference velocity amplitude ( $1 \times 10^{-6}$  inches/second) used in the United States.

Factors that influence groundborne vibration and noise include the following:

- Vibration Source: vehicle suspension, wheel types and condition, track/roadway surface, track support system, speed, transit structure, and depth of vibration source
- Vibration Path: soil type, rock layers, soil layering, depth to water table, and frost depth
- Vibration Receiver: foundation type, building construction, and acoustical absorption

Among the factors listed above, there are significant differences in the vibration characteristics when the source is underground compared to at ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface and can result in groundborne vibration problems at a great distance from the track. Factors such as layering of the soil and depth to water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

## EXISTING CONDITIONS

### Sensitive Land Uses in the Project Vicinity

Surrounding sensitive land uses include existing residences to the north, west, south (across Bonita Avenue), and east (across San Dimas Canyon Road). The closest residences to the west and north are approximately 45 ft from the project’s boundary.

### Overview of the Existing Noise Environment

The primary existing noise sources in the project area are transportation facilities. Traffic on Bonita Avenue, San Dimas Canyon Road, Arrow Highway, I-210, and other local streets is a steady source of ambient noise. Burlington Northern & Santa Fe Railroad tracks (BNSF) are located less than 0.25 mi south of the project site. Aircraft activity at the Bracket Field Airport, a general aviation

airport approximately 1.3 mi southeast of the project site, also contributes to the ambient noise in the project vicinity.

**Existing Traffic Noise.** Based on the *Traffic Impact Study* prepared for this project (LSA Associates, Inc., February 2009), the FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions along roadway segments in the project vicinity.

Table D provides the traffic noise levels adjacent to existing roadway links in the project vicinity for the existing condition. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and model printouts are provided in Appendix A.

Based on Table D, existing traffic noise in the project vicinity is moderate, with the majority of the 70 dBA CNEL contour confined within the roadway right-of-way for segments in the project vicinity.

### **Thresholds of Significance**

A project will normally have a significant effect on the environment related to noise if it will substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of the community in which it is located.

**Noise Element of the General Plan.** The Noise Element of the City of San Dimas General Plan was adopted in 1989. Although the City did not adopt any noise level standards in its Noise Element, one of its goals is to develop strategies for the abatement of excessive noise exposures. The City stated in the Noise Element that it would adopt guidelines that consider noise an early factor in planning future residential developments. The General Plan also states that the City will consider planning guidelines that include noise control for the interior living space of all new residential developments within noise impact areas. In addition, the City will require that the State noise insulation standards for exterior-to-interior noise control be applied to all new single-family and multifamily structures. The City's General Plan adopted by reference the State's Land Use Compatibility for Community Noise Environments, taken in part from "Aircraft Noise Impact Planning Guidelines for Local Agencies (United States Department of Housing and Urban Development, TE/NA-472, November 1972), similar to those shown in Table C.

Based on the land use compatibility guidelines, an exterior noise standard of 65 dBA CNEL and an interior noise standard of 45 dBA CNEL are recommended for residential uses. For commercial retail uses, it is normally acceptable for commercial uses to be located in areas up to 70 dBA CNEL, and conditionally acceptable in areas up to 77 dBA CNEL. In addition, an interior noise standard of 55 dBA CNEL is recommended for commercial uses.

**Table D: Existing (2009) Traffic Noise Levels**

Roadway Segment	ADT	Centerline to 70 CNEL (ft)	Centerline to 65 CNEL (ft)	Centerline to 60 CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane
E. Bonita Ave. west of San Dimas Ave.	13,500	< 50 <sup>1</sup>	53	113	64.0
E. Bonita Ave. between San Dimas Ave. and Walnut Ave.	10,300	< 50	< 50	94	62.8
E. Bonita Ave. between Walnut Ave. and San Dimas Canyon Rd.	10,400	< 50	61	130	64.9
E. Bonita Ave. east of San Dimas Canyon Rd.	10,600	< 50	65	137	65.3
Dickens Lane east of San Dimas Canyon Rd.	500	< 50	< 50	< 50	53.9
Gladstone St. west of San Dimas Canyon Rd.	5,400	< 50	< 50	106	64.2
Gladstone St. east of San Dimas Canyon Rd.	3,500	< 50	< 50	80	62.3
Arrow Hwy. west of San Dimas Canyon Rd.	25,000	81	166	352	70.1
Arrow Hwy. east of San Dimas Canyon Rd.	21,100	74	149	315	69.4
San Dimas Ave. north of E. Bonita Ave.	11,700	< 50	83	178	67.6
San Dimas Ave. south of E. Bonita Ave.	12,000	< 50	84	181	67.7
Walnut Ave. north of E. Bonita Ave.	4,900	< 50	< 50	100	63.8
Walnut Ave. south of E. Bonita Ave.	5,300	< 50	< 50	105	64.1
San Dimas Canyon Rd. north of Gladstone St.	7,900	< 50	78	164	65.9
San Dimas Canyon Rd. between Gladstone St. and Dickens Lane	8,400	< 50	81	171	66.2
San Dimas Canyon Rd. between Dickens Lane and E. Bonita Ave.	9,300	< 50	63	132	66.5
San Dimas Canyon Rd. between E. Bonita Ave. and Arrow Hwy.	8,500	< 50	81	172	66.3
San Dimas Canyon Rd. south of Arrow Hwy.	2,000	< 50	< 50	< 50	58.6

Source: LSA Associates, Inc., May 2009.

<sup>1</sup> Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

CNEL = community noise equivalent level

dBA = A-weighted decibels

ft = feet

**Noise Ordinance.** The City's Municipal Code Title 8, Health and Safety, Section 8.36.070, states that the maximum permissible residential sound levels in interior living areas are 35 dBA for nighttime period and 45 dBA for daytime period. For exterior living areas, the City's allowable noise level is 65 dBA. It also states that no person shall construct or cause to be constructed a residential development in an area that has an existing or projected ambient noise level such that the above allowable noise levels will be exceeded without providing mitigation measures adequate to reduce the requisite noise levels to an allowable level. Prior to the issuance of building permits for a project in such an area, a registered engineer shall certify that the construction plans will provide any required noise reduction. In addition, prior to occupancy, a random selection of units shall be tested to provide evidence that the required allowable noise levels were achieved.

Section 8.36.100 of the City's Municipal Code states that it is unlawful for any person to perform construction work within 500 ft of a residential zone between the hours of 8:00 p.m. of one day and 7:00 a.m. of the next day or at any time on Sunday or any public holiday without obtaining a permit from the City.

**Groundborne Vibration.** According to the FTA, a vibration velocity level of 65 VdB or above would be perceptible, while a level of 72–80 VdB may cause residential annoyance. A vibration velocity of 95–100 VdB would result in potential building damage. A vibration velocity of 75 VdB, with noise levels of a low frequency of 35 dBA and a midfrequency of 50 dBA, is the threshold of annoyance for humans.

Groundborne vibration levels were compared to the groundborne noise and vibration criteria established by the FTA because the City of Hemet does not have any regulations related to vibration. Vibration levels were also compared to vibration thresholds that would damage structures. The groundborne vibration and noise criteria were obtained from the FTA's Transit Noise and Vibration Impact Assessment (FTA, April 1995). Although the FTA's groundborne noise and vibration criteria are prepared for railroads, vibration thresholds were used to predict community annoyance from other sources. Vibration levels generated by construction equipment were also compared with the FTA's Human Response to Different Levels of Groundborne Noise and Vibration to predict community annoyance.

Table E shows the FTA's groundborne vibration and noise impact criteria. The table shows groundborne vibration and noise level thresholds that would result in community annoyance for each land use category. There are different vibration and noise level thresholds between frequent and infrequent events. A frequent event is defined as more than 70 events per day, and an infrequent event is defined as less than 70 events per day. The frequent and infrequent event criteria are based on a community response equivalent. Typically a frequent event at lower levels would evoke the same response as an infrequent event at higher levels. For example, as shown in Table E, frequent vibration events at 72 VdB would generate the same community response as infrequent vibration events at 80 VdB for residential land uses.

**Table E: Groundborne Vibration and Noise Impact Criteria**

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro-inch/sec)		Groundborne Noise Impact Levels (dB re 20 micro-Pascals)	
	Frequent Events <sup>1</sup>	Infrequent Events <sup>2</sup>	Frequent Events <sup>1</sup>	Infrequent Events <sup>2</sup>
<b>Category 1:</b> Buildings where low ambient vibration is essential for interior operations	65 VdB <sup>3</sup>	65 VdB <sup>3</sup>	_ <sup>4</sup>	_ <sup>4</sup>
<b>Category 2:</b> Residences and buildings where people normally sleep	72 VdB	80 VdB	35 dBA	43 dBA
<b>Category 3:</b> Institutional land uses with primarily daytime use	75 VdB	83 VdB	40 dBA	48 dBA

Source: Federal Transit Administration, May 2006.

<sup>1</sup> "Frequent Events" is defined as more than 70 events per day.

<sup>2</sup> "Infrequent Events" is defined as fewer than 70 events per day.

<sup>3</sup> This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilation, and air conditioning (HVAC) systems and stiffened floors.

<sup>4</sup> Vibration-sensitive equipment is not sensitive to ground-borne noise.

db = decibel

dBA = A-weighted decibels

micro-inch/sec = micro-inch per second

re = reference

VdB = velocity in decibels

## IMPACTS AND MITIGATION MEASURES

**Short-Term Construction-Related Impacts.** Noise levels from grading and other construction activities for the proposed project may range up to 85 dBA  $L_{max}$  at the closest residence to the north and west of the project site for very limited times when construction occurs near the project's boundary. Construction-related noise impacts from the proposed project would be potentially adverse; however, compliance with the City's construction hours requirement would reduce the impact to a less than significant level.

Short-term noise impacts would be associated with excavation, grading, and erecting of buildings on site during construction of the proposed project. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area today but would no longer occur once construction of the project is completed.

Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. Although there would be a relatively high single-event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 ft would generate up to a maximum of 87 dBA  $L_{max}$ ), the effect on longer term (hourly or daily) ambient noise levels would be small. Therefore, short-term construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during excavation, grading, and building erection on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table F lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor. Typical noise levels range up to 91 dBA  $L_{max}$  at 50 ft during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backhoes, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Construction of the proposed project is expected to require the use of scrapers, bulldozers, and water and pickup trucks. This equipment would be used on the project site. Based on the information in Table F, the maximum noise level generated by each scraper on the proposed project site is assumed to be 87 dBA  $L_{max}$  at 50 ft from the scraper. Each bulldozer would also generate 85 dBA  $L_{max}$  at 50 ft.

The maximum noise level generated by water and pickup trucks is approximately 86 dBA  $L_{max}$  at 50 ft from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst-case combined noise level during this phase of construction would be 91 dBA  $L_{max}$  at a distance of 50 ft from the active construction area.

The residences nearest to the project site are approximately 45 ft to the north or west of the project boundary. These residences may be subject to short-term, intermittent, maximum noise reaching 91 dBA  $L_{max}$  generated by construction activities on the project site. Compliance with the construction hours specified in the City's Municipal Code Noise Ordinance would reduce the construction noise impacts to less than significant.

**Groundborne Vibration.** The following analysis is based on a noise impact analysis prepared for a commercial project.<sup>1</sup> Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernable, but without the effects associated with the shaking of a building there is less adverse reaction. Bulldozers and other heavy-tracked construction equipment generate approximately 92 VdB of groundborne vibration when measured at 50 ft, based on Transit Noise and Vibration Impact Assessment (FTA, May 2006). This level of groundborne vibration exceeds the threshold of human perception, which is around 65 VdB. Based on the California

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<sup>1</sup> *Final Environmental Impact Report San Jacinto Street Retail Center*, State Clearinghouse No. 2003061128, June 15, 2004.

**Table F: Typical Construction Equipment Noise Levels**

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 ft)	Suggested Maximum Sound Levels for Analysis (dBA at 50 ft)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81-96	93
Rock Drills	83-99	96
Jackhammers	75-85	82
Pneumatic Tools	78-88	85
Pumps	74-84	80
Dozers	77-90	85
Scrapers	83-91	87
Haul Trucks	83-94	88
Cranes	79-86	82
Portable Generators	71-87	80
Rollers	75-82	80
Tractors	77-82	80
Front-End Loaders	77-90	86
Hydraulic Backhoes	81-90	86
Hydraulic Excavators	81-90	86
Graders	79-89	86
Air Compressors	76-89	86
Trucks	81-87	86

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

dBA = A-weighted decibels

ft-lb/blow = foot-pounds per blow

ft = feet

Department of Transportation's *Transportation-Related Earthborne Vibration, Technical Advisory* (Rudy Hendricks, July 24, 1992), vibration level at 100 ft is approximately 6 VdB lower than the vibration level at 50 ft. Vibration at 200 ft from the source is more than 6 VdB lower than the vibration level at 100 ft, or more than 12 VdB lower than the vibration level at 50 ft. Every doubling of distance from 50 ft results in the reduction of the vibration level by 6 VdB; therefore, receptors at 100 and 200 ft from the construction activity may be exposed to groundborne vibration up to 86 and 80 VdB, respectively.

Existing residences approximately 45 ft to the north or west would be exposed to groundborne vibration between 92 and 80 VdB. Although this range of groundborne vibration levels would result in potential annoyance at residences near the project site, they would not cause any damage to the buildings. Vibration caused by traffic, especially trucks, on Bonita Avenue and San Dimas Canyon Road would be comparable to the vibration levels from construction activity at the project site. Additionally, groundborne vibration during construction activity is temporary; therefore, impacts from project-related groundborne vibration during construction would be less than significant.

**Long-Term Aircraft Noise Impacts.** The proposed project would not contribute to any measurable long-term aircraft activity at the Bracket Field Airport. The proposed on-site residential and commercial uses would be outside of the 65 dBA CNEL noise level from the Bracket Field Airport. Although there may be some occasional high aircraft single-event flyover noise exposure levels from the airport operations, noise from aircraft activity would be below 65 dBA CNEL; therefore, no mitigation measures would be required.

**Long-Term Railroad Noise Impacts.** The proposed project would not contribute to any measurable long-term railroad activity on the BNSF railroad track less than 0.25 mi to the south. The proposed on-site residential uses would be outside of the 65 dBA CNEL noise level from the BNSF railroad track. Therefore, no mitigation measures would be required.

**Long-Term Traffic Noise Impacts.** It takes a doubling of the traffic volume to have a 3 dBA increase in traffic noise. Vehicular traffic trips associated with the proposed project, after being distributed onto adjacent roadway links, would not result in significant traffic noise impacts on off-site sensitive uses.

Based on the *Traffic Impact Study* prepared for this project (LSA Associates, Inc., February 2009), the FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions along roadway segments in the project vicinity.

Table G provides the traffic noise levels adjacent to existing roadway links in the project vicinity for the existing with Project condition. Tables H and I provide the cumulative (2010) traffic noise levels for the without and with project scenarios, respectively. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and model printouts are provided in Appendix A.

**Table G: Existing with Project Traffic Noise Levels**

Roadway Segment	ADT	Center-line to 70 CNEL (ft)	Center-line to 65 CNEL (ft)	Center-line to 60 CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase CNEL (dBA) 50 ft from Centerline of Outermost Lane
E. Bonita Ave. west of San Dimas Ave.	14,100	< 50 <sup>1</sup>	55	116	64.2	0.2
E. Bonita Ave. between San Dimas Ave. and Walnut Ave.	11,100	< 50	< 50	99	63.1	0.3
E. Bonita Ave. between Walnut Ave. and San Dimas Canyon Rd.	11,100	< 50	64	136	65.2	0.3
E. Bonita Ave. east of San Dimas Canyon Rd.	10,800	< 50	65	139	65.4	0.1
Dickens Lane east of San Dimas Canyon Rd.	500	< 50	< 50	< 50	53.9	0.0
Gladstone St. west of San Dimas Canyon Rd.	5,500	< 50	< 50	108	64.3	0.1
Gladstone St. east of San Dimas Canyon Rd.	3,500	< 50	< 50	80	62.3	0.0
Arrow Hwy. west of San Dimas Canyon Rd.	25,000	81	166	352	70.1	0.0
Arrow Hwy. east of San Dimas Canyon Rd.	21,300	74	149	317	69.4	0.0
San Dimas Ave. north of E. Bonita Ave.	8,000	< 50	64	138	65.9	-1.7
San Dimas Ave. south of E. Bonita Ave.	8,000	< 50	64	138	65.9	-1.8
Walnut Ave. north of E. Bonita Ave.	4,900	< 50	< 50	100	63.8	0.0
Walnut Ave. south of E. Bonita Ave.	5,300	< 50	< 50	105	64.1	0.0
San Dimas Canyon Rd. north of Gladstone St.	8,100	< 50	79	167	66.0	0.1
San Dimas Canyon Rd. between Gladstone St. and Dickens Lane	8,600	< 50	82	173	66.3	0.1
San Dimas Canyon Rd. between Dickens Lane and E. Bonita Ave.	10,100	< 50	67	139	64.8	0.3
San Dimas Canyon Rd. between E. Bonita Ave. and Arrow Hwy.	8,600	< 50	82	173	66.3	0.0
San Dimas Canyon Rd. south of Arrow Hwy.	2,000	< 50	< 50	< 50	58.6	0.0

Source: LSA Associates, Inc., May 2009.

<sup>1</sup> Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

CNEL = community noise equivalent level

dBA = A-weighted decibels

ft = feet

**Table H: 2010 without Project Traffic Noise Levels**

Roadway Segment	ADT	Centerline to 70 CNEL (ft)	Centerline to 65 CNEL (ft)	Centerline to 60 CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane
E. Bonita Ave. west of San Dimas Ave.	14,200	< 50 <sup>1</sup>	55	116	64.2
E. Bonita Ave. between San Dimas Ave. and Walnut Ave.	10,900	< 50	< 50	98	63.0
E. Bonita Ave. between Walnut Ave. and San Dimas Canyon Rd.	11,000	< 50	64	135	65.2
E. Bonita Ave. east of San Dimas Canyon Rd.	11,200	< 50	67	142	65.5
Dickens Lane east of San Dimas Canyon Rd.	500	< 50	< 50	< 50	53.9
Gladstone St. west of San Dimas Canyon Rd.	5,600	< 50	51	109	64.4
Gladstone St. east of San Dimas Canyon Rd.	3,600	< 50	< 50	81	62.4
Arrow Hwy. west of San Dimas Canyon Rd.	26,200	84	171	363	70.3
Arrow Hwy. east of San Dimas Canyon Rd.	22,200	76	153	326	69.6
San Dimas Ave. north of E. Bonita Ave.	12,500	< 50	86	186	67.9
San Dimas Ave. south of E. Bonita Ave.	13,000	< 50	89	191	68.0
Walnut Ave. north of E. Bonita Ave.	5,200	< 50	< 50	104	64.0
Walnut Ave. south of E. Bonita Ave.	5,500	< 50	< 50	108	64.3
San Dimas Canyon Rd. north of Gladstone St.	8,300	< 50	80	169	66.2
San Dimas Canyon Rd. between Gladstone St. and Dickens Lane	8,700	< 50	83	175	66.4
San Dimas Canyon Rd. between Dickens Lane and E. Bonita Ave.	9,300	< 50	63	132	64.5
San Dimas Canyon Rd. between E. Bonita Ave. and Arrow Hwy.	8,800	< 50	83	176	66.4
San Dimas Canyon Rd. south of Arrow Hwy.	2,100	< 50	< 50	< 50	58.8

Source: LSA Associates, Inc., May 2009.

<sup>1</sup> Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

CNEL = community noise equivalent level

dBA = A-weighted decibels

ft = feet

**Table I: 2010 with Project Traffic Noise Levels**

Roadway Segment	ADT	Center-line to 70 CNEL (ft)	Center-line to 65 CNEL (ft)	Center-line to 60 CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase CNEL (dBA) 50 ft from Centerline of Outermost Lane
E. Bonita Ave. west of San Dimas Ave.	14,800	< 50 <sup>1</sup>	57	120	64.4	0.2
E. Bonita Ave. between San Dimas Ave. and Walnut Ave.	11,700	< 50	< 50	102	63.4	0.4
E. Bonita Ave. between Walnut Ave. and San Dimas Canyon Rd.	11,400	< 50	65	138	65.3	0.1
E. Bonita Ave. east of San Dimas Canyon Rd.	11,000	< 50	66	141	65.4	-0.1
Dickens Lane east of San Dimas Canyon Rd.	500	< 50	< 50	< 50	53.9	0.0
Gladstone St. west of San Dimas Canyon Rd.	5,700	< 50	51	110	64.4	0.0
Gladstone St. east of San Dimas Canyon Rd.	3,600	< 50	< 50	81	62.4	0.0
Arrow Hwy. west of San Dimas Canyon Rd.	26,200	84	171	363	70.3	0.0
Arrow Hwy. east of San Dimas Canyon Rd.	22,400	76	154	328	69.7	0.1
San Dimas Ave. north of E. Bonita Ave.	12,800	< 50	88	189	68.0	0.1
San Dimas Ave. south of E. Bonita Ave.	13,000	< 50	89	191	68.0	0.0
Walnut Ave. north of E. Bonita Ave.	5,200	< 50	< 50	104	64.0	0.0
Walnut Ave. south of E. Bonita Ave.	5,500	< 50	< 50	108	64.3	0.0
San Dimas Canyon Rd. north of Gladstone St.	8,500	< 50	81	172	66.3	0.1
San Dimas Canyon Rd. between Gladstone St. and Dickens Lane	8,900	< 50	84	177	66.5	0.1
San Dimas Canyon Rd. between Dickens Lane and E. Bonita Ave.	9,700	< 50	65	135	64.7	0.2
San Dimas Canyon Rd. between E. Bonita Ave. and Arrow Hwy.	9,000	< 50	85	179	66.5	0.1
San Dimas Canyon Rd. south of Arrow Hwy.	2,100	< 50	< 50	< 50	58.8	0.0

Source: LSA Associates, Inc., May 2009.

<sup>1</sup> Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic

CNEL = community noise equivalent level

dBA = A-weighted decibels

ft = feet

Tables G and I show that project-related traffic noise level increases in the project vicinity would be up to 0.4 dBA under the existing with project condition and under the 2010 cumulative condition. These ranges of traffic noise-level changes are considered small and would not have any significant noise impacts on off-site land uses.

Based on Table I (under the cumulative condition in 2010), the following areas could be potentially impacted by noise exceeding the 65 dBA CNEL exterior noise standard (but lower than 70 dBA CNEL) if outdoor active use areas such as patios or balconies are proposed with frontline dwelling units that are:

- Within 65 ft of the centerline of San Dimas Canyon Road
- Within 65 ft of the centerline of Bonita Avenue

There are multifamily residential uses proposed along Bonita Avenue on the southern portion of the project site at approximately 80 feet from the centerline of Bonita Avenue that would be exposed to traffic noise up to 64 dBA CNEL. Therefore, no significant outdoor noise impacts would occur. Commercial uses are normally acceptable in areas up to 70 dBA CNEL. Since the proposed retail/commercial uses along Bonita Avenue would be outside of the 70 dBA CNEL (approximately 30 ft from the roadway centerline) impact zone, no significant noise impacts would occur on these retail/commercial uses.

Based on the project's site plan, residential buildings proposed along San Dimas Canyon Road would be approximately 70–75 ft (64–65 dBA CNEL) from the centerline of San Dimas Canyon Road. Outdoor active use areas such as patios or balconies associated with frontline dwelling units would not be impacted by noise exceeding the 65 dBA CNEL standard from traffic along San Dimas Canyon Road. Therefore, ground-floor outdoor active use areas (patios) or upper-floor outdoor active use areas (balconies) would not be exposed to traffic noise exceeding 65 dBA CNEL. Mitigation measures, such as noise barriers with a minimum height of 5 ft, are not required for these outdoor active use areas.

The proposed retail/commercial buildings would be outside of the 70 dBA CNEL impact zone of San Dimas Canyon Road (within 39 ft of the roadway centerline) and Bonita Avenue (within 30 ft of the roadway centerline). In addition, with noise attenuation provided by standard construction, the interior noise level at these commercial/retail buildings would be below 55 dBA CNEL even with windows open. Therefore, no mitigation measures are required for these retail/commercial buildings.

Based on the *Protective Noise Levels*, Condensed Version of EPA Level Document (EPA 550/9-77-100, November 1978), with combinations of exterior walls, doors, and windows, standard construction for Southern California buildings would provide more than 24 dBA in exterior-to-interior noise reduction with windows closed and 12 dBA or more with windows open (national average is 25 dBA with windows closed and 15 dBA with windows open). Therefore, building facade enhancements such as windows with sound transmission class (STC) ratings higher than standard building construction provides (up to STC-28) would only be required if residential structures proposed are within the 69 dBA CNEL impact zone. Based on the project's site plan, no proposed on-site residential buildings would be within the 69 dBA CNEL (within 34 ft of San Dimas Canyon Road centerline or within 35 ft of Bonita Avenue centerline) impact zone. Therefore, no building facade enhancement is required.

However, with windows or doors open, interior noise levels at the frontline dwelling units impacted by traffic noise levels exceeding 57 dBA CNEL (within 214 ft of San Dimas Canyon Road centerline and within 219 ft of Bonita Avenue centerline) would exceed 45 dBA CNEL (i.e., 58 dBA - 12 dBA = 46 dBA). Therefore, an air-conditioning system, a form of mechanical ventilation, would be required for all frontline dwelling units exposed to traffic noise exceeding 57 dBA CNEL in the following impact zones to ensure that windows can remain closed for a prolonged period of time:

- Within 214 ft of the centerline of San Dimas Canyon Road
- Within 219 ft of the centerline of Bonita Avenue

**Off-Site Stationary Source Noise Impacts.** There are no off-site stationary sources or activities that would be potential point sources of noise that could affect the proposed on-site noise-sensitive residences. Such noise-producing activities can include slow-moving traffic in a parking lot, doors slamming, vehicle engine start-ups, truck loading and unloading activities, and large HVAC equipment. Therefore, no significant noise impact from any off-site stationary sources would occur, and no mitigation measures are required.

**On-Site Stationary Sources Noise Impact.** The proposed project includes both retail and residential components in the southern portion of the project site. The on-site noise-generating activities include loading/unloading activities in the loading area at the commercial buildings. The closest distance between the proposed loading areas to the proposed residences on the project site is approximately 65 ft. Based on noise readings from loading and unloading activities for similar projects, a noise level of 75 dBA  $L_{max}$  at 50 ft was used in this analysis. In addition, there will be a 6 ft, 8-inch-high concrete block wall separating the proposed residential and commercial sites. This wall will provide, at a minimum, 6 dBA in noise reduction. Therefore, residences proposed on the project site that are approximately 65 ft from the designated loading areas would be exposed to loading/unloading noise levels of up to 73 dBA  $L_{max}$ . This noise level is higher than the City's 65 dBA maximum noise levels identified in its Municipal Code. However, these noise regulations are not intended to establish thresholds of significance for the purpose of any analysis required by CEQA, and no such thresholds are established. Therefore, for purposes of determining the CEQA significance, a maximum daytime noise level of 75 dBA  $L_{max}$  and a nighttime noise level of 70 dBA  $L_{max}$  identified in the State of California's model community noise control ordinance were used. This noise level is less than the daytime  $L_{max}$  of 75 dBA (7:00 a.m.–10:00 p.m.) but higher than the nighttime noise level of 70 dBA  $L_{max}$  (10:00 p.m.–7:00 a.m.) recommended in the State guidelines. Therefore, as long as there are no nighttime loading/unloading activity, no mitigation is required for on-site loading/unloading activities.

Parking would generally be located throughout the commercial use site. Noise associated with activities in the parking lot, such as door slamming, slow-moving vehicles, and human conversation, would generate intermittent maximum noise levels of approximately 65 dBA  $L_{max}$  at 50 ft. The parking areas of concern associated with these commercial uses are approximately 20–30 ft from the nearest residences to the north and west. Therefore, noise associated with parking lot activities would be 73 dBA  $L_{max}$  at the nearest on-site residences. These noise levels are similar to those of the loading/unloading activities discussed above. Similarly, for purposes of determining the CEQA

significance, a maximum daytime noise level of 75 dBA  $L_{max}$  and a nighttime noise level of 70 dBA  $L_{max}$  identified in the State of California's model community noise control ordinance were used for parking lot activity noise. This noise level is less than the daytime  $L_{max}$  of 75 dBA (7:00 a.m.–10:00 p.m.) but higher than the nighttime noise level of 70 dBA  $L_{max}$  (10:00 p.m.–7:00 a.m.) recommended in the State guidelines. With the proposed 6' 8" high concrete block perimeter wall between the residential and commercial/retail uses, ground-floor receptors at the residential uses would be exposed to parking lot activity noise below 65 dBA/ $L_{max}$ . Second-floor outdoor active use areas fronting the commercial/retail uses may not receive as much noise attenuation from the proposed concrete perimeter wall but are not expected to be used much after 10:00 p.m. Therefore, it is not anticipated that noise associated with the parking lot activities will have any significant impact on on-site residences to the west or north of the commercial uses as long as the parking lot activity ceases to occur after 10:00 p.m.

### Mitigation Measures

**Construction Impacts.** Construction of the proposed project would potentially result in relatively high noise levels and annoyance at the closest residences. The following measures would reduce short-term construction-related noise impacts resulting from the proposed project:

1. During all project site excavation and grading on site, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
2. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
3. The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.
4. No construction work shall occur within 500 ft of a residential zone between the hours of 8:00 p.m. of one day and 7:00 a.m. of the next day or at any time on Sunday or any public holiday without obtaining a permit from the City.

**Traffic Noise Impacts.** Potential long-term noise impacts would be mitigated to a level of less than significant with the following measures implemented:

1. Mechanical ventilation such as an air conditioning system is required for frontline residential buildings proposed in the following impact zones:
  - Within 214 ft of the centerline of San Dimas Canyon Road
  - Within 219 ft of the centerline of Bonita Avenue

## REFERENCES

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**APPENDIX A**

**FHWA TRAFFIC NOISE MODEL PRINTOUTS**

**SAN DIMAS CANYON RESIDENTIAL AND RETAIL DEVELOPMENT**

**FHWA ROADWAY NOISE LEVEL ANALYSIS**

**CONTOUR6 MODEL PRINTOUTS**

**EXISTING BASELINE CONDITIONS**

TABLE Existing-01  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: E. Bonita Ave. west of San Dimas Ave.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 13500      SPEED (MPH): 32      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	53.3	112.6	241.4

TABLE Existing-02  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. between San Dimas Ave. and Walnut Ave.

NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 10300      SPEED (MPH): 32      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	94.2	201.7

TABLE Existing-03  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. between Walnut Ave. and San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 10400      SPEED (MPH): 39      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	61.4	130.2	279.5

TABLE Existing-04  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 10600      SPEED (MPH): 40      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	64.7	137.4	295.0

TABLE Existing-05  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Dickens Lane east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing-06  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Gladstone St. west of San Dimas Canyon Rd.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5400      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.21

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	106.4	228.8

TABLE Existing-07  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Gladstone St. east of San Dimas Canyon Rd.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 3500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	79.8	171.4

TABLE Existing-08  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Arrow Hwy. west of San Dimas Canyon Rd.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 25000      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
81.4	165.7	352.2	756.6

TABLE Existing-09  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Arrow Hwy. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - Existing

---

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 21100      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30      SITE CHARACTERISTICS: SOFT

---

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.39

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
73.9	148.6	314.9	675.8

TABLE Existing-10  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Ave. north of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 11700      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.57

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	82.8	177.9	383.0

TABLE Existing-11  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Ave. south of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 12000      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.68

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	84.2	180.9	389.5

TABLE Existing-12  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Walnut Ave. north of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 4900      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.79

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	99.7	214.5

TABLE Existing-13  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Walnut Ave. south of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5300      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	105.1	226.0

TABLE Existing-14  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Canyon Rd. north of Gladstone St.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 7900      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES			
DAY	EVENING	NIGHT		
AUTOS	75.51	12.57	9.34	
M-TRUCKS	1.56	0.09	0.19	
H-TRUCKS	0.64	0.02	0.08	

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.94

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	77.8	164.0	351.7

TABLE Existing-15  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Canyon Rd. between Gladstone St. and Dickens Lane  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8400      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	----	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	80.9	170.8	366.3

TABLE Existing-16  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/04/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. between Dickens Lane and E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 9300      SPEED (MPH): 41      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	63.2	131.8	281.8

TABLE Existing-17  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Canyon Rd. between E. Bonita Ave. and Arrow Hwy.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8500      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	81.5	172.1	369.2

TABLE Existing-18  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Canyon Rd. south of Arrow Hwy.  
NOTES: Loma Bonita Mixed-Use Development - Existing

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 2000      SPEED (MPH): 40      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	97.3

**SAN DIMAS CANYON RESIDENTIAL AND RETAIL DEVELOPMENT**  
**FHWA ROADWAY NOISE LEVEL ANALYSIS**  
**CONTOUR6 MODEL PRINTOUTS**  
**EXISTING WITH PROJECT CONDITIONS**

TABLE Existing with Project-01  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. west of San Dimas Ave.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 14100      SPEED (MPH): 32      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	----	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	54.8	115.9	248.5

TABLE Existing with Project-02  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: E. Bonita Ave. between San Dimas Ave. and Walnut Ave.  
NOTES: Loma Bonita Mixed-Use Development - Existing with Project

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\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 11100      SPEED (MPH): 32      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

---

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	99.0	212.0

TABLE Existing with Project-03  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. between Walnut Ave. and San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 11100      SPEED (MPH): 39      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.21

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	64.0	135.9	291.9

TABLE Existing with Project-04  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

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\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 10800      SPEED (MPH): 40      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

---

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	65.4	139.1	298.7

TABLE Existing with Project-05  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Dickens Lane east of San Dimas Canyon Rd.  
NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE Existing with Project-06  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Gladstone St. west of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	107.7	231.6

TABLE Existing with Project-07  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Gladstone St. east of San Dimas Canyon Rd.  
NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 3500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	79.8	171.4

TABLE Existing with Project-08  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Arrow Hwy. west of San Dimas Canyon Rd.  
NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 25000      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
81.4	165.7	352.2	756.6

TABLE Existing with Project-09  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Arrow Hwy. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 21300      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	----	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
74.3	149.5	316.8	680.1

TABLE Existing with Project-10  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Ave. north of E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8000      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	64.3	138.1	297.3

TABLE Existing with Project-11  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Ave. south of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8000      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	64.3	138.1	297.3

TABLE Existing with Project-12  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Walnut Ave. north of E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 4900      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.79

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	99.7	214.5

TABLE Existing with Project-13  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Walnut Ave. south of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5300      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	105.1	226.0

TABLE Existing with Project-14  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. north of Gladstone St.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8100      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	79.0	166.8	357.6

TABLE Existing with Project-15  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Canyon Rd. between Gladstone St. and Dickens Lane  
NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8600      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	82.1	173.5	372.1

TABLE Existing with Project-16  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/04/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. between Dickens Lane and E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 10100      SPEED (MPH): 41      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	66.5	139.1	297.7

TABLE Existing with Project-17  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. between E. Bonita Ave. and Arrow Hwy.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8600      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	82.1	173.5	372.1

TABLE Existing with Project-18  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. south of Arrow Hwy.

NOTES: Loma Bonita Mixed-Use Development - Existing with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 2000      SPEED (MPH): 40      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	97.3

**SAN DIMAS CANYON RESIDENTIAL AND RETAIL DEVELOPMENT**  
**FHWA ROADWAY NOISE LEVEL ANALYSIS**  
**CONTOUR6 MODEL PRINTOUTS**  
**OPENING YEAR (2010) WITHOUT PROJECT SCENARIO**

TABLE 2010 Cumulative w/o Project-01  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: E. Bonita Ave. west of San Dimas Ave.  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 14200      SPEED (MPH): 32      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	55.1	116.4	249.7

TABLE 2010 Cumulative w/o Project-02  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. between San Dimas Ave. and Walnut Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 10900      SPEED (MPH): 32      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.05

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	97.8	209.5

TABLE 2010 Cumulative w/o Project-03  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. between Walnut Ave. and San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 11000      SPEED (MPH): 39      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	63.6	135.1	290.1

TABLE 2010 Cumulative w/o Project-04  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: E. Bonita Ave. east of San Dimas Canyon Rd.  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 11200      SPEED (MPH): 40      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	67.0	142.5	306.0

TABLE 2010 Cumulative w/o Project-05  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Dickens Lane east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	0.0

TABLE 2010 Cumulative w/o Project-06  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Gladstone St. west of San Dimas Canyon Rd.  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5600      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	50.9	108.9	234.4

TABLE 2010 Cumulative w/o Project-07  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Gladstone St. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 3600      SPEED (MPH): 45      GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	81.3	174.7

TABLE 2010 Cumulative w/o Project-08  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Arrow Hwy. west of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 26200      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
83.6	170.8	363.3	780.6

TABLE 2010 Cumulative w/o Project-09  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Arrow Hwy. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 22200      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.61

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
76.0	153.5	325.6	699.1

TABLE 2010 Cumulative w/o Project-10  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Ave. north of E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 12500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	86.5	185.9	400.2

TABLE 2010 Cumulative w/o Project-11  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Ave. south of E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 13000      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	88.7	190.8	410.8

TABLE 2010 Cumulative w/o Project-12  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Walnut Ave. north of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5200      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	103.7	223.1

TABLE 2010 Cumulative w/o Project-13  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Walnut Ave. south of E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

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\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

---

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	107.7	231.6

TABLE 2010 Cumulative w/o Project-14  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. north of Gladstone St.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8300      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.15

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	80.3	169.5	363.4

TABLE 2010 Cumulative w/o Project-15  
 FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
 ROADWAY SEGMENT: San Dimas Canyon Rd. between Gladstone St. and Dickens Lane  
 NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8700      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	82.7	174.8	375.0

TABLE 2010 Cumulative w/o Project-16  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/04/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. between Dickens Lane and E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 9300      SPEED (MPH): 41      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	63.2	131.8	281.8

TABLE 2010 Cumulative w/o Project-17  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. between E. Bonita Ave. and Arrow Hwy.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8800      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	83.3	176.1	377.8

TABLE 2010 Cumulative w/o Project-18  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Canyon Rd. south of Arrow Hwy.  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative w/o Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 2100      SPEED (MPH): 40      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	0.0	100.5

**SAN DIMAS CANYON RESIDENTIAL AND RETAIL DEVELOPMENT**  
**FHWA ROADWAY NOISE LEVEL ANALYSIS**  
**CONTOUR6 MODEL PRINTOUTS**  
**OPENING YEAR (2010) WITH PROJECT SCENARIO**

TABLE 2010 Cumulative with Project-01  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. west of San Dimas Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 14800      SPEED (MPH): 32      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	----	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	56.5	119.6	256.6

TABLE 2010 Cumulative with Project-02  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. between San Dimas Ave. and Walnut Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 11700      SPEED (MPH): 32      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
DAY	EVENING	NIGHT	
---	-----	-----	
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	0.0	102.5	219.5

TABLE 2010 Cumulative with Project-03  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. between Walnut Ave. and San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 11400      SPEED (MPH): 39      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	65.1	138.3	297.1

TABLE 2010 Cumulative with Project-04  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: E. Bonita Ave. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 11000      SPEED (MPH): 40      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	66.2	140.8	302.4

TABLE 2010 Cumulative with Project-05  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Dickens Lane east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	0.0

TABLE 2010 Cumulative with Project-06  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Gladstone St. west of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5700      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	51.5	110.2	237.2

TABLE 2010 Cumulative with Project-07  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Gladstone St. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 3600      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	81.3	174.7

TABLE 2010 Cumulative with Project-08  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Arrow Hwy. west of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 26200      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
83.6	170.8	363.3	780.6

TABLE 2010 Cumulative with Project-09  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Arrow Hwy. east of San Dimas Canyon Rd.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 22400      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
76.4	154.4	327.6	703.3

TABLE 2010 Cumulative with Project-10  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Ave. north of E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 12800      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	87.8	188.8	406.6

TABLE 2010 Cumulative with Project-11  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Ave. south of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 13000      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	88.7	190.8	410.8

TABLE 2010 Cumulative with Project-12  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: Walnut Ave. north of E. Bonita Ave.  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5200      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	103.7	223.1

TABLE 2010 Cumulative with Project-13  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: Walnut Ave. south of E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 5500      SPEED (MPH): 45      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	107.7	231.6

TABLE 2010 Cumulative with Project-14  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Canyon Rd. north of Gladstone St.  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8500      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	81.5	172.1	369.2

TABLE 2010 Cumulative with Project-15  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009  
ROADWAY SEGMENT: San Dimas Canyon Rd. between Gladstone St. and Dickens Lane  
NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 8900      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	83.9	177.4	380.7

TABLE 2010 Cumulative with Project-16  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/04/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. between Dickens Lane and E. Bonita Ave.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 9700      SPEED (MPH): 41      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	64.9	135.5	289.8

TABLE 2010 Cumulative with Project-17  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. between E. Bonita Ave. and Arrow Hwy.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 9000      SPEED (MPH): 50      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
	---	-----	-----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 18      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
-----	-----	-----	-----
0.0	84.5	178.8	383.5

TABLE 2010 Cumulative with Project-18  
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 04/22/2009

ROADWAY SEGMENT: San Dimas Canyon Rd. south of Arrow Hwy.

NOTES: Loma Bonita Mixed-Use Development - 2010 Cumulative with Project

\* \* ASSUMPTIONS \* \*

AVERAGE DAILY TRAFFIC: 2100      SPEED (MPH): 40      GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY ---	EVENING -----	NIGHT -----
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6      SITE CHARACTERISTICS: SOFT

\* \* CALCULATED NOISE LEVELS \* \*

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 58.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL -----	65 CNEL -----	60 CNEL -----	55 CNEL -----
0.0	0.0	0.0	100.5