5.9 NOISE

This section of the recirculated Draft EIR discusses the fundamentals of sound; examines federal, state, and local noise guidelines, policies, and standards; reviews noise levels at existing receptor locations; evaluates potential noise impacts associated with the IBC Vision Plan and Mixed Use Overlay Zoning Code (proposed project); and provides mitigation to reduce noise impacts at sensitive locations. This evaluation uses procedures and methodologies as specified by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA). Noise calculations on which this analysis is based are included in Appendix L, *Noise Modeling Datasheets*.

5.9.1 Environmental Setting

Terminology/Noise Descriptors

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

The following are brief definitions of terminology used in this chapter:

- Sound. A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- Noise. Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- Decibel (dB). A unitless measure of sound on a logarithmic scale.
- A-Weighted Decibel (dBA). An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- Equivalent Continuous Noise Level (L_{eq}). The mean of the noise level averaged over the measurement period, regarded as an average level.
- Day-Night Level (L_{dn}). The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.
- Community Noise Equivalent Level (CNEL). The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the levels occurring during the period from 7:00 PM to 10:00 PM and 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

 L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent and are treated as such in this assessment.



Characteristics of Sound

When an object vibrates, it radiates part of its energy as acoustical pressure in the form of a sound wave. Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate this human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The normal range of human hearing extends from approximately 0 dBA to 140 dBA.

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. Because of the physical characteristics of noise transmission and of noise perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 5.9-1, *Change in Sound Pressure Level, dB*, presents the subjective effect of changes in sound pressure levels.

| Table 5.9-1 Change in Sound Pressure Level (dB) | | | | | |
|---|--|--|--|--|--|
| Change in Apparent Loudness | | | | | |
| ± 3 dB | Threshold of human perceptibility | | | | |
| ± 5 dB | Clearly noticeable change in noise level | | | | |
| ± 10 dB | Half or twice as loud | | | | |
| ± 20 dB | Much quieter or louder | | | | |
| Source: Bies and Hansen 1988. | | | | | |

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. This phenomenon is known as spreading loss.

When sound is measured for distinct time intervals, the statistical distribution of the overall sound level during that period can be obtained. The energy-equivalent sound level ($L_{\rm eq}$) is the most common parameter associated with such measurements. The $L_{\rm eq}$ metric is a single-number noise descriptor that represents the average sound level over a given period of time. For example, the $L_{\rm 50}$ noise level is the level that is exceeded 50 percent of the time. This level is also the level that is exceeded 30 minutes in an hour. Similarly, the $L_{\rm 02}$, $L_{\rm 08}$ and $L_{\rm 25}$ values are the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. Other values typically noted during a noise survey are the $L_{\rm min}$ and $L_{\rm max}$. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet-time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}).

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects 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. Extended periods of noise exposure above 90 dBA 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, called the threshold of pain. A sound level of 160 to 165 dBA will results in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in less developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Table 5.9-2 shows *Typical Noise Levels from Noise Sources*.

| 7. | Noise Level | Noise Sources |
|------------------------------------|-------------|---|
| Common Outdoor Activities | (dBA) | Common Indoor Activities |
| | 110 | Rock Band |
| Jet Flyover at 1,000 feet | | |
| | 100 | |
| Gas Lawn Mower at three feet | | |
| | 90 | |
| Diesel Truck at 50 feet, at 50 mph | | Food Blender at 3 feet |
| | 80 | Garbage Disposal at 3 feet |
| Noisy Urban Area, Daytime | | |
| | 70 | Vacuum Cleaner at 10 feet |
| Commercial Area | | Normal speech at 3 feet |
| Heavy Traffic at 300 feet | 60 | |
| | | Large Business Office |
| Quiet Urban Daytime | 50 | Dishwasher Next Room |
| Quiet Urban Nighttime | 40 | Theater, Large Conference Room (background |
| Quiet Suburban Nighttime | | , , |
| - | 30 | Library |
| Quiet Rural Nighttime | | Bedroom at Night, Concert Hall (background) |
| | 20 | |
| | | Broadcast/Recording Studio |
| | 10 | Ţ. |
| Lowest Threshold of Human Hearing | 0 | Lowest Threshold of Human Hearing |



Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities such as railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is described as the velocity and the rate of change of the speed is described as the acceleration. Each of these descriptors can be used to correlate



Noise

vibration to human response, building damage, and acceptable equipment vibration levels. During project construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure. Analysis of this type of vibration is best measured in velocity and acceleration.

The three main wave types of concern in the propagation of groundborne vibrations are surface or Rayleigh waves, compression or P-waves, and shear or S-waves.

- Surface or Rayleigh waves travel along the ground surface. They carry most of their energy
 along an expanding cylindrical wave front, similar to the ripples produced by throwing a rock into
 a lake. The particle motion is more or less perpendicular to the direction of propagation (known
 as retrograde elliptical).
- Compression or P-waves are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal, in a push-pull motion. P-waves are analogous to airborne sound waves.
- Shear or S-waves are also body waves, carrying their energy along an expanding spherical wave front. Unlike P-waves, however, the particle motion is transverse, or perpendicular to the direction of propagation.

The peak particle velocity (PPV) or the root mean square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal and RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response.

The units for PPV and RMS velocity are normally inches per second (in/sec). Often, vibration is presented and discussed in dB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV and RMS velocity levels are in in/sec and all vibration levels are in dB relative to one microinch per second (abbreviated as VdB). The threshold of perception is approximately 65 VdB. Typically; groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Even the more persistent Rayleigh waves decrease relatively quickly as they move away from the source of the vibration. Human made vibration problems are, therefore, usually confined to short distances (500 feet or less) from the source.

Construction operations generally include a wide range of activities that can generate groundborne vibration. In general, blasting and demolition of structures generate the highest vibrations. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at distances within 200 feet of the vibration sources. Heavy trucks can also generate groundborne vibrations, which vary depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, etc., all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration of normal traffic on streets and freeways with smooth pavement conditions. Trains generate substantial quantities of vibration due to their engines, steel wheels, and heavy loads.

Regulatory Framework

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. The City of Irvine

regulates noise through the City of Irvine Municipal Code, Chapter 2, Noise (Sections 6-8-201 through 6-8-209). Potential noise and vibration impacts were evaluated based on the City of Irvine Municipal Code, City of Irvine General Plan, FHWA methodology, and Federal Transit Administration (FTA) methodology to determine whether a significant adverse noise impact would result from the construction and operation of the proposed project.

State of California Building Code

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, California Building Code. These noise standards are applied to new construction in California for the purpose of interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL. Title 21 of the California Code of Regulations prescribes additional requirements for noise-sensitive structures within the 65 dBA CNEL noise contour of an airport.

City of Irvine

Land Use Compatibility Criteria

The noise standards specified in the City of Irvine Noise Element are a guideline to evaluate the acceptability of the noise levels generated by traffic flow. These standards are for assessment of long-term traffic noise impacts on land uses. The City of Irvine uses the state's land use compatibility standards shown in Table 5.9-3 to determine the compatibility of a proposed land use based on the noise environment. Based on these standards, the City has developed policies to ensure land use compatibility when placing new land uses. The City uses 65 dBA CNEL as the critical criterion for assessing the compatibility of residential land uses with noise sources. The City requires that the exterior areas for new residential land uses not exceed 65 dBA CNEL. In addition, the City requires that commercial developments achieve an indoor noise standard of 55 dBA CNEL and the residential 45 dBA CNEL with windows closed, which is based on the California Building Code and Noise Insulation standards.



Table 5.9-3
State of California Land Use Compatibility for Exterior Community Noise

| <u> </u> | Noise Range (L_{dn} or CNEL), dB | | | | |
|--|-------------------------------------|-------|-------|-----|--|
| Land Use Category | 1 | | III | IV | |
| 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 | +08 | |
| Schools, libraries, churches, hospitals, nursing homes | 50–60 | 60–70 | 70–80 | +08 | |
| 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. LSA Associates, Inc., December 2007.

City of Irvine Nontransportation/Stationary-Source Noise Standards

The City's Noise Ordinance establishes the maximum permissible noise level that may intrude into a neighbor's property. The Noise Ordinance (adopted in 1975 and revised in February 2005) establishes noise level standards for various land use categories affected by stationary noise sources. For residential properties, the exterior noise level shall not exceed 55 dBA during daytime hours (7:00 AM to 10:00 PM) and shall not exceed 50 dBA during the nighttime hours (10:00 PM to 7:00 AM) for more than 30 minutes in any hour. For events occurring within shorter periods of time, these noise levels are adjusted upwards accordingly, as shown in Table 5.9-4.

Table 5.9-4 City of Irvine Exterior Noise Standards (I)

| | (► eg/ | | | | | | | | |
|--|---------------------|-----------------|-----------------|-------|----------------|------------------|--|--|--|
| Noise Zone | Time Interval | L ₅₀ | L ₂₅ | L_8 | L ₂ | L _{max} | | | |
| Zone 1: hospitals, libraries, churches, schools, and | 7:00 AM to 10:00 PM | 55 | 60 | 65 | 70 | 75 | | | |
| residential properties | 10:00 PM to 7:00 AM | 50 | 55 | 60 | 65 | 70 | | | |
| Zone 2: professional office and public institutional | Anytime | 55 | 60 | 65 | 70 | 75 | | | |
| Zone 3: commercial, excluding professional office | Anytime | 60 | 65 | 70 | 75 | 80 | | | |
| Zone 4: industrial | Anytime | 70 | 75 | 80 | 85 | 90 | | | |

Source: City of Irvine, Municipal Code, Chapter 2, Noise.

Noise standards shall be reduced by five dB for impact, or predominant tone noise or for noises consisting of speech or music. In the event that the noise source and the affected property are within different noise zones, the noise standards of the affected property shall apply.

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.

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.

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.

Noise Range IV—Clearly Unacceptable: New construction or development should generally not be undertaken.

Maintenance of property may exceed the noise standards, so long as maintenance activities that exceed the noise limits in Table 5.9-4 are restricted to the hours of 7:00 AM through 7:00 PM Monday through Friday or 9:00 AM through 6:00 PM Saturdays. In addition, the City further restricts the maximum noise levels of leaf blowers and hours of use to 8:00 AM through 5:00 PM Monday through Friday and 9:00 AM through 5:00 PM on Saturdays.

Commercial Deliveries/Pickups

Commercial deliveries or pickups for commercial properties that share a property line with any residential property are required to limit the hours of delivery/pickup service to 7:00 AM through 10:00 PM daily.

Aircraft Noise Compatibility Standards

As a vehicle approaches, passes by, and then recedes into the distance, the sound level rises, reaches a maximum, and then fades into the background noise. The sound level reached during this pass-by event is called single-event noise. Single-event noise is important for relating the maximum amount of noise that would result in nighttime awakenings and/or classroom speech interruptions.

The City requires, as part of the Noise Element, that any sensitive land uses in the 60 dBA CNEL contour for aircraft noise sources also comply with the City's single-event noise standard. The single-event noise standard is above and beyond what other jurisdictions and agencies have adopted and is a supplemental noise criteria. In other words, the City's single-event noise threshold is in addition to the Title 21 and Title 24 interior noise standards of 45 dBA CNEL. No other jurisdiction or agency has an $L_{\rm max}$ standard. This standard is in terms of the $L_{\rm max}(10)$ noise level, which is the loudest 10 percent of aircraft noise events. The City requires the indoor $L_{\rm max}(10)$ noise level for residences to be less than 65 dBA during daytime hours (7:00 AM to 7:00 PM) and less than 55 dBA during evening and nighttime hours (7:00 PM to 7:00 AM). Since the loudest noise associated with aircraft is essentially the same during the day or evening, homes must be constructed to comply with the more stringent 55 dBA criteria. The $L_{\rm max}(10)$ levels cannot be forecast using computer models or other analytical tools and must be measured for a given time.

Construction Noise Hours

The Noise Ordinance regulates the timing of construction activities and includes special provisions for sensitive land uses. Construction activities shall occur only between the hours of 7:00 AM and 7:00 PM Monday through Friday and 9:00 AM to 6:00 PM Saturdays (Section 6-8-205). No construction shall be permitted outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the Chief Building Official or authorized representative. Trucks, vehicles, and equipment that are making or involved with deliveries, loading, or transfer of materials, equipment service, or maintenance of any devices or appurtenances for or within any construction project in the City are also subject to these prohibitions.

Federal Transit Administration Vibration Criteria

Vibration Annoyance

Groundborne noise is the vibration of floors and walls that may cause rattling of items such as windows or dishes on shelves, or a rumbling noise. The rumbling is created by the motion of the room surfaces, which act like a giant loudspeaker. The FTA provides criteria for acceptable levels of groundborne vibration based on the relative perception of a vibration event for various vibration-sensitive land uses (see Table 5.9-5).



Table 5.9-5
Groundborne Vibration and Noise Impact Criteria, Human Annoyance

| Land Use Category | $Max L_{\nu} (VdB)^{1}$ | Description |
|-------------------------|-------------------------|--|
| Workshop | 90 | Distinctly felt vibration. Appropriate to workshops and nonsensitive areas. |
| Office | 84 | Felt vibration. Appropriate to offices and nonsensitive areas. |
| Residential – Daytime | 78 | Barely felt vibration. Adequate for computer equipment. |
| Residential – Nighttime | 72 | Vibration not felt, but groundborne noise may be audible inside quiet rooms. |

Source: FTA 2006.

Vibration-Related Structural Damage

The level at which groundborne vibration is strong enough to cause structural damage has not been determined conclusively. The most conservative estimates are reflected in the FTA standards, shown in Table 5.9-6.

Table 5.9-6
Groundborne Vibration and Noise Impact Criteria, Structural Damage

| | Building Category | PPV (in/sec) | VdB |
|------|---|--------------|-----|
| I. | Reinforced concrete, steel, or timber (no plaster) | 0.5 | 102 |
| II. | Engineered concrete and masonry (no plaster) | 0.3 | 98 |
| III. | Nonengineered timber and masonry buildings | 0.2 | 94 |
| IV. | Buildings extremely susceptible to vibration damage | 0.12 | 90 |

Source: FTA 2006.

RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.

Vibration-related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Resonant response is frequency-dependent, and one-third octave band charts are best for describing vibration behavior. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. According to the Caltrans Transportation Related Earthborne Vibration (2002), extreme care must be taken when sustained pile driving occurs within 25 feet of any building; the threshold at which there is a risk of architectural damage to normal houses with plastered walls and ceilings is 0.2 inch per second.

Existing Noise Environment

The IBC is impacted by a multitude of noise sources. Mobile sources of noise, especially cars and trucks on the local roadway network, are the most common and significant in the IBC. Major thoroughfares in the IBC area are Red Hill Avenue, Von Karman Avenue, Jamboree Road, Campus Drive, DuPont Drive, Michelson Drive, Interstate 405 (I-405), Main Street, MacArthur Boulevard, McGaw Avenue, Alton Parkway, and Barranca Parkway. In addition, airport noise from the John Wayne Airport contributes significantly to the ambient noise environment. Secondary noise includes stationary-source noise generated by land uses in the City.

¹ As measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hz.

On-Road Vehicles

Noise from motor vehicles is generated by engine vibrations, the interaction between tires and the road, and the exhaust system. Reducing the average motor vehicle speed reduces the noise exposure of receptors adjacent to the road. Each reduction of five miles per hour reduces noise by about 1 dBA. Major arterials accommodate very large volumes of traffic and are responsible for a significant contribution to the noise environment in the IBC. Smaller local and collector streets also contribute to the ambient noise environment, but to a much lesser extent. To assess the potential for mobile-source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling through the project area. Noise modeling was conducted using the FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108) based on average daily traffic (ADT) volumes provided by Parson Brinkerhoff (December 2009). Table 5.9-7 lists noise levels on roadways in the vicinity of the project site at 50 feet from the roadway centerline. Existing noise levels are based on traffic volumes generated by existing conditions and do not include trips from units under construction or approved projects.

| | | CNEL | Distance to CNEL Contour (Feet from Centerline) | | |
|--|--------|--------|--|------------|------------|
| | ADT | (dBA @ | 60 | 65 | 70 |
| Segment | Volume | 50 ft) | (dBA CNEL) | (dBA CNEL) | (dBA CNEL) |
| Anton Boulevard | | | | | |
| Bristol Street to Sunflower Avenue | 7,620 | 67.9 | 169 | 78 | 36 |
| Baker Street | | | | | |
| Bear Street to Bristol Street | 23,497 | 73.9 | 422 | 196 | 91 |
| Bristol Street to SR-55 SB Ramps | 27,498 | 74.6 | 469 | 218 | 101 |
| SR-55 SB to SR-55 NB | 24,275 | 74.0 | 431 | 200 | 93 |
| SR-55 NB to Red Hill Avenue | 13,718 | 71.6 | 295 | 137 | 64 |
| Red Hill Avenue to Airway Avenue | 4,699 | 66.9 | 144 | 67 | 31 |
| Bear Street | | | | | |
| Paularino Avenue to Baker Street | 17,577 | 72.6 | 348 | 161 | 75 |
| Bristol Street | | | | | |
| Segerstrom Avenue to West Alton Avenue | 35,789 | 75.7 | 559 | 259 | 120 |
| West Alton Avenue to MacArthur Boulevard | 38,850 | 76.1 | 590 | 274 | 127 |
| MacArthur Boulevard to Sunflower Avenue | 22,305 | 73.7 | 408 | 189 | 88 |
| Sunflower Avenue to Anton Boulevard | 42,108 | 76.4 | 623 | 289 | 134 |
| Anton Boulevard to I-405 NB Ramps | 62,602 | 78.2 | 811 | 377 | 175 |
| I-405 NB Ramps to I-405 SB Ramps | 63,048 | 78.2 | 815 | 378 | 176 |
| I-405 SB Ramp to Paularino Avenue | 40,727 | 76.3 | 609 | 283 | 131 |
| Paularino Avenue to Baker Street | 34,095 | 75.5 | 541 | 251 | 117 |
| Baker Street to SR-55 | 24,713 | 74.1 | 437 | 203 | 94 |
| SR-55 to Red Hill Avenue | 20,914 | 73.4 | 391 | 181 | 84 |
| Del Mar Avenue | | | | | |
| Newport Boulevard SB to Newport | 12,232 | 71.1 | 273 | 127 | 59 |
| Boulevard NB | 12,232 | 11.1 | 213 | 127 | |
| Newport Boulevard to Santa Ana Avenue | 7,069 | 68.7 | 190 | 88 | 41 |



| (dBA CNEL) | | | | | | |
|---|---------------|------------------|--|------------------|------------------|--|
| | | CNEL | Distance to CNEL Contour (Feet from Centerline) | | | |
| Segment | ADT Volume | (dBA @ 50 ft) | 60 (dBA CNEL) | 65 (dBA CNEL) | 70 (dBA CNEL) | |
| Flower Street | rolaino | 00 11, | (UDA CNLL) | (UDA CIVLL) | (UDA CNLL) | |
| Segerstrom Avenue to MacArthur Boulevard | 9,756 | 70.1 | 235 | 109 | 51 | |
| MacArthur Boulevard to Sunflower Avenue | 8,180 | 69.3 | 209 | 97 | 45 | |
| Sunflower Avenue to Anton Boulevard | 6,193 | 68.1 | 174 | 81 | 37 | |
| Main Street | 0,193 | 00.1 | 174 | 01 | 31 | |
| Sunflower Avenue to SR-55 | 20,195 | 73.2 | 382 | 177 | 82 | |
| Mesa Drive | 20,193 | 13.2 | 302 | 177 | 02 | |
| Newport Boulevard SB to Newport | | | | | | |
| Newport Boulevard SB to Newport Boulevard NB | 5,469 | 67.6 | 160 | 74 | 34 | |
| Newport Boulevard NB to Santa Ana | 3,409 | 07.0 | 100 | 74 | 34 | |
| Avenue | 5,674 | 67.7 | 164 | 76 | 35 | |
| Irvine Avenue to Birch Street | 8,487 | 69.5 | 214 | 99 | 46 | |
| Paularino Avenue | 0,407 | 09.0 | 217 | 33 | 1 0 | |
| Bear Street to Bristol Street | 7,632 | 66.8 | 141 | 66 | 30 | |
| Bristol Street to SR-55 SB | 16,284 | 70.1 | 234 | 109 | 50 | |
| SR-55 SB to SR-55 NB | 15,141 | 69.7 | 223 | 103 | 48 | |
| SR-55 NB to Red Hill Avenue | 3,967 | 63.9 | 91 | 42 | 20 | |
| Red Hill Avenue to Airway Avenue | 10,781 | 68.3 | 178 | 83 | 38 | |
| Red Hill Avenue | 10,701 | 00.5 | 170 | 00 | 30 | |
| Main Street to Paularino Avenue | 16,060 | 72.2 | 328 | 152 | 71 | |
| Paularino Avenue to Baker Street | 15,961 | 72.2 | 326 | 151 | 71 | |
| Baker Street to Bristol Street | 14,182 | 71.7 | 301 | 140 | 65 | |
| Santa Ana Avenue | 14,102 | 71.7 | 301 | 140 | 03 | |
| Mesa Drive to Bristol Street | 9,020 | 67.5 | 158 | 73 | 34 | |
| | 9,020 | 07.3 | 130 | 73 | 34 | |
| University Drive | E 604 | 60.7 | 101 | 89 | 11 | |
| Santa Ana Avenue to Irvine Avenue | 5,684 | 68.7 | 191 | 89 | 41 | |
| Alton Parkway | 4.570 | 07.0 | 400 | 77 | 00 | |
| Daimler Street to Red Hill Avenue | 4,578 | 67.8 | 166 | 77 | 36 | |
| Red Hill Avenue to Von Karman Avenue | 12,332 | 72.1 | 321 | 149 | 69 | |
| Von Karman Avenue to Jamboree Road | 14,649 | 72.9 | 360 | 167 | 77 | |
| Jamboree Road to Murphy Avenue | 15,133 | 73.0 | 367 | 171 | 79 | |
| Murphy Avenue to Harvard Avenue | 15,645 | 73.1 | 376 | 174 | 81 | |
| Harvard Avenue to Paseo Westpark | 15,465 | 73.1 | 373 | 173 | 80 | |
| Paseo Westpark to San Marino | 12,620 | 72.2 | 326 | 151 | 70 | |
| San Marino to Culver Drive | 21,617 | 74.5 | 466 | 216 | 100 | |
| Barranca Parkway (Dyer) | 04.45.4 | 75.4 | 500 | 005 | 100 | |
| Pullman to Red Hill Avenue | 24,454 | 75.1 | 506 | 235 | 109 | |
| Red Hill Avenue to Armstrong | 30,266 | 76.0 | 583 | 271 | 126 | |
| Armstrong to Von Karman Avenue | 29,815 | 75.9 | 577 | 268 | 124 | |
| Von Karman Avenue to Jamboree Road | 22,039 | 74.6 | 472 | 219 | 102 | |
| Jamboree Road to Construction Circle | 24,517 | 75.1 | 507 | 235 | 109 | |
| Construction Circle to Harvard Avenue | 21,003 | 74.4 | 457 | 212 | 98 | |
| Harvard Avenue to Paseo Westpark | 19,905 | 74.2 | 441 | 205 | 95 | |
| Paseo Westpark to Santa Rosa | 21,004 | 74.4 | 457 | 212 | 98 | |
| Santa Rosa to Culver Drive | 21,643 | 74.5 | 466 | 216 | 100 | |

| (dBA CNEL) | | | | | | | |
|---|---------------|------------------|--|------------------|------------------|--|--|
| | | CNEL | Distance to CNEL Contour (Feet from Centerline) | | | | |
| Segment | ADT Volume | (dBA @ 50 ft) | 60 (dBA CNEL) | 65 (dBA CNEL) | 70 (dBA CNEL) | | |
| Bryan Avenue | | | <u> </u> | | <u> </u> | | |
| Jamboree Road to Marketplace | 21,001 | 74.4 | 457 | 212 | 98 | | |
| Marketplace to El Camino Real | 17,921 | 73.7 | 411 | 191 | 89 | | |
| El Camino Real to Rubicon | 14,726 | 72.9 | 361 | 167 | 78 | | |
| Rubicon to Culver Drive | 18,343 | 73.8 | 418 | 194 | 90 | | |
| Campus Drive | | | | | | | |
| MacArthur Boulevard to Martin | 16,279 | 71.2 | 280 | 130 | 60 | | |
| Martin to Von Karman Avenue | 12,892 | 70.2 | 240 | 111 | 52 | | |
| Von Karman Avenue to Teller Avenue | 11,823 | 69.8 | 226 | 105 | 49 | | |
| Teller Avenue to Jamboree Road | 10,315 | 69.2 | 207 | 96 | 44 | | |
| Jamboree Road to Carlson Avenue | 20,089 | 75.2 | 513 | 238 | 110 | | |
| Carlson Avenue to University Drive | 18,247 | 74.7 | 481 | 223 | 104 | | |
| Carlson Avenue | | | | | | | |
| Michelson Drive to Campus Drive | 3,901 | 68.0 | 172 | 80 | 37 | | |
| Culver Drive | , | | | | | | |
| I-5 NB Ramps to I-5 SB Ramps | 36,738 | 76.8 | 664 | 308 | 143 | | |
| I-5 SB Off-Ramp to Scottsdale Drive | 49,687 | 78.2 | 812 | 377 | 175 | | |
| Scottsdale Drive to Walnut Avenue | 44,077 | 77.6 | 749 | 348 | 161 | | |
| Walnut Avenue to Deerfield Avenue | 42,201 | 77.4 | 728 | 338 | 157 | | |
| Deerfield Avenue to Irvine Center Drive | 38,904 | 77.1 | 690 | 320 | 149 | | |
| Irvine Center Drive to Warner Avenue | 41,580 | 77.4 | 721 | 335 | 155 | | |
| Warner Avenue to Barranca Parkway | 40,870 | 77.3 | 713 | 331 | 154 | | |
| Barranca Parkway to Alton Parkway | 44,253 | 77.7 | 751 | 349 | 162 | | |
| Alton Parkway to Main Street | 45,204 | 77.7 | 762 | 354 | 164 | | |
| Main Street to San Leandro | 49,711 | 78.2 | 812 | 377 | 175 | | |
| San Leandro to I-405 NB On-Ramp | 54,428 | 78.6 | 863 | 400 | 186 | | |
| I-405 SB On-Ramp to Michelson Drive | 53,319 | 78.5 | 851 | 395 | 183 | | |
| Michelson Drive to Sandburg Way | 39,658 | 77.2 | 698 | 324 | 150 | | |
| Sandburg Way to University Drive | 32,408 | 76.3 | 610 | 283 | 132 | | |
| El Camino Real | | | | | | | |
| Jamboree Road to Alliance | 20,876 | 73.4 | 390 | 181 | 84 | | |
| Fairchild Road | | _ | | | | | |
| MacArthur Boulevard to Jamboree Road | 4,393 | 67.6 | 161 | 75 | 35 | | |
| Harvard Avenue | | | | | | | |
| Walnut Avenue to Poplar Street | 9,179 | 70.8 | 263 | 122 | 57 | | |
| Poplar Street to Deerfield Avenue | 11,387 | 71.8 | 304 | 141 | 65 | | |
| Deerfield Avenue to Irvine Center Drive | 10,273 | 71.3 | 284 | 132 | 61 | | |
| Irvine Center Drive to Paseo Westpark | 12,508 | 72.2 | 324 | 150 | 70 | | |
| Paseo Westpark to Warner Avenue | 11,065 | 71.6 | 298 | 138 | 64 | | |
| Warner Avenue to Barranca Parkway | 12,686 | 72.2 | 327 | 152 | 70 | | |
| Barranca Parkway to San Juan | 15,295 | 73.0 | 370 | 172 | 80 | | |
| San Juan to San Leon | 14,888 | 72.9 | 363 | 169 | 78 | | |
| San Leon to Alton Parkway | 16,362 | 73.3 | 387 | 180 | 83 | | |
| Alton Parkway to San Marino | 18,655 | 73.9 | 422 | 196 | 91 | | |
| San Marino to Main Street | 19,291 | 74.0 | 432 | 201 | 93 | | |



| (dba Cnel) | | | | | | | |
|---|---------------|------------------|--|------------------|------------------|--|--|
| | | CNEL | Distance to CNEL Contour (Feet from Centerline) | | | | |
| Segment | ADT Volume | (dBA @ 50 ft) | 60 (dBA CNEL) | 65 (dBA CNEL) | 70 (dBA CNEL) | | |
| Main Street to Coronado | 13,552 | 72.5 | 341 | 158 | 74 | | |
| Coronado to Michelson Drive | 20,167 | 74.2 | 445 | 207 | 96 | | |
| Michelson Drive to University Drive | 8,672 | 70.6 | 253 | 118 | 55 | | |
| Irvine Center Drive | | | | | | | |
| Harvard Avenue to Hearthstone | 17,848 | 73.7 | 410 | 190 | 88 | | |
| Hearthstone to Culver Drive | 15,815 | 73.2 | 378 | 176 | 82 | | |
| Jamboree Road | , | | | | | | |
| Bryan Avenue to El Camino Real | 39,163 | 77.1 | 693 | 321 | 149 | | |
| El Camino Real to I-5 NB On-Ramp | 61,511 | 79.1 | 936 | 434 | 202 | | |
| I-5 NB Ramps to I-5 SB Off-Ramp | 65,707 | 79.4 | 978 | 454 | 211 | | |
| I-5 SB Off-Ramp to Michelle Drive | 57,976 | 78.8 | 900 | 418 | 194 | | |
| Michelle Drive to Walnut Avenue | 54,497 | 78.6 | 863 | 401 | 186 | | |
| Walnut Ave to Edinger Ave (& Frontage Rds.) | 71,936 | 79.8 | 1039 | 482 | 224 | | |
| Edinger Avenue to Warner Avenue | 78,493 | 80.1 | 1101 | 511 | 237 | | |
| Warner Avenue to Barranca Parkway | 69,451 | 79.6 | 1015 | 471 | 219 | | |
| Barranca Parkway to Beckman Avenue | 50,727 | 78.2 | 823 | 382 | 177 | | |
| Beckman Avenue to Alton Parkway | 49,220 | 78.1 | 807 | 374 | 174 | | |
| Alton Parkway to McGaw Avenue | 46,536 | 77.9 | 777 | 361 | 167 | | |
| McGaw Avenue to Kelvin Avenue | 45,004 | 77.7 | 760 | 353 | 164 | | |
| Kelvin Avenue to Main Street | 53,259 | 78.5 | 850 | 395 | 183 | | |
| Main Street to I-405 Off-Ramp | 52,524 | 78.4 | 842 | 391 | 181 | | |
| I-405 On-Ramp to Michelson Drive | 69,470 | 79.6 | 1015 | 471 | 219 | | |
| Michelson Drive to Dupont Drive | 51,529 | 78.3 | 832 | 386 | 179 | | |
| Dupont Drive to Campus Drive | 45,645 | 77.8 | 767 | 356 | 165 | | |
| Campus Drive to Birch Street | 40,300 | 77.2 | 706 | 328 | 152 | | |
| Birch Street to Fairchild Road | 32,438 | 76.3 | 611 | 284 | 132 | | |
| Fairchild Road to Koll Center | 33,237 | 76.4 | 621 | 288 | 134 | | |
| Koll Center to MacArthur Boulevard | 26,722 | 75.5 | 537 | 249 | 116 | | |
| MacArthur Boulevard | · | | | | | | |
| Fitch to Red Hill Avenue | 35,926 | 76.7 | 654 | 303 | 141 | | |
| Red Hill Avenue to Skypark Boulevard | 15,788 | 73.2 | 378 | 175 | 81 | | |
| Skypark Boulevard to Main Street | 25,505 | 75.3 | 520 | 242 | 112 | | |
| Main Street to I-405 NB Off-Ramp | 33,677 | 76.5 | 626 | 291 | 135 | | |
| I-405 SB On-Ramp to Michelson Drive | 48,662 | 78.1 | 800 | 372 | 172 | | |
| Michelson Drive to Douglass | 40,604 | 77.3 | 709 | 329 | 153 | | |
| Douglass to Campus Drive | 33,358 | 76.4 | 622 | 289 | 134 | | |
| Jamboree Road to Fairchild Road | 30,151 | 76.0 | 582 | 270 | 125 | | |
| Fairchild Road to University Drive | 34,000 | 76.5 | 630 | 293 | 136 | | |
| Main Street | | | | | | | |
| McDurmott to Red Hill Avenue | 18,121 | 73.8 | 414 | 192 | 89 | | |
| Red Hill Avenue to Executive Park | 16,818 | 73.5 | 394 | 183 | 85 | | |
| Executive Park to MacArthur Boulevard | 26,160 | 75.4 | 529 | 246 | 114 | | |
| MacArthur Boulevard to Mercantile | 35,615 | 76.7 | 650 | 302 | 140 | | |
| Gillette Avenue to Von Karman Avenue | 17,820 | 73.7 | 410 | 190 | 88 | | |
| Von Karman Avenue to Cartwright | 16,082 | 73.3 | 383 | 178 | 82 | | |
| | | | | | | | |

| | (aBA | CNEL) | | | |
|--|--------|--------|--|------------|------------|
| | | CNEL | Distance to CNEL Contour (Feet from Centerline) | | |
| | ADT | (dBA @ | 60 | 65 | 70 |
| Segment | Volume | 50 ft) | (dBA CNEL) | (dBA CNEL) | (dBA CNEL) |
| Siglo to Jamboree Road | 22,024 | 74.6 | 472 | 219 | 102 |
| Jamboree Road to Union | 19,037 | 74.0 | 428 | 199 | 92 |
| Veneto to Harvard Avenue | 10,456 | 71.4 | 287 | 133 | 62 |
| Harvard Avenue to San Mateo | 11,382 | 71.8 | 304 | 141 | 65 |
| Paseo Westpark to Culver Drive | 8,757 | 70.6 | 255 | 118 | 55 |
| McGaw Avenue | -, | | | | |
| Daimler Street to Red Hill Avenue | 3,630 | 66.8 | 142 | 66 | 31 |
| Red Hill Avenue to Von Karman Avenue | 5,653 | 68.7 | 191 | 88 | 41 |
| Von Karman Avenue to Jamboree Road | 6,451 | 69.3 | 208 | 97 | 45 |
| Jamboree Road to Murphy Avenue | 2,462 | 65.1 | 109 | 51 | 24 |
| Michelson Drive | _, | 33 | | <u> </u> | |
| MacArthur Boulevard to Dupont Drive | 14,917 | 71.9 | 312 | 145 | 67 |
| Bixby to Von Karman Avenue | 10,836 | 70.5 | 252 | 117 | 54 |
| Von Karman Avenue to Obsidian | 10,559 | 70.4 | 248 | 115 | 53 |
| Teller Avenue to Jamboree Road | 17,973 | 72.7 | 353 | 164 | 76 |
| Jamboree Road to Carlson Avenue | 14,864 | 71.9 | 311 | 144 | 67 |
| Carlson Avenue to Prince | 16,704 | 72.4 | 336 | 156 | 72 |
| Riparian View to Harvard Avenue | 16,553 | 72.4 | 334 | 155 | 72 |
| Harvard Avenue to Parkside Drive | 11,741 | 70.9 | 266 | 123 | 57 |
| Parkside Drive to Culver Drive | 16,629 | 72.4 | 335 | 156 | 72 |
| Red Hill Avenue | , | | | | |
| Dyer/Barranca Parkway to Deere Avenue | 26,611 | 75.4 | 535 | 248 | 115 |
| Deere Avenue to Alton Parkway | 26,630 | 75.4 | 536 | 249 | 115 |
| Alton Parkway to McGaw Avenue | 26,216 | 75.4 | 530 | 246 | 114 |
| McGaw Avenue to MacArthur Boulevard | 34,187 | 76.5 | 633 | 294 | 136 |
| MacArthur Boulevard to Skypark | 9,780 | 71.1 | 275 | 127 | 59 |
| Skypark to Main Street | 12,554 | 72.2 | 324 | 151 | 70 |
| University Drive | · | | | | |
| MacArthur Boulevard to California Avenue | 23,581 | 75.9 | 571 | 265 | 123 |
| California Avenue to Mesa Road | 32,837 | 77.3 | 712 | 330 | 153 |
| Mesa Road to Campus Drive | 33,673 | 75.5 | 537 | 249 | 116 |
| Campus Drive to Harvard Avenue | 26,248 | 74.4 | 454 | 211 | 98 |
| Harvard Avenue to San Joaquin Hills Road | 21,301 | 75.4 | 533 | 247 | 115 |
| San Joaquin Hills Road to Culver Drive | 21,676 | 75.5 | 539 | 250 | 116 |
| Von Karman Avenue | | _ | | | |
| Barranca Parkway to Alton Parkway | 16,770 | 72.4 | 337 | 156 | 73 |
| Alton Parkway to McGaw Avenue | 16,349 | 72.3 | 331 | 154 | 71 |
| McGaw Avenue to Anchor | 17,271 | 72.6 | 344 | 160 | 74 |
| Anchor to Main Street | 17,763 | 72.7 | 350 | 163 | 75 |
| Main Street to Morse Avenue | 18,765 | 72.9 | 363 | 169 | 78 |
| Quartz to Michelson Drive | 20,193 | 73.2 | 382 | 177 | 82 |
| Michelson Drive to Dupont Drive | 16,840 | 72.5 | 338 | 157 | 73 |
| Dupont Drive to Martin | 16,346 | 72.3 | 331 | 154 | 71 |
| Martin to Campus Drive | 14,234 | 71.7 | 302 | 140 | 65 |



| | (aBA | CNEL) | | | |
|--|--------|--------------|------------|------------------|------------|
| | | CNEI | | ntour | |
| | 407 | CNEL | , | et from Centerli | |
| Comment | ADT | (dBA @ | 60 | 65 | 70 |
| Segment | Volume | 50 ft) | (dBA CNEL) | (dBA CNEL) | (dBA CNEL) |
| Walnut Avenue | | | | | |
| Myford to Jamboree SB Off-Ramp | 21,169 | 73.4 | 394 | 183 | 85 |
| Jamboree Road to Peters Canyon | 18,580 | 72.9 | 361 | 168 | 78 |
| Peters Canyon to Harvard Avenue | 18,125 | 72.8 | 355 | 165 | 76 |
| Harvard Avenue to Mall Street | 16,040 | 72.2 | 327 | 152 | 71 |
| Mall Street to Culver Drive | 20,951 | 73.4 | 391 | 182 | 84 |
| Warner Avenue | | | | | |
| Construction North to Harvard Avenue | 8,225 | 69.3 | 210 | 97 | 45 |
| Harvard Avenue to Paseo Westpark | 5,766 | 67.8 | 165 | 77 | 36 |
| Santa Ynez to Culver Drive | 6,493 | 68.3 | 179 | 83 | 39 |
| Birch Street | | | | | |
| Mesa Drive to Bristol Street SB | 10,372 | 69.3 | 207 | 96 | 45 |
| Bristol Street SB to Bristol Street NB | 15,579 | 71.0 | 272 | 126 | 59 |
| East of MacArthur Boulevard | 20,327 | 72.2 | 325 | 151 | 70 |
| West of MacArthur Boulevard | 11,707 | 69.8 | 225 | 104 | 48 |
| East of Von Karman Avenue | 20,327 | 72.2 | 325 | 151 | 70 |
| Bison Avenue | | | | <u> </u> | |
| Jamboree Road to MacArthur Boulevard | 9,087 | 69.8 | 224 | 104 | 48 |
| MacArthur Boulevard to SR-73 | 13,411 | 71.5 | 290 | 135 | 63 |
| Bristol | , | | | | |
| Red Hill Avenue to Campus Drive | 20,119 | 73.2 | 381 | 177 | 82 |
| Campus Drive to Birch Street | 33,382 | 75.4 | 533 | 248 | 115 |
| West of Jamboree Road | 42,491 | 76.5 | 627 | 291 | 135 |
| Campus Drive | .=, | 7 0.0 | 92. | | |
| Bristol Street NB to MacArthur Boulevard | 27,671 | 75.6 | 549 | 255 | 118 |
| Ford Road | 27,071 | 70.0 | 0.10 | 200 | 110 |
| Jamboree Road to MacArthur Boulevard | 9,051 | 70.8 | 261 | 121 | 56 |
| Irvine Avenue | 3,001 | 70.0 | 201 | 121 | |
| Bristol Street NB to Bristol Street SB | 22,879 | 73.8 | 415 | 192 | 89 |
| Bristol Street SB to Mesa Drive | 24,237 | 74.0 | 431 | 200 | 93 |
| South of University Drive | 22,253 | 73.7 | 407 | 189 | 88 |
| Jamboree Road | 22,233 | 73.7 | 407 | 109 | 00 |
| South of MacArthur Boulevard | 28,826 | 75.8 | 565 | 262 | 122 |
| Bristol Street SB to Bristol Street NB | 46,597 | 77.9 | 778 | 361 | 168 |
| South of Bristol Street | 48,897 | 78.1 | 803 | 373 | 173 |
| | 42,624 | | 733 | 340 | 158 |
| University Drive to Bison Avenue Bison Avenue to Ford Road | | 77.5 76.5 | | | |
| | 33,614 | 76.5 | 626 | 290 | 135 |
| MacArthur Boulevard | 04.407 | 745 | 400 | 040 | |
| Campus Drive to Birch Street | 21,187 | 74.5 | 460 | 213 | 99 |
| South of Birch Street | 23,445 | 74.9 | 492 | 228 | 106 |
| Von Karman Avenue to Jamboree Road | 23,568 | 74.9 | 494 | 229 | 106 |
| University Drive to Bison Avenue | 43,429 | 77.6 | 742 | 344 | 160 |
| Bison Avenue to Ford Road | 75,856 | 80.0 | 1076 | 500 | 232 |

| | (4.2.71 | CIVEL) | Distance to CNEL Contour | | | | |
|---|---------------|------------------|--------------------------|------------------|------------------|--|--|
| | | CNEL | • | et from Centerli | | | |
| Segment | ADT Volume | (dBA @ 50 ft) | 60 (dBA CNEL) | 65 (dBA CNEL) | 70 (dBA CNEL) | | |
| University Drive | | | | , | · | | |
| East of Irvine Avenue | 823 | 60.3 | 53 | 24 | 11 | | |
| Jamboree Road to MacArthur Boulevard | 14,628 | 72.8 | 359 | 167 | 77 | | |
| Von Karman Avenue | | | | | | | |
| South of Campus Drive | 10,305 | 71.3 | 284 | 132 | 61 | | |
| South of Birch Street | 11,237 | 71.7 | 301 | 140 | 65 | | |
| Dyer Road | | | | | | | |
| Main Street to Halladay Street | 25,688 | 75.3 | 523 | 243 | 113 | | |
| Halladay Street to SR-55 SB | 30,243 | 76.0 | 583 | 271 | 126 | | |
| SR-55 SB to SR-55 NB | 43,265 | 77.6 | 740 | 344 | 159 | | |
| SR-55 NB to Pullman Street | 29,458 | 75.9 | 573 | 266 | 123 | | |
| Grand Avenue | | | | | | | |
| Warner Avenue to Hotel Terrace Drive | 22,946 | 74.8 | 485 | 225 | 104 | | |
| Hotel Terrace Drive to SR-55 NB | 21,501 | 74.5 | 464 | 216 | 100 | | |
| Halladay Street | | | | | | | |
| Dyer Road to Alton Avenue | 4,687 | 64.6 | 102 | 47 | 22 | | |
| Alton Avenue to McGaw Avenue | , | | | | | | |
| (Columbine) | 1,748 | 60.4 | 53 | 25 | 11 | | |
| MacArthur Boulevard | | | | | | | |
| Flower Street to Main Street | 31,093 | 76.1 | 594 | 276 | 128 | | |
| Main Street to SR-55 SB | 47,010 | 77.9 | 782 | 363 | 169 | | |
| Main Street | | | | | | | |
| Segerstrom Avenue to Alton Avenue | 20,603 | 74.3 | 451 | 209 | 97 | | |
| Alton Avenue to McGaw | | | | | | | |
| Avenue(Columbine) | 23,743 | 74.9 | 496 | 230 | 107 | | |
| McGaw(Columbine) to MacArthur | | | | | | | |
| Boulevard | 28,675 | 75.8 | 563 | 261 | 121 | | |
| MacArthur Boulevard to Sunflower Avenue | 30,103 | 76.0 | 581 | 270 | 125 | | |
| McGaw Avenue (Alton) | | | | | | | |
| Main Street to Halladay Street | 3,092 | 66.1 | 127 | 59 | 27 | | |
| Segerstrom Avenue | | | | | | | |
| Bristol Street to Flower Street | 11,560 | 70.8 | 263 | 122 | 57 | | |
| Flower Street to Main Street | 18,676 | 72.9 | 362 | 168 | 78 | | |
| Warner Avenue | | | | | | | |
| Grand Avenue to SR-55 | 18,190 | 73.8 | 415 | 193 | 89 | | |
| Sunflower Avenue | | | | | | | |
| Bristol Street to Flower Street | 40,204 | 76.2 | 604 | 280 | 130 | | |
| Flower Street to Anton Boulevard | 18,032 | 72.7 | 354 | 164 | 76 | | |
| Anton Boulevard to Main Street | 19,454 | 73.1 | 372 | 173 | 80 | | |
| Browning Avenue | | | | | | | |
| Walnut Avenue to I-5 | 4,501 | 65.6 | 119 | 55 | 26 | | |



| | (aBA | CNEL) | | | | | |
|--|---------------------------------------|------------------|------------------|--|------------------|--|--|
| | | CNEL | | Distance to CNEL Cont (Feet from Centerling | | | |
| Segment | ADT Volume | (dBA @ 50 ft) | 60 (dBA CNEL) | 65 (dBA CNEL) | 70 (dBA CNEL) | | |
| Bryan Avenue | | | | | , | | |
| Newport Boulevard to Red Hill Avenue | 15,300 | 73.0 | 370 | 172 | 80 | | |
| Red Hill Avenue to Browning Avenue | 16,200 | 73.3 | 385 | 178 | 83 | | |
| Browning Avenue to Tustin Ranch Road | 16,700 | 73.4 | 392 | 182 | 85 | | |
| Tustin Ranch Road to Jamboree Road | 16,800 | 73.4 | 394 | 183 | 85 | | |
| Edinger Avenue | | | | | | | |
| West of Newport Avenue | 34,312 | 77.5 | 733 | 340 | 158 | | |
| Newport Avenue to Red Hill Avenue | 20,215 | 75.2 | 515 | 239 | 111 | | |
| Red Hill Avenue and Tustin Ranch Road | 22,340 | 76.5 | 630 | 293 | 136 | | |
| El Camino Real | <u> </u> | | | | | | |
| Newport Avenue to Red Hill Avenue | 13,735 | 71.6 | 295 | 137 | 64 | | |
| Red Hill Avenue to Browning Avenue | 8,973 | 69.7 | 222 | 103 | 48 | | |
| Browning Avenue to Tustin Ranch Road | 8,392 | 69.4 | 212 | 99 | 46 | | |
| Tustin Ranch Road to Jamboree Road | 13,574 | 71.5 | 293 | 136 | 63 | | |
| Irvine Center Drive | | | | | | | |
| Red Hill Avenue to Jamboree Road | 22,340 | 75.6 | 550 | 255 | 119 | | |
| Jamboree Road to Harvard Avenue | 13,952 | 73.6 | 402 | 187 | 87 | | |
| Mitchell Avenue | | | | | | | |
| Newport Avenue to Red Hill Avenue | 7,350 | 66.6 | 138 | 64 | 30 | | |
| Red Hill Avenue to Browning Avenue | 4,417 | 64.4 | 98 | 46 | 21 | | |
| Newport Avenue | , | | | | | | |
| El Camino Real to I-5 | 28,516 | 72.5 | 340 | 158 | 73 | | |
| I-5 to Mitchell Avenue | 31,417 | 72.9 | 363 | 168 | 78 | | |
| Mitchell Avenue to McFadden Avenue | 29,223 | 72.6 | 346 | 160 | 74 | | |
| North of Sycamore Avenue | 9,604 | 67.8 | 165 | 76 | 35 | | |
| Valencia Avenue to Edinger Avenue | 18,205 | 70.5 | 252 | 117 | 54 | | |
| Nisson Road | , | | | | | | |
| Newport Avenue to Red Hill Avenue | 5,593 | 65.4 | 115 | 53 | 25 | | |
| Red Hill Avenue to Browning Avenue | 3,915 | 63.9 | 90 | 42 | 19 | | |
| Red Hill Avenue | , | | | | | | |
| I-5 NB Ramps to El Camino Real | 43,222 | 74.3 | 449 | 208 | 97 | | |
| I-5 SB Ramps to I-5 NB Ramps | 38,996 | 73.8 | 419 | 194 | 90 | | |
| Nisson Road to I-5 SB | 38,235 | 73.8 | 413 | 192 | 89 | | |
| Nisson Road to Mitchell Avenue | 26,681 | 72.2 | 325 | 151 | 70 | | |
| Mitchell Avenue to Walnut Avenue | 25,830 | 72.1 | 318 | 148 | 69 | | |
| Walnut Avenue to Sycamore Avenue | 27,502 | 73.5 | 397 | 184 | 86 | | |
| Sycamore Avenue to Edinger Avenue | 29,957 | 73.9 | 420 | 195 | 91 | | |
| Edinger Avenue to Valencia Avenue | 25,507 | 73.2 | 378 | 175 | 81 | | |
| Valencia Avenue to Warner Avenue | 26,723 | 75.5 | 537 | 249 | 116 | | |
| Warner Avenue to Barranca Parkway/Dyer | 29,570 | 75.9 | 574 | 267 | 124 | | |
| Sycamore Avenue | , , , , , , , , , , , , , , , , , , , | | | | | | |
| SR-55 NB to Newport Avenue | 9,036 | 67.5 | 158 | 73 | 34 | | |
| Newport Avenue to Red Hill Avenue | 7,758 | 66.8 | 143 | 66 | 31 | | |
| 1 | ., | · • | | | - • | | |

Table 5.9-7
Existing Traffic Noise Levels, 2008
(dBA CNEL)

| | | CNEL | Distance to CNEL Contour (Feet from Centerline) | | | | |
|-----------------------------------|---------------|------------------|--|------------------|------------------|--|--|
| Segment | ADT Volume | (dBA @ 50 ft) | 60 (dBA CNEL) | 65 (dBA CNEL) | 70 (dBA CNEL) | | |
| Tustin Ranch Road | | | | | | | |
| North of I-5 | 32,560 | 76.3 | 612 | 284 | 132 | | |
| I-5 to Walnut Avenue | 21,087 | 74.4 | 458 | 213 | 99 | | |
| Valencia Avenue | | | | | | | |
| Newport Avenue to Red Hill Avenue | 3,690 | 65.9 | 123 | 57 | 26 | | |
| Walnut Avenue | | | | | | | |
| East of Newport Avenue | 15,375 | 72.1 | 318 | 148 | 69 | | |
| East of Red Hill Avenue | 15,579 | 72.1 | 321 | 149 | 69 | | |
| West of Tustin Ranch Road | 19,862 | 73.2 | 377 | 175 | 81 | | |
| Franklin Avenue to Myford Road | 18,249 | 72.8 | 357 | 166 | 77 | | |
| Warner Avenue | | | | | | | |
| SR-55 to Red Hill Avenue | 13,682 | 72.6 | 344 | 159 | 74 | | |

Source: FHWA Traffic Noise Prediction Model. Based on traffic volumes obtained from the traffic analysis prepared by Parson Brinkerhoff (December 2009) and speed limits obtained from Google Maps.

Aircraft Noise

Noise from aircraft at the John Wayne Airport (JWA) is produced from takeoffs, flyovers/overflights, approaches, and landings. Each of these events results in noise exposure to sensitive receptors near the airport. The California Public Resources Code, Section 21096, requires that when preparing an Environmental Impact Report for any project within an airport influence area, as defined by an Airport Land Use Compatibility Plan, the lead agency shall utilize the California Airport Land Use Planning Handbook as a technical resource with respect to airport noise and safety compatibility issues. The basis for compatibility zone delineation for airports is the CNEL contours created with the Federal Aviation Administration Integrated Noise Model for private and public airports. Figure 5.9-1, 2008 John Wayne Airport Noise Contours, shows the annual average noise contours for 2008 at the John Wayne Airport noise levels on which airport noise restrictions are based.

Stationary Sources of Noise

Stationary sources of noise include commercial and industrial equipment and activities. Whereas mobile source noise affects many receptors along an entire length of roadway, stationary noise sources affect their immediate areas. Major stationary sources in the IBC are industrial and warehousing operations. Onsite mechanical equipment and warehousing and industrial truck traffic result in noise on local roadways and in the vicinity of industrial operations.

5.9.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would result in:



NB: northbound; SB: southbound; EB: eastbound; WB: westbound

NOISE

- N-1 Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- N-2 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- N-3 A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- N-4 A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- N-5 For a project located within an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.
- N-6 For a project within the vicinity of a private airstrip, expose people residing or working the project area to excessive noise levels.

Both Initial Studies, included as Appendices A and B, substantiate that impacts associated with the following thresholds would be less than significant:

Threshold N-6

This impact will not be addressed in the following analysis.

City of Irvine Thresholds

Noise Compatibility

The noise standards specified in the City of Irvine Noise Element are used to evaluate the acceptability of the noise levels. Based on the noise compatibility criteria, the City has developed policies to ensure land use compatibility when placing new land uses. The City requires that the exterior areas for new residential land uses not exceed 65 dBA CNEL. The City also requires that commercial developments achieve an indoor noise standard of 55 dBA CNEL and residential 45 dBA CNEL with windows closed, which is based on the California Building Code and Noise Insulation standards.

In accordance with Title 21 of the California Code of Regulations, City of Irvine requires new residential developments in the 65 dBA CNEL environs of the John Wayne Airport to mitigate to achieve an interior noise environment of 45 dBA CNEL. In addition, the City requires a supplemental noise criteria for noise-sensitive land uses within the 60 dBA CNEL contour of the John Wayne Airport to be constructed to achieve indoor noise levels below 55 dBA $L_{\text{max}}(10)$. The City's single-event supplemental noise criteria is in addition to the mandated state 24-hour interior noise standard of Title 21 and Title 24 of the California Building Code.

Stationary-Source Noise

The City's Noise Ordinance establishes the maximum permissible noise level that may intrude into a neighbor's property. See Table 5.9-4.

Noise

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Substantial Increase in Traffic Noise Levels

The traffic noise thresholds used by the City are based on human tolerance to noise and are widely used for assessing traffic noise impacts. In general, people tend to compare intruding noise with the existing background noise. If the new noise is readily identifiable or considerably louder than the background noise level, it has the potential to be objectionable or annoying (Caltrans 1998). Consequently, the noise threshold for increase in traffic noise levels is based on the potential for traffic noise to become considerably louder than the ambient noise level. In general, noise levels must increase by 10 dBA in order to double ambient noise levels. An increase of 5 dBA is readily perceptible to the public and a 3 dBA increase is barely perceivable to the average healthy human ear (Caltrans 1998). Based on the City of Irvine noise compatibility criteria of 65 dBA CNEL for residential uses, the City considers audible (3+dBA) increases in project-related traffic noise to be substantial when the ambient noise environment with the project exceeds 65 dBA CNEL. For cumulative impacts, the City considers segments where the project contributes any increase in noise levels (0.1 dBA or more) to be substantial when cumulative increase in ambient noise levels are 3 dBA or more.

Construction

The Noise Ordinance regulates the timing of construction activities and includes special provisions for sensitive land uses. No construction shall be permitted outside of the hours specified under Section 6-8-205 of the City of Irvine Municipal Code (7:00 AM to 7:00 PM Monday through Friday and 9:00 AM to 6:00 PM Saturdays) unless a temporary waiver is granted by the Chief Building Official or authorized representative. The potential for construction noise impacts to be objectionable depends on the magnitude of noise generated by the construction equipment, the frequency of noise sources during the construction day, and total duration of construction activities.



Vibration

Based on the FTA vibration criteria, vibration annoyance impacts are considered significant when average vibration levels produced by construction equipment would produce perceptible levels of vibration (78 VdB) during the daytime at offsite vibration-sensitive structures. In addition, vibration that is strong enough to cause structural damage based on the FTA criteria (0.2 in/sec for typical wood-framed buildings or 0.5 in/sec at reinforced concrete, steel, or timber) would be considered significant.

5.9.3 Environmental Impacts

Existing Plans, Programs, and Policies

The following measures are existing plans, programs, or policies (PPP) that apply to the proposed project and will help to reduce and avoid potential impacts related to noise:

PPP 9-1 Control of Construction Hours: Construction activities occurring as part of the project shall be subject to the limitations and requirements of Section 6-8-205(a) of the Irvine Municipal Code which states that construction activities may occur between 7:00 AM and 7:00 PM Mondays through Fridays, and 9:00 AM and 6:00 PM on Saturdays. No construction activities shall be permitted outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the Chief Building Official or his or her authorized representative. Trucks, vehicles, and equipment that are making, or are involved with, material deliveries, loading, or transfer of materials, equipment service, maintenance of any devices or appurtenances for or within any construction project in the City shall not be

operated or driven on City streets outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City. Any waiver granted shall take impact upon the community into consideration. No construction activity will be permitted outside of these hours except in emergencies including maintenance work on the City rights-of-way that might be required.

PPP 9-2 Acoustical Report: Prior to the issuance of building permits for each structure or tenant improvement other than a parking structure, the applicant shall submit a final acoustical report prepared to the satisfaction of the Director of Community Development. The report shall show that the development will be sound attenuated against present and projected noise levels, including roadway, aircraft, helicopter and railroad, to meet City interior and exterior noise standards. The final acoustical report shall include all information required by the City's Acoustical Report Information Sheet (Form 42-48). In order to demonstrate that all mitigation measures have been incorporated into the project, the report shall be accompanied by a list identifying the sheet(s) of the building plans that include the approved mitigation measures (Standard Condition B.1).

Project Design Features

Many aspects of the project's proposed land use and design serve to directly and indirectly reduce the noise impacts of the project. Such Project Design Features (PDFs) are summarized below and their relevance to reduced impacts is described more fully in the impacts analysis that follows.

Construction

- PDF 9-1 As described in the proposed zoning for the project, applicants for individual projects that involve vibration-intensive construction activities, such as pile drivers, jack hammers, and vibratory rollers, occurring near sensitive receptors shall submit a noise vibration analysis prior to their application being deemed complete by the City. If construction-related vibration is determined to exceed the Federal Transit Administration vibration-annoyance criteria of 78 VdB during the daytime, additional requirements, such as use of less vibration intensive equipment or construction techniques shall be implemented during construction (e.g., drilled piles to eliminate use of vibration-intensive pile driver).
- PDF 9-2 Prior to issuance of grading permits, the project applicant shall incorporate the following measures as a note on the grading plan cover sheet to ensure that the greatest distance between noise sources and sensitive receptors during construction activities has been achieved.
 - Construction equipment, fixed or mobile, shall be equipped with properly operating and maintained noise mufflers consistent with manufacturer's standards.
 - Construction staging areas shall be located away from off-site sensitive uses during the later phases of project development.
 - The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site, whenever feasible.

 Construction of sound walls that have been incorporated into the project design prior to construction of the building foundation; or installation of temporary sound blankets (fences typically composed of poly-vinyl-chloride-coated outer shells with adsorbent inner insulation) placed along the boundary of the project site during construction activities.

Noise Compatibility

- PDF 9-3 As described in the proposed zoning for the project, prior to issuance of certificate of occupancy, the project applicant shall submit evidence to the satisfaction of the Director of Community Development that occupancy disclosure notices for units with patios and/or balconies that do not meet the 65 dBA CNEL are provided to all future tenants pursuant to the City's Noise Ordinance.
- PDF 9-4 As described in the proposed zoning for the project, residential and active recreational areas shall be prohibited in the 65 dBA CNEL noise contour of the John Wayne Airport. In addition, as described in the proposed zoning for the project, prior to issuance of building permits, the project applicant for any project within the 60 dBA CNEL contour of the John Wayne Airport shall retain an acoustical engineer to prepare an acoustic analysis that identifies required building acoustical improvements (e.g., sound transmission class rated windows, doors, and attic baffling) to achieve the 45 dBA CNEL interior noise standard of Title 21 and Title 24 of the California Building Code. In addition to the 24-hour interior noise standard, the acoustic report shall detail compliance with the City's interior noise standard of 55 dBA L_{max} (10) for single-event noise generated by the loudest 10 percent of aircraft overflights at the John Wayne Airport. Parks within the 60 dBA CNEL noise contour shall include signage indicating their proximity to John Wayne Airport and related airport noise. The acoustic analysis shall be submitted to the Director of Community Development to ensure compliance.



The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

IMPACT 5.9-1: CONSTRUCTION ACTIVITIES COULD RESULT IN TEMPORARY NOISE INCREASES IN THE VICINITY OF THE PROPOSED PROJECT. [THRESHOLD N-3]

Impact Analysis: Short-term construction noise impacts are expected from with demolition, site preparation, grading, and building construction of the proposed land uses. Two types of short-term noise impacts could occur during construction. First, the transport of workers and movement of materials to and from the site could incrementally increase noise levels along local access roads. However, the amount of construction traffic is typically small in relation to the total daily traffic volumes on those roadway segments.

The second type of short-term noise impact is related to demolition, site preparation, grading, and/or physical construction. Construction is performed in distinct steps, each with its own mix of equipment, and, consequently, its own noise characteristics. However, 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 5.9-8 lists typical construction equipment noise levels recommended for noise-impact assessments, based on a distance of 50 feet between the equipment and a noise receptor.

Table 5.9-8
Equipment Noise Emission Levels

| Construction Equipment | Typical Noise Level (dBA) at 50 Feet from the Source | Construction Equipment | Typical Noise Level (dBA) at 50 Feet from the Source |
|---------------------------|--|------------------------|--|
| Air Compressor | 81 | Pile-Driver (Impact) | 101 |
| Backhoe | 80 | Pile-Driver (Sonic) | 96 |
| Ballast Equalizer | 82 | Pneumatic Tool | 85 |
| Ballast Tamper | 83 | Pump | 76 |
| Compactor | 82 | Rail Saw | 90 |
| Concrete Mixer | 85 | Rock Drill | 98 |
| Concrete Pump | 71 | Roller | 74 |
| Concrete Vibrator | 76 | Saw | 76 |
| Crane, Derrick | 88 | Scarifier | 83 |
| Crane, Mobile | 83 | Scraper | 89 |
| Dozer | 85 | Shovel | 82 |
| Generator | 81 | Spike Driver | 77 |
| Grader | 85 | Tie Cutter | 84 |
| Impact Wrench | 85 | Tie Handler | 80 |
| Jack Hammer | 88 | Tie Inserter | 85 |
| Loader | 85 | Truck | 88 |
| Paver | 89 | | |

Composite construction noise is best characterized by Bolt, Beranek, and Newman. According to their 1971 study, construction noise for development ranges from 71 to 89 dBA $L_{\rm eq}$ when measured at a distance of 50 feet from the construction effort. These values take into account both the number of pieces and spacing of the heavy equipment used in the construction effort. In later phases during building assembly, noise levels are typically reduced from these values and the physical structures further break up line-of-sight noise propagation. Construction of individual developments associated with buildout of the IBC would temporally increase the ambient noise environment. However, the City of Irvine restricts the hours of construction activities to the least noise-sensitive portions of the day. Trucks, vehicles, and equipment that are making or involved with deliveries, loading, or transfer of materials, equipment service, or maintenance of any devices or appurtenances for or within any construction project in the City are also subject to these prohibitions.

PPP 9-1 and PDF 9-2 would reduce impacts associated with construction noise by requiring that activities be limited to the hours set forth in the City of Irvine Municipal Code and that stationary-source equipment be placed as far as feasible from adjacent noise-sensitive land uses. Because construction activities associated with any individual development may occur near noise-sensitive receptors and noise disturbances may occur for prolonged periods of time, construction noise impacts from buildout of the IBC are considered potentially significant.

Subsequent Development Pursuant to the Proposed Project

Construction activities associated with the individual development projects would elevate daytime noise levels in the vicinity of noise-sensitive receptors within the IBC Vision Plan Area. Consequently, impacts associated with the individual development projects—Martin Street Condos, 2851 Alton, Avalon Jamboree II, Irvine Technology Center, Kilroy, Alton/Millikan Apartments, and 2852 Kelvin—would not differ significantly from the IBC Vision Plan. PPP 9-1 and PDF 9-2 would reduce noise from construction activities to the extent feasible by requiring that activities be limited to the hours set forth in the City of Irvine Municipal Code and that stationary source equipment be placed as far as feasible from adjacent noise-sensitive land uses.

IMPACT 5.9-2 CONSTRUCTION OF THE PROPOSED PROJECT MAY GENERATE PERCEPTIBLE LEVELS OF VIBRATION AT ADJACENT VIBRATION-SENSITIVE LAND USES. [THRESHOLD N-2]

Impact Analysis: Construction operations can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Construction equipment can produce vibration from vehicle travel as well as grading and building activities. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor building construction. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, and slight structural damage at the highest levels. Vibrations from construction activities rarely reach levels that can damage structures, but can achieve the audible and perceptible ranges in buildings close to the construction site. Table 5.9-9 lists vibration levels for construction equipment.



| Vibration Leve | Table 5.9-9 Vibration Levels for Construction Equipment | | | | | | | | |
|--|---|---|--|--|--|--|--|--|--|
| Equipment | Approximate Velocity Level at 25 Feet (VdB) | Approximate RMS¹ Velocity at 25 Feet (in/sec) | | | | | | | |
| Pile Driver (impact) Upper Range | 112 | 1.518 | | | | | | | |
| Pile Driver (impact) Lower Range | 104 | 0.644 | | | | | | | |
| Pile Driver (sonic) Upper Range | 105 | 0.734 | | | | | | | |
| Pile Driver (sonic) Lower Range | 93 | 0.170 | | | | | | | |
| Large Bulldozer | 87 | 0.089 | | | | | | | |
| Caisson Drilling | 87 | 0.089 | | | | | | | |
| Jackhammer | 79 | 0.035 | | | | | | | |
| Small Bulldozer | 58 | 0.003 | | | | | | | |
| Loaded Trucks | 86 | 0.076 | | | | | | | |
| FTA Criteria – Human Annoyance (Daytime) | 78 | _ | | | | | | | |
| FTA Criteria – Structural Damage | _ | 0.200 Wood-Framed 0.500 Reinforced Masonry | | | | | | | |

Source: FTA 2006

As shown in Table 5.9-9, vibration generated by construction equipment has the potential to be substantial for both vibration annoyance and structural damage if it occurs proximate to vibration-sensitive uses. However, groundborne vibration is almost never annoying to people who are outdoors,

¹ RMS velocity calculated from vibration level (VdB) using the reference of 1 microinch/second.

so it is usually evaluated in terms of indoor receivers (FTA 2006). PPP 9-1 and PDF 9-2 would reduce impacts associated with perceptible levels of vibration annoyance by requiring that activities be limited to the hours set forth in the City of Irvine Municipal Code and that stationary-source equipment be placed as far as feasible from adjacent vibration-sensitive land uses. In addition, PDF 9-1 would ensure that less vibration-intensive equipment or construction techniques are used. Because of the potential for construction activities to occur in close proximity to vibration-sensitive uses and structures, vibration generated by the project could result in a significant impact. Significant vibration impacts may occur from construction equipment associated with new development within the IBC, especially if vibration-intensive equipment, such as pile drivers, is required. Impacts are considered potentially significant.

Subsequent Development Pursuant to the Proposed Project

Construction activities associated with the individual development projects could generate substantial vibration levels. Consequently, impacts associated with the individual development projects—Martin Street Condos, 2851 Alton, Avalon Jamboree II, Irvine Technology Center, Kilroy, Alton/Millikan Apartments, and 2852 Kelvin—would not differ significantly from the IBC Vision Plan. PPP 9-1 and PDF 9-2 would reduce impacts associated with perceptible levels of vibration annoyance by requiring that activities be limited to the hours set forth in the City of Irvine Municipal Code and that stationary-source equipment be placed as far as feasible from adjacent vibration-sensitive land uses. In addition, PDF 9-1 would ensure that less vibration-intensive equipment or construction techniques would be used. However, because new development may occur near noise-sensitive land uses and could generate substantial vibration levels for an extended period of time, impacts are considered significant.

IMPACT 5.9-3

PROJECT-RELATED VEHICLE TRIPS WOULD SUBSTANTIALLY INCREASE AMBIENT NOISE AT NOISE-SENSITIVE RECEPTORS IN THE VICINITY OF THE PROJECT SITE ON MCGAW AVENUE BETWEEN JAMBOREE ROAD AND MURPHY AVENUE AND CUMULATIVELY ON VALENCIA AVENUE BETWEEN NEWPORT AVENUE AND RED HILL AVENUE, WARNER AVENUE BETWEEN SR-55 AND RED HILL AVENUE, MCGAW AVENUE BETWEEN JAMBOREE ROAD AND MURPHY AVENUE, AND BIRCH STREET BETWEEN MESA DRIVE AND BRISTOL STREET. [THRESHOLDS N-1 AND N-3]

Impact Analysis: Long-term operation of the project could potentially result in two types of long-term noise impacts. The first impact may occur if the project substantially increases noise levels in the vicinity. Project-related noise sources include stationary sources such as heating, ventilation, and air conditioning (HVAC) units from residential units and parking lots (see Impact 5.9-4), and mobile sources such as project-generated traffic. The second type of long-term noise impact may occur if the project sites noise-sensitive uses such as residences in an area of high noise exposure (see Impact 5.9-5 for roadway noise and Impact 5.9-6 for airport noise). The following describes long-term mobile-source noise impacts associated with the project.

Mobile-Source Noise Impacts

Traffic noise modeling was conducted for interim year 2015 and post-year 2030 using the FHWA's Highway Traffic Noise Prediction model (FHWA RD-77-108) using a standard vehicle mix for Orange County roadways based on fleet mix for State Route 55 (Caltrans 2009). Based on the traffic study prepared for this project by Parson Brinkerhoff (December 2009), buildout of the IBC, which includes 17,038 residential units, 48,787,662 square feet of nonresidential, and 3,478 hotel rooms, would generate 697,308 ADT. Land uses in the IBC currently generate 508,690 trips. Consequently, the project would generate an increase of 188,618 trips in the IBC at full buildout in post-year 2030.

The modeled 24-hour CNEL traffic noise levels are shown in Table 5.9-10 as modeled at 50 feet from the roadway centerline for 2015 conditions. Table 5.9-11 show these levels for post-year 2030 conditions. Noise levels in Tables 5.9-10 and 5.9-11 represent the worst-case scenario, which assumes no shielding is provided between the traffic and the location where the noise contours are drawn.



Noise

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| | Existing Y | 'ear 2008 | Year 2015 Wi | thout Project | Year 2015 V | Vith Project | Increase | in dBA |
|---|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Anton Boulevard | | , | | | | • | | |
| Bristol Street to Sunflower Avenue | 7,620 | 67.9 | 8,200 | 68.2 | 8,200 | 68.2 | 0.3 | 0 |
| Baker Street | | | | | | | | |
| Bear Street to Bristol Street | 23,497 | 73.9 | 25,400 | 74.2 | 25,900 | 74.3 | 0.4 | 0.1 |
| Bristol Street to SR-55 SB Ramps | 27,498 | 74.6 | 30,200 | 75.0 | 30,700 | 75.1 | 0.5 | 0.1 |
| SR-55 SB to SR-55 NB | 24,275 | 74.0 | 28,000 | 74.7 | 28,500 | 74.7 | 0.7 | 0.1 |
| SR-55 NB to Red Hill Avenue | 13,718 | 71.6 | 15,800 | 72.2 | 16,300 | 72.3 | 0.7 | 0.1 |
| Red Hill Avenue to Airway Avenue | 4,699 | 66.9 | 5,700 | 67.7 | 5,700 | 67.7 | 0.8 | 0 |
| Bear Street | | | | | | | | |
| Paularino Avenue to Baker Street | 17,577 | 72.6 | 18,300 | 72.8 | 18,400 | 72.8 | 0.2 | 0 |
| Bristol Street | | | | | | | | |
| Segerstrom Avenue to West Alton Avenue | 35,789 | 75.7 | 36,100 | 75.8 | 36,300 | 75.8 | 0.1 | 0 |
| West Alton Avenue to MacArthur Boulevard | 38,850 | 76.1 | 40,400 | 76.3 | 40,600 | 76.3 | 0.2 | 0 |
| MacArthur Boulevard to Sunflower Avenue | 22,305 | 73.7 | 23,100 | 73.8 | 23,100 | 73.8 | 0.2 | 0 |
| Sunflower Avenue to Anton Boulevard | 42,108 | 76.4 | 43,200 | 76.5 | 43,200 | 76.5 | 0.1 | 0 |
| Anton Boulevard to I-405 NB Ramps | 62,602 | 78.2 | 64,600 | 78.3 | 64,600 | 78.3 | 0.1 | 0 |
| I-405 NB Ramps to I-405 SB Ramps | 63,048 | 78.2 | 64,500 | 78.3 | 64,700 | 78.3 | 0.1 | 0 |
| I-405 SB Ramp to Paularino Avenue | 40,727 | 76.3 | 43,400 | 76.6 | 43,400 | 76.6 | 0.3 | 0 |
| Paularino Avenue to Baker Street | 34,095 | 75.5 | 35,500 | 75.7 | 35,600 | 75.7 | 0.2 | 0 |
| Baker Street to SR-55 | 24,713 | 74.1 | 25,600 | 74.3 | 25,700 | 74.3 | 0.2 | 0 |
| SR-55 to Red Hill Avenue | 20,914 | 73.4 | 22,000 | 73.6 | 22,400 | 73.7 | 0.3 | 0.1 |
| Del Mar Avenue | | | | | | | | |
| Newport Boulevard SB to Newport Boulevard NB | 12,232 | 71.1 | 13,300 | 71.4 | 13,400 | 71.5 | 0.4 | 0 |
| Newport Boulevard to Santa Ana Avenue | 7,069 | 68.7 | 7,300 | 68.8 | 7,300 | 68.8 | 0.1 | 0 |

Noise

| | Existing Y | ear 2008 | Year 2015 Wi | thout Project | Year 2015 V | Vith Project | Increase | in dBA |
|---|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Flower Street | | • | | | | · | | |
| Segerstrom Avenue to MacArthur Boulevard | 9,756 | 70.1 | 10,100 | 70.2 | 10,200 | 70.3 | 0.2 | 0 |
| MacArthur Boulevard to Sunflower Avenue | 8,180 | 69.3 | 8,500 | 69.5 | 8,500 | 69.5 | 0.2 | 0 |
| Sunflower Avenue to Anton Boulevard | 6,193 | 68.1 | 6,500 | 68.3 | 6,400 | 68.2 | 0.1 | -0.1 |
| Main Street | | | | | | | | |
| Sunflower Avenue to SR-55 | 20,195 | 73.2 | 21,400 | 73.5 | 22,100 | 73.6 | 0.4 | 0.1 |
| Mesa Drive | | | | | | | | |
| Newport Boulevard SB to Newport Boulevard NB | 5,469 | 67.6 | 5,800 | 67.8 | 5,800 | 67.8 | 0.3 | 0 |
| Newport Boulevard NB to Santa Ana Avenue | 5,674 | 67.7 | 6,000 | 68.0 | 6,100 | 68.0 | 0.3 | 0.1 |
| Irvine Avenue to Birch Street | 8,487 | 69.5 | 9,000 | 69.7 | 9,200 | 69.8 | 0.4 | 0.1 |
| Paularino Avenue | | | | | | | | |
| Bear Street to Bristol Street | 7,632 | 66.8 | 8,100 | 67.0 | 8,200 | 67.1 | 0.3 | 0.1 |
| Bristol Street to SR-55 SB | 16,284 | 70.1 | 18,100 | 70.5 | 18,100 | 70.5 | 0.5 | 0 |
| SR-55 SB to SR-55 NB | 15,141 | 69.7 | 18,200 | 70.5 | 18,400 | 70.6 | 0.8 | 0 |
| SR-55 NB to Red Hill Avenue | 3,967 | 63.9 | 5,200 | 65.1 | 5,200 | 65.1 | 1.2 | 0 |
| Red Hill Avenue to Airway Avenue | 10,781 | 68.3 | 13,300 | 69.2 | 13,300 | 69.2 | 0.9 | 0 |
| Red Hill Avenue | | | | | | | | |
| Main Street to Paularino Avenue | 16,060 | 72.2 | 18,600 | 72.9 | 19,200 | 73.0 | 0.8 | 0.1 |
| Paularino Avenue to Baker Street | 15,961 | 72.2 | 19,600 | 73.1 | 20,200 | 73.2 | 1.0 | 0.1 |
| Baker Street to Bristol Street | 14,182 | 71.7 | 16,700 | 72.4 | 16,700 | 72.4 | 0.7 | 0 |
| Santa Ana Avenue | | | | | | | | |
| Mesa Drive to Bristol Street | 9,020 | 67.5 | 9,400 | 67.7 | 9,300 | 67.6 | 0.1 | 0 |
| University Drive | | | | | | | | |
| Santa Ana Avenue to Irvine Avenue | 5,684 | 68.7 | 5,900 | 68.9 | 6,000 | 69.0 | 0.2 | 0.1 |

| | Existing Y | ear 2008 | Year 2015 Wi | thout Project | Year 2015 W | Vith Project | Increase | in dBA |
|---------------------------------------|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Alton Parkway | | · | | | | | | |
| Daimler Street to Red Hill Avenue | 4,578 | 67.8 | 4,700 | 67.9 | 4,700 | 67.9 | 0.1 | 0.0 |
| Red Hill Avenue to Von Karman Avenue | 12,332 | 72.1 | 12,500 | 72.2 | 13,000 | 72.3 | 0.2 | 0.2 |
| Von Karman Avenue to Jamboree Road | 14,649 | 72.9 | 15,700 | 73.2 | 16,100 | 73.3 | 0.4 | 0.1 |
| Jamboree Road to Murphy Avenue | 15,133 | 73.0 | 16,500 | 73.4 | 16,900 | 73.5 | 0.5 | 0.1 |
| Murphy Avenue to Harvard Avenue | 15,645 | 73.1 | 17,100 | 73.5 | 17,600 | 73.6 | 0.5 | 0.1 |
| Harvard Avenue to Paseo Westpark | 15,465 | 73.1 | 16,600 | 73.4 | 16,800 | 73.4 | 0.4 | 0.1 |
| Paseo Westpark to San Marino | 12,620 | 72.2 | 13,800 | 72.6 | 14,000 | 72.7 | 0.5 | 0.1 |
| San Marino to Culver Drive | 21,617 | 74.5 | 23,300 | 74.9 | 23,300 | 74.9 | 0.3 | 0 |
| Barranca Parkway (Dyer) | | | | | | | | |
| Pullman to Red Hill Avenue | 24,454 | 75.1 | 25,100 | 75.2 | 25,800 | 75.3 | 0.2 | 0.1 |
| Red Hill Avenue to Armstrong | 30,266 | 76.0 | 27,100 | 75.5 | 30,300 | 76.0 | 0 | 0.5 |
| Armstrong to Von Karman Avenue | 29,815 | 75.9 | 29,800 | 75.9 | 29,800 | 75.9 | 0 | 0 |
| Von Karman Avenue to Jamboree Road | 22,039 | 74.6 | 22,000 | 74.6 | 22,300 | 74.7 | 0.1 | 0.1 |
| Jamboree Road to Construction Circle | 24,517 | 75.1 | 27,500 | 75.6 | 27,600 | 75.6 | 0.5 | 0 |
| Construction Circle to Harvard Avenue | 21,003 | 74.4 | 24,200 | 75.0 | 24,300 | 75.0 | 0.6 | 0 |
| Harvard Avenue to Paseo Westpark | 19,905 | 74.2 | 22,800 | 74.8 | 22,800 | 74.8 | 0.6 | 0 |
| Paseo Westpark to Santa Rosa | 21,004 | 74.4 | 24,200 | 75.0 | 24,300 | 75.0 | 0.6 | 0 |
| Santa Rosa to Culver Drive | 21,643 | 74.5 | 24,600 | 75.1 | 24,700 | 75.1 | 0.6 | 0 |
| Bryan Avenue | | | | | | | | |
| Jamboree Road to Marketplace | 21,001 | 74.4 | 22,400 | 74.7 | 22,400 | 74.7 | 0.3 | 0 |
| Marketplace to El Camino Real | 17,921 | 73.7 | 20,800 | 74.4 | 20,800 | 74.4 | 0.6 | 0 |
| El Camino Real to Rubicon | 14,726 | 72.9 | 17,400 | 73.6 | 17,300 | 73.6 | 0.7 | 0 |
| Rubicon to Culver Drive | 18,343 | 73.8 | 23,100 | 74.8 | 23,000 | 74.8 | 1.0 | 0 |
| Campus Drive | | | | | | | | |
| MacArthur Boulevard to Martin | 16,279 | 71.2 | 17,400 | 71.5 | 19,100 | 71.9 | 0.7 | 0.4 |
| Martin to Von Karman Avenue | 12,892 | 70.2 | 13,700 | 70.5 | 15,100 | 70.9 | 0.7 | 0.4 |
| Von Karman Avenue to Teller Avenue | 11,823 | 69.8 | 12,600 | 70.1 | 14,000 | 70.6 | 0.7 | 0.5 |

Noise

| | Existing Y | ear 2008 | Year 2015 Wi | thout Project | Year 2015 V | Vith Project | Increase | in dBA |
|---|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Teller Avenue to Jamboree Road | 10,315 | 69.2 | 10,900 | 69.5 | 11,600 | 69.7 | 0.5 | 0.3 |
| Jamboree Road to Carlson Avenue | 20,089 | 75.2 | 21,400 | 75.4 | 22,300 | 75.6 | 0.5 | 0.2 |
| Carlson Avenue to University Drive | 18,247 | 74.7 | 18,900 | 74.9 | 19,300 | 75.0 | 0.2 | 0.1 |
| Carlson Avenue | | | | | | | | |
| Michelson Drive to Campus Drive | 3,901 | 68.0 | 5,300 | 69.4 | 5,700 | 69.7 | 1.6 | 0.3 |
| Culver Drive | | | | | | | | |
| I-5 NB Ramps to I-5 SB Ramps | 36,738 | 76.8 | 44,200 | 77.6 | 44,000 | 77.6 | 0.8 | 0 |
| I-5 SB Off-Ramp to Scottsdale Drive | 49,687 | 78.2 | 54,800 | 78.6 | 54,800 | 78.6 | 0.4 | 0 |
| Scottsdale Drive to Walnut Avenue | 44,077 | 77.6 | 48,500 | 78.1 | 48,600 | 78.1 | 0.4 | 0 |
| Walnut Avenue to Deerfield Avenue | 42,201 | 77.4 | 44,300 | 77.7 | 44,500 | 77.7 | 0.2 | 0 |
| Deerfield Avenue to Irvine Center Drive | 38,904 | 77.1 | 41,100 | 77.3 | 41,100 | 77.3 | 0.2 | 0 |
| Irvine Center Drive to Warner Avenue | 41,580 | 77.4 | 43,100 | 77.5 | 43,100 | 77.5 | 0.2 | 0 |
| Warner Avenue to Barranca Parkway | 40,870 | 77.3 | 43,300 | 77.6 | 43,600 | 77.6 | 0.3 | 0 |
| Barranca Parkway to Alton Parkway | 44,253 | 77.7 | 47,000 | 77.9 | 47,500 | 78.0 | 0.3 | 0 |
| Alton Parkway to Main Street | 45,204 | 77.7 | 48,000 | 78.0 | 48,600 | 78.1 | 0.3 | 0.1 |
| Main Street to San Leandro | 49,711 | 78.2 | 51,500 | 78.3 | 52,000 | 78.4 | 0.2 | 0 |
| San Leandro to I-405 NB On-Ramp | 54,428 | 78.6 | 56,100 | 78.7 | 56,600 | 78.7 | 0.2 | 0 |
| I-405 SB On-Ramp to Michelson Drive | 53,319 | 78.5 | 57,100 | 78.8 | 57,900 | 78.8 | 0.4 | 0.1 |
| Michelson Drive to Sandburg Way | 39,658 | 77.2 | 43,100 | 77.5 | 43,400 | 77.6 | 0.4 | 0 |
| Sandburg Way to University Drive | 32,408 | 76.3 | 35,600 | 76.7 | 35,800 | 76.7 | 0.4 | 0 |
| El Camino Real | | | | | | | | |
| Jamboree Road to Alliance | 20,876 | 73.4 | 22,800 | 73.8 | 22,800 | 73.8 | 0.4 | 0 |
| Fairchild Road | | | | | | | | |
| MacArthur Boulevard to Jamboree Road | 4,393 | 67.6 | 4,500 | 67.7 | 4,500 | 67.7 | 0.1 | 0 |
| Harvard Avenue | | | | | | | | |
| Walnut Avenue to Poplar Street | 9,179 | 70.8 | 9,600 | 71.0 | 9,700 | 71.1 | 0.2 | 0 |
| Poplar Street to Deerfield Avenue | 11,387 | 71.8 | 11,700 | 71.9 | 11,700 | 71.9 | 0.1 | 0 |
| Deerfield Avenue to Irvine Center Drive | 10,273 | 71.3 | 10,800 | 71.5 | 10,800 | 71.5 | 0.2 | 0 |

| | Existing Y | 'ear 2008 | Year 2015 Wi | thout Project | Year 2015 V | Vith Project | Increase | in dBA |
|---|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Irvine Center Drive to Paseo Westpark | 12,508 | 72.2 | 12,900 | 72.3 | 13,100 | 72.4 | 0.2 | 0.1 |
| Paseo Westpark to Warner Avenue | 11,065 | 71.6 | 12,700 | 72.2 | 12,800 | 72.3 | 0.6 | 0 |
| Warner to Barranca Parkway | 12,686 | 72.2 | 15,000 | 73.0 | 15,100 | 73.0 | 0.8 | 0 |
| Barranca Parkway to San Juan | 15,295 | 73.0 | 17,100 | 73.5 | 17,300 | 73.6 | 0.5 | 0.1 |
| San Juan to San Leon | 14,888 | 72.9 | 16,200 | 73.3 | 16,600 | 73.4 | 0.5 | 0.1 |
| San Leon to Alton Parkway | 16,362 | 73.3 | 17,900 | 73.7 | 18,200 | 73.8 | 0.5 | 0.1 |
| Alton Parkway to San Marino | 18,655 | 73.9 | 20,500 | 74.3 | 21,100 | 74.4 | 0.5 | 0.1 |
| San Marino to Main Street | 19,291 | 74.0 | 21,100 | 74.4 | 21,800 | 74.6 | 0.5 | 0.1 |
| Main Street to Coronado | 13,552 | 72.5 | 14,700 | 72.9 | 15,400 | 73.1 | 0.6 | 0.2 |
| Coronado to Michelson Drive | 20,167 | 74.2 | 21,500 | 74.5 | 22,700 | 74.8 | 0.5 | 0.2 |
| Michelson Drive to University Drive | 8,672 | 70.6 | 9,300 | 70.9 | 9,800 | 71.1 | 0.5 | 0.2 |
| Irvine Center Drive | | | | | | | | |
| Harvard Avenue to Hearthstone | 17,848 | 73.7 | 20,700 | 74.4 | 20,900 | 74.4 | 0.7 | 0 |
| Hearthstone to Culver Drive | 15,815 | 73.2 | 19,200 | 74.0 | 19,400 | 74.1 | 0.9 | 0 |
| Jamboree Road | | | | | | | | |
| Bryan Avenue to El Camino Real | 39,163 | 77.1 | 39,200 | 77.1 | 39,200 | 77.1 | 0 | 0 |
| El Camino Real to I-5 NB On-Ramp | 61,511 | 79.1 | 61,500 | 79.1 | 61,500 | 79.1 | 0 | 0 |
| I-5 NB Ramps to I-5 SB Off-Ramp | 65,707 | 79.4 | 66,700 | 79.4 | 66,500 | 79.4 | 0.1 | 0 |
| I-5 SB Off-Ramp to Michelle Drive | 57,976 | 78.8 | 61,300 | 79.1 | 61,100 | 79.1 | 0.2 | 0 |
| Michelle Drive to Walnut Avenue | 54,497 | 78.6 | 54,500 | 78.6 | 54,500 | 78.6 | 0 | 0 |
| Walnut Ave to Edinger Ave (& Frontage Rds.) | 71,936 | 79.8 | 71,900 | 79.8 | 71,900 | 79.8 | 0 | 0 |
| Edinger Avenue to Warner Avenue* | 78,493 | 80.1 | 78,500 | 80.1 | 78,500 | 80.1 | 0 | 0 |
| Warner Avenue to Barranca Parkway | 69,451 | 79.6 | 73,900 | 79.9 | 74,500 | 79.9 | 0.3 | 0 |
| Barranca Parkway to Beckman Avenue | 50,727 | 78.2 | 54,300 | 78.5 | 55,200 | 78.6 | 0.4 | 0.1 |
| Beckman Avenue to Alton Parkway | 49,220 | 78.1 | 51,900 | 78.3 | 52,800 | 78.4 | 0.3 | 0.1 |
| Alton Parkway to McGaw Avenue | 46,536 | 77.9 | 49,400 | 78.1 | 51,600 | 78.3 | 0.4 | 0.2 |
| McGaw Avenue to Kelvin Avenue | 45,004 | 77.7 | 47,700 | 78.0 | 50,200 | 78.2 | 0.5 | 0.2 |
| Kelvin Avenue to Main Street | 53,259 | 78.5 | 56,100 | 78.7 | 59,900 | 79.0 | 0.5 | 0.3 |

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|---------------------------------------|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| | Existing Y | <i>ear 2008</i> | Year 2015 Wi | thout Project | Year 2015 V | Vith Project | Increase | in dBA |
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Main Street to I-405 Off-Ramp | 52,524 | 78.4 | 54,100 | 78.5 | 58,300 | 78.9 | 0.5 | 0.3 |
| I-405 On-Ramp to Michelson Drive | 69,470 | 79.6 | 72,300 | 79.8 | 79,900 | 80.2 | 0.6 | 0.4 |
| Michelson Drive to Dupont Drive | 51,529 | 78.3 | 53,000 | 78.4 | 60,100 | 79.0 | 0.7 | 0.5 |
| Dupont Drive to Campus Drive | 45,645 | 77.8 | 46,900 | 77.9 | 49,800 | 78.2 | 0.4 | 0.3 |
| Campus Drive to Birch Street | 40,300 | 77.2 | 41,800 | 77.4 | 44,600 | 77.7 | 0.4 | 0.3 |
| Birch Street to Fairchild Road | 32,438 | 76.3 | 33,600 | 76.5 | 35,700 | 76.7 | 0.4 | 0.3 |
| Fairchild Road to Koll Center | 33,237 | 76.4 | 34,200 | 76.5 | 36,400 | 76.8 | 0.4 | 0.3 |
| Koll Center to MacArthur Boulevard | 26,722 | 75.5 | 27,500 | 75.6 | 29,200 | 75.8 | 0.4 | 0.3 |
| MacArthur Boulevard | | | | | | | | |
| Fitch to Red Hill Avenue | 35,926 | 76.7 | 37,500 | 76.9 | 39,100 | 77.1 | 0.4 | 0.2 |
| Red Hill Avenue to Skypark Boulevard | 15,788 | 73.2 | 16,200 | 73.3 | 17,200 | 73.5 | 0.4 | 0.3 |
| Skypark Boulevard to Main Street | 25,505 | 75.3 | 26,200 | 75.4 | 27,600 | 75.6 | 0.3 | 0.2 |
| Main Street to I-405 NB Off-Ramp | 33,677 | 76.5 | 34,700 | 76.6 | 36,600 | 76.8 | 0.4 | 0.2 |
| I-405 SB On-Ramp to Michelson Drive | 48,662 | 78.1 | 50,300 | 78.2 | 53,000 | 78.4 | 0.4 | 0.2 |
| Michelson Drive to Douglass | 40,604 | 77.3 | 41,800 | 77.4 | 42,300 | 77.5 | 0.2 | 0.1 |
| Douglass to Campus Drive | 33,358 | 76.4 | 34,600 | 76.6 | 34,800 | 76.6 | 0.2 | 0.0 |
| Jamboree Road to Fairchild Road | 30,151 | 76.0 | 31,800 | 76.2 | 32,400 | 76.3 | 0.3 | 0.1 |
| Fairchild Road to University Drive | 34,000 | 76.5 | 35,600 | 76.7 | 36,200 | 76.8 | 0.3 | 0.1 |
| Main Street | | | | | | | | |
| McDurmott to Red Hill Avenue | 18,121 | 73.8 | 18,900 | 74.0 | 19,500 | 74.1 | 0.3 | 0.1 |
| Red Hill Avenue to Executive Park | 16,818 | 73.5 | 17,700 | 73.7 | 18,500 | 73.9 | 0.4 | 0.2 |
| Executive Park to MacArthur Boulevard | 26,160 | 75.4 | 27,200 | 75.5 | 28,400 | 75.7 | 0.4 | 0.2 |
| MacArthur Boulevard to Mercantile | 35,615 | 76.7 | 36,000 | 76.8 | 37,100 | 76.9 | 0.2 | 0.1 |
| Gillette Avenue to Von Karman Avenue | 17,820 | 73.7 | 18,700 | 73.9 | 19,800 | 74.2 | 0.5 | 0.2 |
| Von Karman Avenue to Cartwright | 16,082 | 73.3 | 16,900 | 73.5 | 17,900 | 73.7 | 0.5 | 0.2 |
| Siglo to Jamboree Road | 22,024 | 74.6 | 22,700 | 74.8 | 24,700 | 75.1 | 0.5 | 0.4 |
| Jamboree Road to Union | 19,037 | 74.0 | 19,600 | 74.1 | 20,200 | 74.2 | 0.3 | 0.1 |
| Veneto to Harvard Avenue | 10,456 | 71.4 | 11,200 | 71.7 | 11,600 | 71.8 | 0.5 | 0.2 |

| | Existing Year 2008 | | Year 2015 Without Project | | Year 2015 With Project | | Increase in dBA | |
|--|--------------------|--------------------------|---------------------------|--------------------------|------------------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Harvard Avenue to San Mateo | 11,382 | 71.8 | 12,100 | 72.0 | 12,300 | 72.1 | 0.3 | 0.1 |
| Paseo Westpark to Culver Drive | 8,757 | 70.6 | 9,600 | 71.0 | 9,600 | 71.0 | 0.4 | 0 |
| McGaw Avenue | | | | | | | | |
| Daimler Street to Red Hill Avenue | 3,630 | 66.8 | 3,600 | 66.8 | 3,600 | 66.8 | 0 | 0 |
| Red Hill Avenue to Von Karman Avenue | 5,653 | 68.7 | 5,700 | 68.8 | 6,100 | 69.0 | 0.3 | 0.3 |
| Von Karman Avenue to Jamboree Road | 6,451 | 69.3 | 6,600 | 69.4 | 7,000 | 69.6 | 0.4 | 0.3 |
| Jamboree Road to Murphy Avenue | 2,462 | 65.1 | 2,600 | 65.3 | 3,500 | 66.6 | 1.5 | 1.3 |
| Michelson Drive | | | | | | | | |
| MacArthur Boulevard to Dupont Drive | 14,917 | 71.9 | 15,100 | 72.0 | 17,200 | 72.5 | 0.6 | 0.6 |
| Bixby to Von Karman Avenue | 10,836 | 70.5 | 11,400 | 70.8 | 13,000 | 71.3 | 0.8 | 0.6 |
| Von Karman Avenue to Obsidian | 10,559 | 70.4 | 11,100 | 70.6 | 12,800 | 71.3 | 0.8 | 0.6 |
| Teller Avenue to Jamboree Road | 17,973 | 72.7 | 18,400 | 72.8 | 20,400 | 73.3 | 0.6 | 0.4 |
| Jamboree Road to Carlson Avenue | 14,864 | 71.9 | 16,500 | 72.4 | 19,100 | 73.0 | 1.1 | 0.6 |
| Carlson Avenue to Prince | 16,704 | 72.4 | 17,200 | 72.5 | 20,200 | 73.2 | 0.8 | 0.7 |
| Riparian View to Harvard Avenue | 16,553 | 72.4 | 17,500 | 72.6 | 18,900 | 73.0 | 0.6 | 0.3 |
| Harvard Avenue to Parkside Drive | 11,741 | 70.9 | 12,500 | 71.2 | 13,100 | 71.4 | 0.5 | 0.2 |
| Parkside Drive to Culver Drive | 16,629 | 72.4 | 17,600 | 72.6 | 18,400 | 72.8 | 0.4 | 0.2 |
| Red Hill Avenue | | | | | | | | |
| Dyer/Barranca Parkway to Deere Avenue | 26,611 | 75.4 | 26,700 | 75.5 | 27,300 | 75.6 | 0.1 | 0.1 |
| Deere Avenue to Alton Parkway | 26,630 | 75.4 | 27,200 | 75.5 | 27,800 | 75.6 | 0.2 | 0.1 |
| Alton Parkway to McGaw Avenue | 26,216 | 75.4 | 30,000 | 76.0 | 30,900 | 76.1 | 0.7 | 0.1 |
| McGaw Avenue to MacArthur Boulevard | 34,187 | 76.5 | 37,400 | 76.9 | 38,400 | 77.0 | 0.5 | 0.1 |
| MacArthur Boulevard to Skypark | 9,780 | 71.1 | 11,400 | 71.8 | 11,800 | 71.9 | 0.8 | 0.1 |
| Skypark to Main Street | 12,554 | 72.2 | 14,400 | 72.8 | 14,800 | 72.9 | 0.7 | 0.1 |
| University Drive | | | | | | | | |
| MacArthur Boulevard to California Avenue | 23,581 | 75.9 | 24,800 | 76.1 | 25,100 | 76.1 | 0.3 | 0.1 |
| California Avenue to Mesa Road | 32,837 | 77.3 | 34,600 | 77.5 | 35,100 | 77.6 | 0.3 | 0.1 |
| Mesa Road to Campus Drive | 33,673 | 75.5 | 35,900 | 75.7 | 36,300 | 75.8 | 0.3 | 0 |

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|--|----------------|--------------------------|--------------------|--------------------------|------------------------|--------------------------|--|---|--|--|--|
| | Existing Y | 'ear 2008 | 2008 Year 2015 Wit | | Year 2015 With Project | | Increase in dBA | | | | |
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) | | | |
| Campus Drive to Harvard Avenue | 26,248 | 74.4 | 28,700 | 74.8 | 29,000 | 74.8 | 0.4 | 0 | | | |
| Harvard Avenue to San Joaquin Hills Road | 21,301 | 75.4 | 24,200 | 76.0 | 24,300 | 76.0 | 0.6 | 0 | | | |
| San Joaquin Hills Road to Culver Drive | 21,676 | 75.5 | 24,600 | 76.0 | 24,700 | 76.1 | 0.6 | 0 | | | |
| Von Karman Avenue | | | | | | | | | | | |
| Barranca Parkway to Alton Parkway | 16,770 | 72.4 | 24,200 | 74.0 | 25,100 | 74.2 | 1.8 | 0.2 | | | |
| Alton Parkway to McGaw Avenue | 16,349 | 72.3 | 19,400 | 73.1 | 20,400 | 73.3 | 1.0 | 0.2 | | | |
| McGaw Avenue to Anchor | 17,271 | 72.6 | 19,700 | 73.1 | 20,700 | 73.3 | 0.8 | 0.2 | | | |
| Anchor to Main Street | 17,763 | 72.7 | 19,900 | 73.2 | 21,200 | 73.5 | 0.8 | 0.3 | | | |
| Main Street to Morse Avenue | 18,765 | 72.9 | 20,500 | 73.3 | 22,000 | 73.6 | 0.7 | 0.3 | | | |
| Quartz to Michelson Drive | 20,193 | 73.2 | 21,900 | 73.6 | 23,700 | 73.9 | 0.7 | 0.3 | | | |
| Michelson Drive to Dupont Drive | 16,840 | 72.5 | 17,800 | 72.7 | 19,000 | 73.0 | 0.5 | 0.3 | | | |
| Dupont Drive to Martin | 16,346 | 72.3 | 17,000 | 72.5 | 18,200 | 72.8 | 0.5 | 0.3 | | | |
| Martin to Campus Drive | 14,234 | 71.7 | 14,800 | 71.9 | 15,800 | 72.2 | 0.5 | 0.3 | | | |
| Walnut Avenue | | _ | | | _ | | | | | | |
| Myford to Jamboree SB Off-Ramp | 21,169 | 73.4 | 21,200 | 73.5 | 21,300 | 73.5 | 0.0 | 0 | | | |
| Jamboree Road to Peters Canyon | 18,580 | 72.9 | 21,900 | 73.6 | 21,900 | 73.6 | 0.7 | 0 | | | |
| Peters Canyon to Harvard Avenue | 18,125 | 72.8 | 20,600 | 73.3 | 20,700 | 73.3 | 0.6 | 0 | | | |
| Harvard Avenue to Mall Street | 16,040 | 72.2 | 18,500 | 72.9 | 18,500 | 72.9 | 0.6 | 0 | | | |
| Mall Street to Culver Drive | 20,951 | 73.4 | 24,200 | 74.0 | 24,400 | 74.1 | 0.7 | 0 | | | |
| Warner Avenue | | | | | | | | | | | |
| Construction North to Harvard Avenue | 8,225 | 69.3 | 11,800 | 70.9 | 11,900 | 70.9 | 1.6 | 0 | | | |
| Harvard Avenue to Paseo Westpark | 5,766 | 67.8 | 8,100 | 69.3 | 8,000 | 69.2 | 1.4 | -0.1 | | | |
| Santa Ynez to Culver Drive | 6,493 | 68.3 | 8,700 | 69.6 | 8,600 | 69.5 | 1.2 | -0.1 | | | |
| Birch Street | | | | | | | | | | | |
| Mesa Drive to Bristol Street SB | 10,372 | 69.3 | 11,200 | 69.6 | 11,400 | 69.7 | 0.4 | 0.1 | | | |
| Bristol Street SB to Bristol Street NB | 15,579 | 71.0 | 16,000 | 71.1 | 16,200 | 71.2 | 0.2 | 0.1 | | | |
| East of MacArthur Boulevard | 20,327 | 72.2 | 20,800 | 72.3 | 22,300 | 72.6 | 0.4 | 0.3 | | | |
| | | | | | | | | | | | |

| | Existing Y | ear 2008 | Year 2015 Wi | thout Project | Year 2015 V | Vith Project | Increase | in dBA |
|--|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| West of MacArthur Boulevard | 11,707 | 69.8 | 12,000 | 69.9 | 12,900 | 70.2 | 0.4 | 0.3 |
| East of Von Karman Avenue | 20,327 | 72.2 | 20,800 | 72.3 | 22,400 | 72.6 | 0.4 | 0.3 |
| Bison Avenue | | | | | | | | |
| Jamboree Road to MacArthur Boulevard | 9,087 | 69.8 | 9,800 | 70.1 | 9,900 | 70.1 | 0.4 | 0 |
| MacArthur Boulevard to SR-73 | 13,411 | 71.5 | 13,900 | 71.6 | 13,800 | 71.6 | 0.1 | 0 |
| Bristol | | | | | | | | |
| Red Hill Avenue to Campus Drive* | 20,119 | 73.2 | 21,400 | 73.5 | 22,100 | 73.6 | 0.4 | 0.1 |
| Campus Drive to Birch Street* | 33,382 | 75.4 | 34,900 | 75.6 | 35,200 | 75.7 | 0.2 | 0 |
| West of Jamboree Road* | 42,491 | 76.5 | 44,200 | 76.6 | 44,500 | 76.7 | 0.2 | 0 |
| Campus Drive | | | | | | | | |
| Bristol Street NB to MacArthur Boulevard | 27,671 | 75.6 | 28,800 | 75.8 | 30,300 | 76.0 | 0.4 | 0.2 |
| Ford Road | | | | | | | | |
| Jamboree Road to MacArthur Boulevard | 9,051 | 70.8 | 10,000 | 71.2 | 9,900 | 71.2 | 0.4 | 0 |
| Irvine Avenue | | | | | | | | |
| Bristol Street NB to Bristol Street SB | 22,879 | 73.8 | 23,700 | 73.9 | 24,600 | 74.1 | 0.3 | 0.2 |
| Bristol Street SB to Mesa Drive | 24,237 | 74.0 | 25,200 | 74.2 | 25,500 | 74.3 | 0.2 | 0.1 |
| South of University Drive | 22,253 | 73.7 | 23,200 | 73.8 | 23,500 | 73.9 | 0.2 | 0.1 |
| Jamboree Road | | | | | | | | |
| South of MacArthur Boulevard | 28,826 | 75.8 | 29,500 | 75.9 | 30,700 | 76.1 | 0.3 | 0.2 |
| Bristol Street SB to Bristol Street NB | 46,597 | 77.9 | 47,600 | 78.0 | 48,500 | 78.1 | 0.2 | 0.1 |
| South of Bristol Street | 48,897 | 78.1 | 50,500 | 78.2 | 51,200 | 78.3 | 0.2 | 0.1 |
| University Drive to Bison Avenue | 42,624 | 77.5 | 44,300 | 77.7 | 44,900 | 77.7 | 0.2 | 0.1 |
| Bison Avenue to Ford Road | 33,614 | 76.5 | 34,800 | 76.6 | 35,100 | 76.6 | 0.2 | 0 |
| MacArthur Boulevard | | | | | | | | |
| Campus Drive to Birch Street | 21,187 | 74.5 | 22,100 | 74.6 | 21,900 | 74.6 | 0.1 | 0 |
| South of Birch Street | 23,445 | 74.9 | 24,700 | 75.1 | 24,600 | 75.1 | 0.2 | 0 |
| Von Karman Avenue to Jamboree Road | 23,568 | 74.9 | 25,000 | 75.2 | 25,000 | 75.2 | 0.3 | 0 |

Noise

| | Existing Y | 'ear 2008 | Year 2015 Wi | thout Project | Year 2015 V | Vith Project | Increase | in dBA |
|--|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| University Drive to Bison Avenue | 43,429 | 77.6 | 45,600 | 77.8 | 45,700 | 77.8 | 0.2 | 0 |
| Bison Avenue to Ford Road | 75,856 | 80.0 | 78,700 | 80.2 | 78,700 | 80.2 | 0.2 | 0 |
| University Drive | | | | | | | | |
| East of Irvine Avenue | 823 | 60.3 | 800 | 60.2 | 800 | 60.2 | -0.1 | 0 |
| Jamboree Road to MacArthur Boulevard | 14,628 | 72.8 | 15,400 | 73.1 | 15,600 | 73.1 | 0.3 | 0.1 |
| Von Karman Avenue | | | | | | | | |
| South of Campus Drive | 10,305 | 71.3 | 10,800 | 71.5 | 11,100 | 71.6 | 0.3 | 0.1 |
| South of Birch Street | 11,237 | 71.7 | 11,700 | 71.9 | 12,100 | 72.0 | 0.3 | 0.1 |
| Dyer Road | | | | | | | | |
| Main Street to Halladay Street | 25,688 | 75.3 | 27,400 | 75.6 | 27,800 | 75.6 | 0.3 | 0.1 |
| Halladay Street to SR-55 SB | 30,243 | 76.0 | 31,800 | 76.2 | 32,400 | 76.3 | 0.3 | 0.1 |
| SR-55 SB to SR-55 NB | 43,265 | 77.6 | 43,600 | 77.6 | 44,400 | 77.7 | 0.1 | 0.1 |
| SR-55 NB to Pullman Street | 29,458 | 75.9 | 30,000 | 76.0 | 30,600 | 76.1 | 0.2 | 0.1 |
| Grand Avenue | | | | | | | | |
| Warner Avenue to Hotel Terrace Drive | 22,946 | 74.8 | 22,900 | 74.8 | 22,900 | 74.8 | 0 | 0 |
| Hotel Terrace Drive to SR-55 NB | 21,501 | 74.5 | 21,500 | 74.5 | 21,500 | 74.5 | 0 | 0 |
| Halladay Street | | | | | | | | |
| Dyer Road to Alton Avenue | 4,687 | 64.6 | 5,500 | 65.3 | 5,600 | 65.4 | 0.8 | 0.1 |
| Alton Avenue to McGaw Avenue (Columbine) | 1,748 | 60.4 | 2,100 | 61.2 | 2,100 | 61.2 | 0.8 | 0 |
| MacArthur Boulevard | | | | | | | | |
| Flower Street to Main Street | 31,093 | 76.1 | 32,100 | 76.3 | 32,400 | 76.3 | 0.2 | 0 |
| Main Street to SR-55 SB | 47,010 | 77.9 | 49,900 | 78.2 | 50,800 | 78.3 | 0.3 | 0.1 |

| | Existing Y | ear 2008 | Year 2015 Wi | ithout Project | Year 2015 V | Vith Project | Increase | in dBA |
|--|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Main Street | | | | | | | | |
| Segerstrom Avenue to Alton Avenue | 20,603 | 74.3 | 21,600 | 74.5 | 21,900 | 74.6 | 0.3 | 0.1 |
| Alton Avenue to McGaw Avenue(Columbine) | 23,743 | 74.9 | 24,600 | 75.1 | 24,900 | 75.2 | 0.2 | 0.1 |
| McGaw(Columbine) to MacArthur Boulevard | 28,675 | 75.8 | 29,100 | 75.8 | 29,400 | 75.9 | 0.1 | 0 |
| MacArthur Boulevard to Sunflower Avenue | 30,103 | 76.0 | 30,600 | 76.1 | 30,800 | 76.1 | 0.1 | 0 |
| McGaw Avenue (Alton) | | | | | | | | |
| Main Street to Halladay Street | 3,092 | 66.1 | 3,100 | 66.1 | 3,100 | 66.1 | 0 | 0 |
| Segerstrom Avenue | | | | | | | | |
| Bristol Street to Flower Street | 11,560 | 70.8 | 12,200 | 71.1 | 12,400 | 71.1 | 0.3 | 0.1 |
| Flower Street to Main Street | 18,676 | 72.9 | 19,600 | 73.1 | 19,800 | 73.2 | 0.3 | 0 |
| Warner Avenue | | | | | | | | |
| Grand Avenue to SR-55 | 18,190 | 73.8 | 28,900 | 75.8 | 29,200 | 75.8 | 2.1 | 0 |
| Sunflower Avenue | | | | | | | | |
| Bristol Street to Flower Street | 40,204 | 76.2 | 40,500 | 76.3 | 41,100 | 76.3 | 0.1 | 0.1 |
| Flower Street to Anton Boulevard | 18,032 | 72.7 | 18,300 | 72.8 | 18,900 | 73.0 | 0.2 | 0.1 |
| Anton Boulevard to Main Street | 19,454 | 73.1 | 20,600 | 73.3 | 21,400 | 73.5 | 0.4 | 0.2 |
| Browning Avenue | | | | | | | | |
| Walnut Avenue to I-5 | 4,501 | 65.6 | 5,000 | 66.1 | 5,000 | 66.1 | 0.5 | 0 |
| Bryan Avenue | | | | | | | | |
| Newport Boulevard to Red Hill Avenue | 15,300 | 73.0 | 16,200 | 73.3 | 16,200 | 73.3 | 0.2 | 0 |
| Red Hill Avenue to Browning | 16,200 | 73.3 | 17,400 | 73.6 | 17,400 | 73.6 | 0.3 | 0 |
| Browning Avenue to Tustin Ranch Road | 16,700 | 73.4 | 18,400 | 73.8 | 18,500 | 73.9 | 0.4 | 0 |
| Tustin Ranch Road to Jamboree Road | 16,800 | 73.4 | 18,400 | 73.8 | 18,400 | 73.8 | 0.4 | 0 |

Noise

| | Existing Y | ear 2008 | Year 2015 Wi | thout Project | Year 2015 W | lith Project | Increase | in dBA |
|---------------------------------------|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Edinger Avenue | | , | | | | , | | |
| West of Newport Avenue | 34,312 | 77.5 | 40,800 | 78.2 | 40,900 | 78.3 | 0.8 | 0 |
| Newport Avenue to Red Hill Avenue | 20,215 | 75.2 | 22,200 | 75.6 | 22,300 | 75.6 | 0.4 | 0 |
| Red Hill Avenue and Tustin Ranch Road | 22,340 | 76.5 | 25,800 | 77.1 | 26,000 | 77.2 | 0.7 | 0 |
| El Camino Real | | | | | | | | |
| Newport Avenue to Red Hill Avenue | 13,735 | 71.6 | 13,700 | 71.6 | 13,700 | 71.6 | 0 | 0 |
| Red Hill Avenue to Browning Avenue | 8,973 | 69.7 | 10,800 | 70.5 | 10,800 | 70.5 | 0.8 | 0 |
| Browning Avenue to Tustin Ranch Road | 8,392 | 69.4 | 9,500 | 70.0 | 9,500 | 70.0 | 0.5 | 0 |
| Tustin Ranch Road to Jamboree Road | 13,574 | 71.5 | 15,000 | 71.9 | 15,100 | 72.0 | 0.5 | 0 |
| Irvine Center Drive | | | | | | | | |
| Red Hill Avenue to Jamboree Road | 22,340 | 75.6 | 23,300 | 75.8 | 23,600 | 75.9 | 0.2 | 0.1 |
| Jamboree Road to Harvard Avenue | 13,952 | 73.6 | 15,400 | 74.0 | 15,700 | 74.1 | 0.5 | 0.1 |
| Mitchell Avenue | | | <u> </u> | | · · · · · · | | | |
| Newport Avenue to Red Hill Avenue | 7,350 | 66.6 | 7,400 | 66.6 | 7,400 | 66.6 | 0 | 0 |
| Red Hill Avenue to Browning Avenue | 4,417 | 64.4 | 4,400 | 64.4 | 4,400 | 64.4 | 0 | 0 |
| Newport Avenue | | | | | | | | |
| El Camino Real to I-5 | 28,516 | 72.5 | 34,200 | 73.3 | 34,400 | 73.3 | 0.8 | 0 |
| I-5 to Mitchell Avenue | 31,417 | 72.9 | 37,200 | 73.6 | 37,300 | 73.7 | 0.7 | 0 |
| Mitchell Avenue to McFadden Avenue | 29,223 | 72.6 | 35,600 | 73.5 | 35,600 | 73.5 | 0.9 | 0 |
| North of Sycamore Avenue | 9,604 | 67.8 | 19,500 | 70.8 | 19,400 | 70.8 | 3.1 | 0 |
| Valencia Avenue to Edinger Avenue | 18,205 | 70.5 | 27,600 | 72.3 | 27,300 | 72.3 | 1.8 | 0 |
| Nisson Road | | | | | | | | |
| Newport Avenue to Red Hill Avenue | 5,593 | 65.4 | 5,600 | 65.4 | 5,600 | 65.4 | 0 | 0 |
| Red Hill Avenue to Browning Avenue | 3,915 | 63.9 | 4,100 | 64.1 | 4,100 | 64.1 | 0.2 | 0 |
| Red Hill Avenue | | | | | | | | |
| I-5 NB Ramps to El Camino Real | 43,222 | 74.3 | 44,300 | 74.4 | 44,100 | 74.4 | 0.1 | 0 |
| I-5 SB Ramps to I-5 NB Ramps | 38,996 | 73.8 | 41,000 | 74.1 | 40,800 | 74.0 | 0.2 | 0 |
| Nisson Road to I-5 SB | 38,235 | 73.8 | 38,200 | 73.8 | 38,200 | 73.8 | 0 | 0 |

Table 5.9-10 2015 Traffic Noise Levels (dBA CNEL)

| | Existing Y | ear 2008 | Year 2015 Wi | thout Project | Year 2015 V | Vith Project | Increase | in dBA |
|--|----------------|--------------------------|----------------|--------------------------|----------------|--------------------------|--|---|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing (Cumulative Impacts) | Due to the Project (Project Impacts) |
| Nisson Road to Mitchell Avenue | 26,681 | 72.2 | 26,700 | 72.2 | 26,700 | 72.2 | 0 | 0 |
| Mitchell Avenue to Walnut Avenue | 25,830 | 72.1 | 25,800 | 72.1 | 25,800 | 72.1 | 0 | 0 |
| Walnut Avenue to Sycamore Avenue | 27,502 | 73.5 | 23,900 | 72.9 | 23,900 | 72.9 | -0.6 | 0 |
| Sycamore Avenue to Edinger Avenue | 29,957 | 73.9 | 24,600 | 73.0 | 24,600 | 73.0 | -0.9 | 0 |
| Edinger Avenue to Valencia Avenue | 25,507 | 73.2 | 25,500 | 73.2 | 25,500 | 73.2 | 0.0 | 0 |
| Valencia Avenue to Warner Avenue | 26,723 | 75.5 | 26,700 | 75.5 | 26,900 | 75.5 | 0.0 | 0 |
| Warner Avenue to Barranca Parkway/Dyer | 29,570 | 75.9 | 24,900 | 75.2 | 25,300 | 75.2 | -0.7 | 0.1 |
| Sycamore Avenue | | | | | | | | |
| SR-55 NB to Newport Avenue | 9,036 | 67.5 | 9,100 | 67.5 | 9,400 | 67.7 | 0.2 | 0.1 |
| Newport Avenue to Red Hill Avenue | 7,758 | 66.8 | 8,800 | 67.4 | 8,900 | 67.4 | 0.6 | 0 |
| Tustin Ranch Road | | | | | | | | |
| North of I-5 | 32,560 | 76.3 | 42,600 | 77.5 | 42,500 | 77.5 | 1.2 | 0 |
| I-5 to Walnut Avenue | 21,087 | 74.4 | 36,000 | 76.8 | 35,800 | 76.7 | 2.3 | 0 |
| Valencia Avenue | | | | | | | | |
| Newport Avenue to Red Hill Avenue | 3,690 | 65.9 | 10,100 | 70.2 | 10,300 | 70.3 | 4.5 | 0.1 |
| Walnut Avenue | | | | | | | | |
| East of Newport Avenue | 15,375 | 72.1 | 16,700 | 72.4 | 16,800 | 72.4 | 0.4 | 0 |
| East of Red Hill Avenue | 15,579 | 72.1 | 16,100 | 72.3 | 16,100 | 72.3 | 0.1 | 0 |
| West of Tustin Ranch Road | 19,862 | 73.2 | 21,900 | 73.6 | 21,900 | 73.6 | 0.4 | 0 |
| Franklin Avenue to Myford Road | 18,249 | 72.8 | 18,500 | 72.9 | 18,600 | 72.9 | 0.1 | 0 |
| Warner Avenue | | | | | | | | |
| SR-55 to Red Hill Avenue | 13,682 | 72.6 | 27,600 | 75.6 | 28,100 | 75.7 | 3.1 | 0.1 |

Source: FHWA Traffic Noise Prediction Model. Based on traffic volumes obtained from the traffic analysis prepared by Parson Brinkerhoff (December 2009) and speed limits obtained from Google Maps. NB: northbound; SB: southbound; EB: eastbound; WB: westbound

Noise

| | | (UDA CIVLE) | | | | | |
|------------|---|---|---|---|--|------------------------|--|
| | | Post-Year 20 | 030 Without | Post-Year 1 | 2030 With | | _ |
| Existing Y | ear 2008 | Proj | ect | Proj | ect | Increase | in dBA |
| ANT | CNEL (dRA @ | ANT | CNEL (dR4 @ | ΔNT | CNEL (dRA @ | From | Due to the |
| | | | | | | | Project |
| | , | | , | | | | , |
| 7,620 | 67.9 | 10,100 | 69.1 | 10,200 | 69.2 | 1.3 | 0 |
| | | | | | | | |
| 23,497 | 73.9 | 29,600 | 74.9 | 30,100 | 75.0 | 1.1 | 0.1 |
| 27,498 | 74.6 | 36,300 | 75.8 | 37,000 | 75.9 | 1.3 | 0.1 |
| 24,275 | 74.0 | 37,800 | 76.0 | 38,200 | 76.0 | 2.0 | 0 |
| 13,718 | 71.6 | 21,500 | 73.5 | 22,000 | 73.6 | 2.1 | 0.1 |
| 4,699 | 66.9 | 6,200 | 68.1 | 6,200 | 68.1 | 1.2 | 0 |
| | | | | | | | |
| 17,577 | 72.6 | 19,900 | 73.2 | 20,100 | 73.2 | 0.6 | 0 |
| | | | | | | | |
| 35,789 | 75.7 | 40,400 | 76.3 | 41,200 | 76.3 | 0.6 | 0.1 |
| 38,850 | 76.1 | 44,200 | 76.6 | 45,000 | 76.7 | 0.6 | 0.1 |
| 22,305 | 73.7 | 25,300 | 74.2 | 25,600 | 74.3 | 0.6 | 0.1 |
| 42,108 | 76.4 | 44,400 | 76.7 | 45,300 | 76.7 | 0.3 | 0.1 |
| 62,602 | 78.2 | 69,500 | 78.6 | 70,500 | 78.7 | 0.5 | 0.1 |
| 63,048 | 78.2 | 69,900 | 78.6 | 71,000 | 78.7 | 0.5 | 0.1 |
| 40,727 | | 50,600 | 77.2 | 51,100 | | 1.0 | 0 |
| 34,095 | | 40,400 | | 41,000 | | 0.8 | 0.1 |
| 24,713 | 74.1 | 25,100 | 74.2 | 25,600 | 74.3 | 0.2 | 0.1 |
| 20,914 | 73.4 | 23,000 | 73.8 | 23,700 | 73.9 | 0.5 | 0.1 |
| | | | | | | | |
| 12,232 | 71.1 | 18,300 | 72.8 | 18,800 | 72.9 | 1.9 | 0.1 |
| 7,069 | 68.7 | 12,900 | 71.3 | 13,200 | 71.4 | 2.7 | 0.1 |
| | ADT Volumes 7,620 23,497 27,498 24,275 13,718 4,699 17,577 35,789 38,850 22,305 42,108 62,602 63,048 40,727 34,095 24,713 20,914 | Existing Year 2008 ADT Volumes CNEL (dBA @ 50 ft) 7,620 67.9 23,497 73.9 27,498 74.6 24,275 74.0 13,718 71.6 4,699 66.9 35,789 75.7 38,850 76.1 22,305 73.7 42,108 76.4 62,602 78.2 63,048 78.2 40,727 76.3 34,095 75.5 24,713 74.1 20,914 73.4 | Existing Year 2008 ADT (dBA @ ADT Volumes) 7,620 67.9 10,100 23,497 73.9 29,600 27,498 74.6 36,300 24,275 74.0 37,800 13,718 71.6 21,500 4,699 66.9 6,200 17,577 72.6 19,900 35,789 75.7 40,400 38,850 76.1 44,200 22,305 73.7 25,300 42,108 76.4 44,400 62,602 78.2 69,500 63,048 78.2 69,900 40,727 76.3 50,600 34,095 75.5 40,400 24,713 74.1 25,100 20,914 73.4 23,000 | Post-Year 2030 Without Project ADT Volumes CNEL (dBA @ 50 ft) ADT Volumes CNEL (dBA @ 50 ft) 7,620 67.9 10,100 69.1 23,497 73.9 29,600 74.9 27,498 74.6 36,300 75.8 24,275 74.0 37,800 76.0 13,718 71.6 21,500 73.5 4,699 66.9 6,200 68.1 17,577 72.6 19,900 73.2 35,789 75.7 40,400 76.3 38,850 76.1 44,200 76.6 22,305 73.7 25,300 74.2 42,108 76.4 44,400 76.7 62,602 78.2 69,500 78.6 63,048 78.2 69,900 76.6 40,727 76.3 50,600 77.2 34,095 75.5 40,400 76.3 24,713 74.1 25,100 74.2 20,914 <t< td=""><td> Post-Year 2030 Without Project P</td><td> Post-Year 2030 Without</td><td>Existing Year 2008 Post-Year 2030 Without Project Post-Year 2030 With Project Increase ADT Volumes CNEL (dBA @ 50 ft) ADT (dBA @ 50 ft) ADT Volumes CNEL (dBA @ 50 ft) From Existing 7,620 67.9 10,100 69.1 10,200 69.2 1.3 23,497 73.9 29,600 74.9 30,100 75.0 1.1 27,498 74.6 36,300 75.8 37,000 75.9 1.3 24,275 74.0 37,800 76.0 38,200 76.0 2.0 13,718 71.6 21,500 73.5 22,000 73.6 2.1 4,699 66.9 6,200 68.1 6,200 68.1 1.2 17,577 72.6 19,900 73.2 20,100 73.2 0.6 33,789 75.7 40,400 76.3 41,200 76.3 0.6 42,108 76.4 44,200 76.6 45,000 76.7 0.6 42,108 76.4</td></t<> | Post-Year 2030 Without Project P | Post-Year 2030 Without | Existing Year 2008 Post-Year 2030 Without Project Post-Year 2030 With Project Increase ADT Volumes CNEL (dBA @ 50 ft) ADT (dBA @ 50 ft) ADT Volumes CNEL (dBA @ 50 ft) From Existing 7,620 67.9 10,100 69.1 10,200 69.2 1.3 23,497 73.9 29,600 74.9 30,100 75.0 1.1 27,498 74.6 36,300 75.8 37,000 75.9 1.3 24,275 74.0 37,800 76.0 38,200 76.0 2.0 13,718 71.6 21,500 73.5 22,000 73.6 2.1 4,699 66.9 6,200 68.1 6,200 68.1 1.2 17,577 72.6 19,900 73.2 20,100 73.2 0.6 33,789 75.7 40,400 76.3 41,200 76.3 0.6 42,108 76.4 44,200 76.6 45,000 76.7 0.6 42,108 76.4 |

| | Existing Y | ear 2008 | Post-Year 20 Proj | | Post-Year . Proj | | Increase | e in dBA |
|--|----------------|--------------------------|----------------------|--------------------------|---------------------|--------------------------|------------------|-----------------------|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing | Due to the Project |
| Flower Street | | | | | | | | |
| Segerstrom Avenue to MacArthur Boulevard | 9,756 | 70.1 | 11,500 | 70.8 | 11,800 | 70.9 | 0.8 | 0.1 |
| MacArthur Boulevard to Sunflower Avenue | 8,180 | 69.3 | 13,100 | 71.4 | 13,300 | 71.4 | 2.1 | 0.1 |
| Sunflower Avenue to Anton Boulevard | 6,193 | 68.1 | 9,300 | 69.9 | 9,300 | 69.9 | 1.8 | 0 |
| Main Street | | | | | | | | |
| Sunflower Avenue to SR-55 | 20,195 | 73.2 | 24,400 | 74.1 | 27,200 | 74.5 | 1.3 | 0.5 |
| Mesa Drive | | | | | | | | |
| Newport Boulevard SB to Newport Boulevard NB | 5,469 | 67.6 | 4,900 | 67.1 | 4,900 | 67.1 | -0.5 | 0 |
| Newport Boulevard NB to Santa Ana Avenue | 5,674 | 67.7 | 4,800 | 67.0 | 4,700 | 66.9 | -0.8 | -0.1 |
| Irvine Avenue to Birch Street | 8,487 | 69.5 | 13,400 | 71.5 | 13,900 | 71.6 | 2.1 | 0.2 |
| Paularino Avenue | | | | | | | | |
| Bear Street to Bristol Street | 7,632 | 66.8 | 8,400 | 67.2 | 8,500 | 67.2 | 0.5 | 0.1 |
| Bristol Street to SR-55 SB | 16,284 | 70.1 | 21,600 | 71.3 | 21,600 | 71.3 | 1.2 | 0 |
| SR-55 SB to SR-55 NB | 15,141 | 69.7 | 23,500 | 71.6 | 23,800 | 71.7 | 2.0 | 0.1 |
| SR-55 NB to Red Hill Avenue | 3,967 | 63.9 | 7,400 | 66.6 | 7,500 | 66.7 | 2.8 | 0.1 |
| Red Hill Avenue to Airway Avenue | 10,781 | 68.3 | 17,300 | 70.3 | 17,300 | 70.3 | 2.1 | 0 |
| Red Hill Avenue | | | | | | | | |
| Main Street to Paularino Avenue | 16,060 | 72.2 | 19,300 | 73.0 | 20,800 | 73.4 | 1.1 | 0.3 |
| Paularino Avenue to Baker Street | 15,961 | 72.2 | 21,000 | 73.4 | 21,900 | 73.6 | 1.4 | 0.2 |
| Baker Street to Bristol Street | 14,182 | 71.7 | 23,500 | 73.9 | 23,900 | 74.0 | 2.3 | 0.1 |
| Santa Ana Avenue | | | | | | | | |
| Mesa Drive to Bristol Street | 9,020 | 67.5 | 9,000 | 67.5 | 9,000 | 67.5 | 0 | 0 |
| University Drive | | | | | | | | |
| Santa Ana Avenue to Irvine Avenue | 5,684 | 68.7 | 10,300 | 71.3 | 11,000 | 71.6 | 2.9 | 0.3 |

| | Existing Y | ear 2008 | Post-Year 20 Proi | | Post-Year 2 Proi | | Increase | ase in dBA | |
|---------------------------------------|----------------|--------------------------|----------------------|--------------------------|---------------------|--------------------------|------------------|------------|--|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing | Due to the | |
| Alton Parkway | | , , | <u>'</u> | | | | <u> </u> | , | |
| Daimler Street to Red Hill Avenue | 4,578 | 67.8 | 4,600 | 67.8 | 6,500 | 69.3 | 1.5 | 1.5 | |
| Red Hill Avenue to Von Karman Avenue | 12,332 | 72.1 | 13,200 | 72.4 | 14,700 | 72.9 | 0.8 | 0.5 | |
| Von Karman Avenue to Jamboree Road | 14,649 | 72.9 | 16,800 | 73.4 | 18,100 | 73.8 | 0.9 | 0.3 | |
| Jamboree Road to Murphy Avenue | 15,133 | 73.0 | 17,600 | 73.6 | 19,100 | 74.0 | 1.0 | 0.4 | |
| Murphy Avenue to Harvard Avenue | 15,645 | 73.1 | 18,100 | 73.8 | 19,800 | 74.2 | 1.0 | 0.4 | |
| Harvard Avenue to Paseo Westpark | 15,465 | 73.1 | 17,300 | 73.6 | 18,600 | 73.9 | 0.8 | 0.3 | |
| Paseo Westpark to San Marino | 12,620 | 72.2 | 14,400 | 72.8 | 15,400 | 73.1 | 0.9 | 0.3 | |
| San Marino to Culver Drive | 21,617 | 74.5 | 24,000 | 75.0 | 25,100 | 75.2 | 0.6 | 0.2 | |
| Barranca Parkway (Dyer) | | | | | | | | | |
| Pullman to Red Hill Avenue | 24,454 | 75.1 | 28,000 | 75.7 | 30,500 | 76.0 | 1.0 | 0.4 | |
| Red Hill Avenue to Armstrong | 30,266 | 76.0 | 30,300 | 76.0 | 32,000 | 76.2 | 0.2 | 0.2 | |
| Armstrong to Von Karman Avenue | 29,815 | 75.9 | 29,800 | 75.9 | 31,300 | 76.1 | 0.2 | 0.2 | |
| Von Karman Avenue to Jamboree Road | 22,039 | 74.6 | 22,000 | 74.6 | 23,300 | 74.9 | 0.2 | 0.2 | |
| Jamboree Road to Construction Circle | 24,517 | 75.1 | 28,500 | 75.7 | 30,200 | 76.0 | 0.9 | 0.3 | |
| Construction Circle to Harvard Avenue | 21,003 | 74.4 | 25,000 | 75.2 | 26,300 | 75.4 | 1.0 | 0.2 | |
| Harvard Avenue to Paseo Westpark | 19,905 | 74.2 | 23,900 | 75.0 | 24,800 | 75.1 | 1.0 | 0.2 | |
| Paseo Westpark to Santa Rosa | 21,004 | 74.4 | 26,400 | 75.4 | 27,400 | 75.6 | 1.2 | 0.2 | |
| Santa Rosa to Culver Drive | 21,643 | 74.5 | 26,000 | 75.3 | 26,900 | 75.5 | 0.9 | 0.1 | |
| Bryan Avenue | | | | | | | | | |
| Jamboree Road to Marketplace | 21,001 | 74.4 | 25,300 | 75.2 | 25,400 | 75.2 | 0.8 | 0 | |
| Marketplace to El Camino Real | 17,921 | 73.7 | 23,200 | 74.8 | 23,100 | 74.8 | 1.1 | 0 | |
| El Camino Real to Rubicon | 14,726 | 72.9 | 20,100 | 74.2 | 20,000 | 74.2 | 1.3 | 0 | |
| Rubicon to Culver Drive | 18,343 | 73.8 | 26,300 | 75.4 | 26,400 | 75.4 | 1.6 | 0 | |
| Campus Drive | | | | | | | | | |
| MacArthur Boulevard to Martin | 16,279 | 71.2 | 18,900 | 71.9 | 22,500 | 72.6 | 1.4 | 0.8 | |
| Martin to Von Karman Avenue | 12,892 | 70.2 | 15,900 | 71.1 | 18,000 | 71.7 | 1.4 | 0.5 | |
| Von Karman Avenue to Teller Avenue | 11,823 | 69.8 | 15,000 | 70.9 | 16,600 | 71.3 | 1.5 | 0.4 | |

| | Friating V | 700# 2000 | Post-Year 20 | | Post-Year 2 | | Inorooo | in dDA |
|---|------------|-----------|--------------|--------|-------------|--------|----------|------------|
| | Existing Y | * | Proj | | Proje | | Increase | III UBA |
| | | CNEL | | CNEL | | CNEL | _ | |
| 0 | ADT | (dBA @ | ADT | (dBA @ | ADT | (dBA @ | From | Due to the |
| Segment | Volumes | 50 ft) | Volumes | 50 ft) | Volumes | 50 ft) | Existing | Project |
| Teller Avenue to Jamboree Road | 10,315 | 69.2 | 13,200 | 70.3 | 14,100 | 70.6 | 1.4 | 0.3 |
| Jamboree Road to Carlson Avenue | 20,089 | 75.2 | 28,800 | 76.7 | 30,300 | 76.9 | 1.8 | 0.2 |
| Carlson Avenue to University Drive | 18,247 | 74.7 | 31,100 | 77.1 | 32,100 | 77.2 | 2.5 | 0.1 |
| Carlson Avenue | | | | | | | | |
| Michelson Drive to Campus Drive | 3,901 | 68.0 | 5,700 | 69.7 | 6,800 | 70.5 | 2.4 | 0.8 |
| Culver Drive | | | | | | · | | |
| I-5 NB Ramps to I-5 SB Ramps | 36,738 | 76.8 | 45,200 | 77.7 | 45,300 | 77.8 | 0.9 | 0 |
| I-5 SB Off-Ramp to Scottsdale Drive | 49,687 | 78.2 | 57,200 | 78.8 | 57,600 | 78.8 | 0.6 | 0 |
| Scottsdale Drive to Walnut Avenue | 44,077 | 77.6 | 51,300 | 78.3 | 51,900 | 78.3 | 0.7 | 0.1 |
| Walnut Avenue to Deerfield Avenue | 42,201 | 77.4 | 48,200 | 78.0 | 48,500 | 78.1 | 0.6 | 0 |
| Deerfield Avenue to Irvine Center Drive | 38,904 | 77.1 | 42,600 | 77.5 | 43,100 | 77.5 | 0.4 | 0.1 |
| Irvine Center Drive to Warner Avenue | 41,580 | 77.4 | 46,600 | 77.9 | 47,400 | 78.0 | 0.6 | 0.1 |
| Warner Avenue to Barranca Parkway | 40,870 | 77.3 | 47,100 | 77.9 | 48,300 | 78.0 | 0.7 | 0.1 |
| Barranca Parkway to Alton Parkway | 44,253 | 77.7 | 51,300 | 78.3 | 52,900 | 78.4 | 0.8 | 0.1 |
| Alton Parkway to Main Street | 45,204 | 77.7 | 51,700 | 78.3 | 53,600 | 78.5 | 0.7 | 0.2 |
| Main Street to San Leandro | 49,711 | 78.2 | 52,700 | 78.4 | 54,300 | 78.5 | 0.4 | 0.1 |
| San Leandro to I-405 NB On-Ramp | 54,428 | 78.6 | 58,800 | 78.9 | 60,500 | 79.0 | 0.5 | 0.1 |
| I-405 SB On-Ramp to Michelson Drive | 53,319 | 78.5 | 59,400 | 78.9 | 61,700 | 79.1 | 0.6 | 0.2 |
| Michelson Drive to Sandburg Way | 39,658 | 77.2 | 46,600 | 77.9 | 46,800 | 77.9 | 0.7 | 0 |
| Sandburg Way to University Drive | 32,408 | 76.3 | 38,700 | 77.1 | 39,000 | 77.1 | 0.8 | 0 |
| El Camino Real | | | | | | | | |
| Jamboree Road to Alliance | 20,876 | 73.4 | 24,700 | 74.1 | 24,600 | 74.1 | 0.7 | 0 |
| Fairchild Road | | | | | | | | |
| MacArthur Boulevard to Jamboree Road | 4,393 | 67.6 | 5,500 | 68.6 | 5,800 | 68.8 | 1.2 | 0.2 |
| Harvard Avenue | | | | | | | | |
| Walnut Avenue to Poplar Street | 9,179 | 70.8 | 11,500 | 71.8 | 11,800 | 71.9 | 1.1 | 0.1 |
| Poplar Street to Deerfield Avenue | 11,387 | 71.8 | 13,900 | 72.6 | 14,300 | 72.7 | 1.0 | 0.1 |
| Deerfield Avenue to Irvine Center Drive | 10,273 | 71.3 | 12,900 | 72.3 | 13,200 | 72.4 | 1.1 | 0.1 |

| | | | Post-Year 20 | 030 Without | Post-Year 2 | 2030 With | | |
|--|------------|----------|--------------|-------------|-------------|-----------|----------|------------|
| | Existing Y | ear 2008 | Proj | | Proj | | Increase | e in dBA |
| | | CNEL | 113) | CNEL | 1.9 | CNEL | | |
| | ADT | (dBA @ | ADT | (dBA @ | ADT | (dBA @ | From | Due to the |
| Segment | Volumes | 50 ft) | Volumes | 50 ft) | Volumes | 50 ft) | Existing | Project |
| Irvine Center Drive to Paseo Westpark | 12,508 | 72.2 | 14,800 | 72.9 | 15,700 | 73.2 | 1.0 | 0.3 |
| Paseo Westpark to Warner Avenue | 11,065 | 71.6 | 15,400 | 73.1 | 16,100 | 73.3 | 1.6 | 0.2 |
| Warner to Barranca Parkway | 12,686 | 72.2 | 17,100 | 73.5 | 17,700 | 73.7 | 1.4 | 0.1 |
| Barranca Parkway to San Juan | 15,295 | 73.0 | 18,200 | 73.8 | 19,200 | 74.0 | 1.0 | 0.2 |
| San Juan to San Leon | 14,888 | 72.9 | 17,000 | 73.5 | 18,300 | 73.8 | 0.9 | 0.3 |
| San Leon to Alton Parkway | 16,362 | 73.3 | 18,700 | 73.9 | 20,100 | 74.2 | 0.9 | 0.3 |
| Alton Parkway to San Marino | 18,655 | 73.9 | 21,700 | 74.6 | 23,300 | 74.9 | 1.0 | 0.3 |
| San Marino to Main Street | 19,291 | 74.0 | 22,500 | 74.7 | 24,300 | 75.0 | 1.0 | 0.3 |
| Main Street to Coronado | 13,552 | 72.5 | 15,300 | 73.0 | 16,800 | 73.4 | 0.9 | 0.4 |
| Coronado to Michelson Drive | 20,167 | 74.2 | 22,900 | 74.8 | 25,100 | 75.2 | 1.0 | 0.4 |
| Michelson Drive to University Drive | 8,672 | 70.6 | 10,800 | 71.5 | 11,700 | 71.9 | 1.3 | 0.3 |
| Irvine Center Drive | | | | | | | | |
| Harvard Avenue to Hearthstone | 17,848 | 73.7 | 26,900 | 75.5 | 27,000 | 75.5 | 1.8 | 0 |
| Hearthstone to Culver Drive | 15,815 | 73.2 | 25,500 | 75.3 | 25,700 | 75.3 | 2.1 | 0 |
| Jamboree Road | | | | | | | | |
| Bryan Avenue to El Camino Real | 39,163 | 77.1 | 41,200 | 77.3 | 41,300 | 77.4 | 0.2 | 0 |
| El Camino Real to I-5 NB On-Ramp | 61,511 | 79.1 | 63,900 | 79.2 | 64,200 | 79.3 | 0.2 | 0 |
| I-5 NB Ramps to I-5 SB Off-Ramp | 65,707 | 79.4 | 70,200 | 79.7 | 69,700 | 79.6 | 0.3 | 0 |
| I-5 SB Off-Ramp to Michelle Drive | 57,976 | 78.8 | 64,300 | 79.3 | 63,300 | 79.2 | 0.4 | -0.1 |
| Michelle Drive to Walnut Avenue | 54,497 | 78.6 | 59,400 | 78.9 | 61,000 | 79.0 | 0.5 | 0.1 |
| Walnut Ave to Edinger Ave (& Frontage Roads) | 71,936 | 79.8 | 95,600 | 81.0 | 99,300 | 81.2 | 1.4 | 0.2 |
| Edinger Avenue to Warner Avenue* | 78,493 | 80.1 | 83,500 | 80.4 | 87,300 | 80.6 | 0.5 | 0.2 |
| Warner Avenue to Barranca Parkway | 69,451 | 79.6 | 77,800 | 80.1 | 81,500 | 80.3 | 0.7 | 0.2 |
| Barranca Parkway to Beckman Avenue | 50,727 | 78.2 | 56,700 | 78.7 | 61,400 | 79.1 | 0.8 | 0.3 |
| Beckman Avenue to Alton Parkway | 49,220 | 78.1 | 54,500 | 78.6 | 59,700 | 79.0 | 0.8 | 0.4 |
| Alton Parkway to McGaw Avenue | 46,536 | 77.9 | 50,900 | 78.3 | 56,500 | 78.7 | 0.8 | 0.5 |
| McGaw Avenue to Kelvin Avenue | 45,004 | 77.7 | 49,300 | 78.1 | 55,500 | 78.6 | 0.9 | 0.5 |

| | | | Doot Voor 20 | 000 14:46 | Doot Voor | 2020 14:46 | | |
|---------------------------------------|------------|--------|--------------|-----------|-------------|------------|----------|------------|
| | Frieding V | 2000 | Post-Year 20 | | Post-Year 2 | | Imaraaa | a in alDA |
| | Existing Y | | Proj | | Proj | | Increase | e III aba |
| | | CNEL | | CNEL | | CNEL | | |
| | ADT | (dBA @ | ADT | (dBA @ | ADT | (dBA @ | From | Due to the |
| Segment | Volumes | 50 ft) | Volumes | 50 ft) | Volumes | 50 ft) | Existing | Project |
| Kelvin Avenue to Main Street | 53,259 | 78.5 | 57,900 | 78.8 | 67,300 | 79.5 | 1.0 | 0.7 |
| Main Street to I-405 Off-Ramp | 52,524 | 78.4 | 55,300 | 78.6 | 63,900 | 79.2 | 0.9 | 0.6 |
| I-405 On-Ramp to Michelson Drive | 69,470 | 79.6 | 74,800 | 79.9 | 90,600 | 80.8 | 1.2 | 0.8 |
| Michelson Drive to Dupont Drive | 51,529 | 78.3 | 56,500 | 78.7 | 65,400 | 79.3 | 1.0 | 0.6 |
| Dupont Drive to Campus Drive | 45,645 | 77.8 | 51,800 | 78.3 | 55,700 | 78.7 | 0.9 | 0.3 |
| Campus Drive to Birch Street | 40,300 | 77.2 | 46,200 | 77.8 | 51,500 | 78.3 | 1.1 | 0.5 |
| Birch Street to Fairchild Road | 32,438 | 76.3 | 37,800 | 77.0 | 41,700 | 77.4 | 1.1 | 0.4 |
| Fairchild Road to Koll Center | 33,237 | 76.4 | 37,900 | 77.0 | 42,700 | 77.5 | 1.1 | 0.5 |
| Koll Center to MacArthur Boulevard | 26,722 | 75.5 | 29,600 | 75.9 | 33,200 | 76.4 | 0.9 | 0.5 |
| MacArthur Boulevard | | | | | | | | |
| Fitch to Red Hill Avenue | 35,926 | 76.7 | 38,200 | 77.0 | 43,300 | 77.6 | 0.8 | 0.5 |
| Red Hill Avenue to Skypark Boulevard | 15,788 | 73.2 | 16,800 | 73.4 | 18,800 | 73.9 | 0.8 | 0.5 |
| Skypark Boulevard to Main Street | 25,505 | 75.3 | 27,100 | 75.5 | 30,200 | 76.0 | 0.7 | 0.5 |
| Main Street to I-405 NB Off-Ramp | 33,677 | 76.5 | 37,300 | 76.9 | 42,000 | 77.4 | 1.0 | 0.5 |
| I-405 SB On-Ramp to Michelson Drive | 48,662 | 78.1 | 53,100 | 78.4 | 60,800 | 79.0 | 1.0 | 0.6 |
| Michelson Drive to Douglass | 40,604 | 77.3 | 45,900 | 77.8 | 50,200 | 78.2 | 0.9 | 0.4 |
| Douglass to Campus Drive | 33,358 | 76.4 | 38,500 | 77.0 | 39,300 | 77.1 | 0.7 | 0.1 |
| Jamboree Road to Fairchild Road | 30,151 | 76.0 | 37,100 | 76.9 | 38,300 | 77.0 | 1.0 | 0.1 |
| Fairchild Road to University Drive | 34,000 | 76.5 | 44,000 | 77.6 | 45,400 | 77.8 | 1.3 | 0.1 |
| Main Street | | | | | | | | |
| McDurmott to Red Hill Avenue | 18,121 | 73.8 | 21,600 | 74.5 | 24,200 | 75.0 | 1.3 | 0.5 |
| Red Hill Avenue to Executive Park | 16,818 | 73.5 | 18,800 | 73.9 | 20,900 | 74.4 | 0.9 | 0.5 |
| Executive Park to MacArthur Boulevard | 26,160 | 75.4 | 28,700 | 75.8 | 31,700 | 76.2 | 0.8 | 0.4 |
| MacArthur Boulevard to Mercantile | 35,615 | 76.7 | 37,000 | 76.9 | 40,100 | 77.2 | 0.5 | 0.3 |
| Gillette Avenue to Von Karman Avenue | 17,820 | 73.7 | 18,900 | 74.0 | 21,900 | 74.6 | 0.9 | 0.6 |
| Von Karman Avenue to Cartwright | 16,082 | 73.3 | 17,300 | 73.6 | 19,900 | 74.2 | 0.9 | 0.6 |
| Siglo to Jamboree Road | 22,024 | 74.6 | 22,900 | 74.8 | 27,200 | 75.5 | 0.9 | 0.7 |
| Jamboree Road to Union | 19,037 | 74.0 | 19,200 | 74.0 | 21,100 | 74.4 | 0.4 | 0.4 |

| | | | Post-Year 20 | | Post-Year 2 | | _ | |
|--|------------|--------|--------------|--------|-------------|--------|----------|------------|
| | Existing Y | | Proj | | Proj | | Increase | e in dBA |
| | | CNEL | | CNEL | | CNEL | | |
| _ | ADT | (dBA @ | ADT | (dBA @ | ADT | (dBA @ | From | Due to the |
| Segment | Volumes | 50 ft) | Volumes | 50 ft) | Volumes | 50 ft) | Existing | Project |
| Veneto to Harvard Avenue | 10,456 | 71.4 | 10,600 | 71.4 | 11,600 | 71.8 | 0.5 | 0.4 |
| Harvard Avenue to San Mateo | 11,382 | 71.8 | 11,500 | 71.8 | 12,500 | 72.2 | 0.4 | 0.4 |
| Paseo Westpark to Culver Drive | 8,757 | 70.6 | 9,000 | 70.7 | 9,600 | 71.0 | 0.4 | 0.3 |
| McGaw Avenue | | | | | | | | |
| Daimler Street to Red Hill Avenue | 3,630 | 66.8 | 3,700 | 66.9 | 5,600 | 68.7 | 1.9 | 1.8 |
| Red Hill Avenue to Von Karman Avenue | 5,653 | 68.7 | 5,900 | 68.9 | 7,900 | 70.2 | 1.5 | 1.3 |
| Von Karman Avenue to Jamboree Road | 6,451 | 69.3 | 6,900 | 69.6 | 9,000 | 70.7 | 1.4 | 1.2 |
| Jamboree Road to Murphy Avenue | 2,462 | 65.1 | 2,600 | 65.3 | 5,500 | 68.6 | 3.5 | 3.3 |
| Michelson Drive | | | | | | | | |
| MacArthur Boulevard to Dupont Drive | 14,917 | 71.9 | 15,700 | 72.1 | 19,200 | 73.0 | 1.1 | 0.9 |
| Bixby to Von Karman Avenue | 10,836 | 70.5 | 11,900 | 70.9 | 14,500 | 71.8 | 1.3 | 0.9 |
| Von Karman Avenue to Obsidian | 10,559 | 70.4 | 11,500 | 70.8 | 14,600 | 71.8 | 1.4 | 1.0 |
| Teller Avenue to Jamboree Road | 17,973 | 72.7 | 19,200 | 73.0 | 22,300 | 73.7 | 0.9 | 0.7 |
| Jamboree Road to Carlson Avenue | 14,864 | 71.9 | 17,000 | 72.5 | 23,400 | 73.9 | 2.0 | 1.4 |
| Carlson Avenue to Prince | 16,704 | 72.4 | 18,100 | 72.8 | 25,900 | 74.3 | 1.9 | 1.6 |
| Riparian View to Harvard Avenue | 16,553 | 72.4 | 17,300 | 72.6 | 22,400 | 73.7 | 1.3 | 1.1 |
| Harvard Avenue to Parkside Drive | 11,741 | 70.9 | 12,600 | 71.2 | 14,400 | 71.8 | 0.9 | 0.6 |
| Parkside Drive to Culver Drive | 16,629 | 72.4 | 17,900 | 72.7 | 20,400 | 73.3 | 0.9 | 0.6 |
| Red Hill Avenue | | | | | | | | |
| Dyer/Barranca Parkway to Deere Avenue | 26,611 | 75.4 | 30,700 | 76.1 | 34,600 | 76.6 | 1.1 | 0.5 |
| Deere Avenue to Alton Parkway | 26,630 | 75.4 | 30,900 | 76.1 | 35,000 | 76.6 | 1.2 | 0.5 |
| Alton Parkway to McGaw Avenue | 26,216 | 75.4 | 32,900 | 76.4 | 37,800 | 77.0 | 1.6 | 0.6 |
| McGaw Avenue to MacArthur Boulevard | 34,187 | 76.5 | 40,500 | 77.3 | 47,100 | 77.9 | 1.4 | 0.7 |
| MacArthur Boulevard to Skypark | 9,780 | 71.1 | 13,000 | 72.3 | 14,900 | 72.9 | 1.8 | 0.6 |
| Skypark to Main Street | 12,554 | 72.2 | 17,000 | 73.5 | 19,500 | 74.1 | 1.9 | 0.6 |
| University Drive | | | | | | | | |
| MacArthur Boulevard to California Avenue | 23,581 | 75.9 | 37,100 | 77.8 | 38,000 | 77.9 | 2.1 | 0.1 |
| California Avenue to Mesa Road | 32,837 | 77.3 | 43,700 | 78.5 | 45,000 | 78.7 | 1.4 | 0.1 |

| | Existing Y | ear 2008 | Post-Year 20 Proi | | Post-Year 2 Proj | | Increase | e in dRA |
|--|----------------|--------------------------|----------------------|--------------------------|---------------------|--------------------------|------------------|-----------------------|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing | Due to the Project |
| Mesa Road to Campus Drive | 33,673 | 75.5 | 43,700 | 76.6 | 44,700 | 76.7 | 1.2 | 0.1 |
| Campus Drive to Harvard Avenue | 26,248 | 74.4 | 35,400 | 75.7 | 36,700 | 75.8 | 1.5 | 0.2 |
| Harvard Avenue to San Joaquin Hills Road | 21,301 | 75.4 | 33,100 | 77.3 | 33,400 | 77.4 | 2.0 | 0.0 |
| San Joaquin Hills Road to Culver Drive | 21,676 | 75.5 | 33,100 | 77.3 | 33,400 | 77.4 | 1.9 | 0.0 |
| Von Karman Avenue | , , | | , , | | , | | | |
| Barranca Parkway to Alton Parkway | 16,770 | 72.4 | 28,300 | 74.7 | 31,400 | 75.2 | 2.7 | 0.5 |
| Alton Parkway to McGaw Avenue | 16,349 | 72.3 | 21,500 | 73.5 | 24,400 | 74.1 | 1.7 | 0.5 |
| McGaw Avenue to Anchor | 17,271 | 72.6 | 21,200 | 73.5 | 24,100 | 74.0 | 1.4 | 0.6 |
| Anchor to Main Street | 17,763 | 72.7 | 21,600 | 73.5 | 24,600 | 74.1 | 1.4 | 0.6 |
| Main Street to Morse Avenue | 18,765 | 72.9 | 21,500 | 73.5 | 25,600 | 74.3 | 1.3 | 0.8 |
| Quartz to Michelson Drive | 20,193 | 73.2 | 23,600 | 73.9 | 27,900 | 74.6 | 1.4 | 0.7 |
| Michelson Drive to Dupont Drive | 16,840 | 72.5 | 19,500 | 73.1 | 22,600 | 73.7 | 1.3 | 0.6 |
| Dupont Drive to Martin | 16,346 | 72.3 | 19,200 | 73.0 | 22,400 | 73.7 | 1.4 | 0.7 |
| Martin to Campus Drive | 14,234 | 71.7 | 17,300 | 72.6 | 19,400 | 73.1 | 1.3 | 0.5 |
| Walnut Avenue | | | | | | | | |
| Myford to Jamboree SB Off-Ramp | 21,169 | 73.4 | 22,000 | 73.6 | 22,200 | 73.7 | 0.2 | 0 |
| Jamboree Road to Peters Canyon | 18,580 | 72.9 | 23,100 | 73.8 | 23,000 | 73.8 | 0.9 | 0 |
| Peters Canyon to Harvard Avenue | 18,125 | 72.8 | 21,700 | 73.6 | 21,900 | 73.6 | 0.8 | 0 |
| Harvard Avenue to Mall Street | 16,040 | 72.2 | 19,400 | 73.1 | 19,500 | 73.1 | 0.8 | 0 |
| Mall Street to Culver Drive | 20,951 | 73.4 | 25,900 | 74.3 | 25,900 | 74.3 | 0.9 | 0 |
| Warner Avenue | | | • | | · | | | |
| Construction North to Harvard Avenue | 8,225 | 69.3 | 14,500 | 71.8 | 14,700 | 71.9 | 2.5 | 0.1 |
| Harvard Avenue to Paseo Westpark | 5,766 | 67.8 | 9,300 | 69.9 | 9,300 | 69.9 | 2.1 | 0 |
| Santa Ynez to Culver Drive | 6,493 | 68.3 | 10,300 | 70.3 | 10,300 | 70.3 | 2.0 | 0 |
| Birch Street | | | | | | | | |
| Mesa Drive to Bristol Street SB | 10,372 | 69.3 | 20,400 | 72.2 | 21,000 | 72.3 | 3.1 | 0.1 |
| Bristol Street SB to Bristol Street NB | 15,579 | 71.0 | 24,200 | 72.9 | 24,800 | 73.0 | 2.0 | 0.1 |
| East of MacArthur Boulevard | 20,327 | 72.2 | 25,800 | 73.2 | 27,000 | 73.4 | 1.2 | 0.2 |

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| | Existing Y | ear 2008 | Post-Year 20 Proj | | Post-Year 2 Proj | | Increase | e in dBA |
|--|----------------|--------------------------|----------------------|--------------------------|---------------------|--------------------------|------------------|-----------------------|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing | Due to the Project |
| West of MacArthur Boulevard | 11,707 | 69.8 | 16,500 | 71.3 | 17,400 | 71.5 | 1.7 | 0.2 |
| East of Von Karman Avenue | 20,327 | 72.2 | 25,200 | 73.1 | 26,800 | 73.4 | 1.2 | 0.3 |
| Bison Avenue | | | | | | | | |
| Jamboree Road to MacArthur Boulevard | 9,087 | 69.8 | 9,900 | 70.1 | 10,100 | 70.2 | 0.5 | 0.1 |
| MacArthur Boulevard to SR-73 | 13,411 | 71.5 | 16,600 | 72.4 | 16,700 | 72.4 | 1.0 | 0 |
| Bristol | | | | | | | | |
| Red Hill Avenue to Campus Drive | 20,119 | 73.2 | 24,300 | 74.0 | 25,600 | 74.3 | 1.0 | 0.2 |
| Campus Drive to Birch Street | 33,382 | 75.4 | 39,600 | 76.2 | 40,600 | 76.3 | 0.9 | 0.1 |
| West of Jamboree Road | 42,491 | 76.5 | 42,500 | 76.5 | 43,200 | 76.5 | 0.1 | 0.1 |
| Campus Drive | | | | | | | | |
| Bristol Street NB to MacArthur Boulevard | 27,671 | 75.6 | 31,200 | 76.1 | 34,400 | 76.6 | 0.9 | 0.4 |
| Ford Road | | | | | | | | |
| Jamboree Road to MacArthur Boulevard | 9,051 | 70.8 | 9,100 | 70.8 | 9,100 | 70.8 | 0 | 0 |
| Irvine Avenue | | | | | | | | |
| Bristol Street NB to Bristol Street SB | 22,879 | 73.8 | 22,900 | 73.8 | 24,400 | 74.1 | 0.3 | 0.3 |
| Bristol Street SB to Mesa Drive | 24,237 | 74.0 | 21,400 | 73.5 | 24,200 | 74.0 | 0 | 0.5 |
| South of University Drive | 22,253 | 73.7 | 22,300 | 73.7 | 22,500 | 73.7 | 0 | 0 |
| Jamboree Road | | | | | | | | |
| South of MacArthur Boulevard | 28,826 | 75.8 | 28,800 | 75.8 | 31,000 | 76.1 | 0.3 | 0.3 |
| Bristol Street SB to Bristol Street NB | 46,597 | 77.9 | 40,300 | 77.2 | 46,600 | 77.9 | 0.0 | 0.6 |
| South of Bristol Street | 48,897 | 78.1 | 36,000 | 76.8 | 37,400 | 76.9 | -1.2 | 0.2 |
| University Drive to Bison Avenue | 42,624 | 77.5 | 35,100 | 76.6 | 36,000 | 76.8 | -0.7 | 0.1 |
| Bison Avenue to Ford Road | 33,614 | 76.5 | 28,500 | 75.7 | 29,400 | 75.9 | -0.6 | 0.1 |
| MacArthur Boulevard | | | | | | | | |
| Campus Drive to Birch Street | 21,187 | 74.5 | 24,100 | 75.0 | 24,500 | 75.1 | 0.6 | 0.1 |
| South of Birch Street | 23,445 | 74.9 | 25,500 | 75.3 | 26,400 | 75.4 | 0.5 | 0.2 |
| Von Karman Avenue to Jamboree Road | 23,568 | 74.9 | 25,900 | 75.3 | 27,500 | 75.6 | 0.7 | 0.3 |

| | Existing Y | ear 2008 | Post-Year 20 Proj | | Post-Year 2 Proj | | Increase | e in dBA |
|--|----------------|--------------------------|----------------------|--------------------------|---------------------|--------------------------|------------------|-----------------------|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing | Due to the Project |
| University Drive to Bison Avenue | 43,429 | 77.6 | 46,400 | 77.9 | 47,100 | 77.9 | 0.4 | 0.1 |
| Bison Avenue to Ford Road | 75,856 | 80.0 | 78,100 | 80.1 | 78,900 | 80.2 | 0.2 | 0 |
| University Drive | | | | | | | | |
| East of Irvine Avenue | 823 | 60.3 | 1,400 | 62.7 | 1,400 | 62.7 | 2.3 | 0 |
| Jamboree Road to MacArthur Boulevard | 14,628 | 72.8 | 19,200 | 74.0 | 19,300 | 74.0 | 1.2 | 0 |
| Von Karman Avenue | | | | | | | | |
| South of Campus Drive | 10,305 | 71.3 | 11,900 | 71.9 | 13,000 | 72.3 | 1.0 | 0.4 |
| South of Birch Street | 11,237 | 71.7 | 12,800 | 72.3 | 14,000 | 72.7 | 1.0 | 0.4 |
| Dyer Road | | | | | | | | |
| Main Street to Halladay Street | 25,688 | 75.3 | 30,900 | 76.1 | 32,000 | 76.2 | 1.0 | 0.2 |
| Halladay Street to SR-55 SB | 30,243 | 76.0 | 33,500 | 76.4 | 35,300 | 76.7 | 0.7 | 0.2 |
| SR-55 SB to SR-55 NB | 43,265 | 77.6 | 46,000 | 77.8 | 49,100 | 78.1 | 0.5 | 0.3 |
| SR-55 NB to Pullman Street | 29,458 | 75.9 | 32,100 | 76.3 | 34,500 | 76.6 | 0.7 | 0.3 |
| Grand Avenue | | | | | · | | | |
| Warner Avenue to Hotel Terrace Drive | 22,946 | 74.8 | 23,000 | 74.8 | 24,200 | 75.0 | 0.2 | 0.2 |
| Hotel Terrace Drive to SR-55 NB | 21,501 | 74.5 | 21,500 | 74.5 | 22,500 | 74.7 | 0.2 | 0.2 |
| Halladay Street | | | | | | | | |
| Dyer Road to Alton Avenue | 4,687 | 64.6 | 4,900 | 64.8 | 5,400 | 65.3 | 0.6 | 0.4 |
| Alton Avenue to McGaw Avenue (Columbine) | 1,748 | 60.4 | 1,600 | 60.0 | 1,700 | 60.2 | -0.1 | 0.3 |
| MacArthur Boulevard | | | | | | | | |
| Flower Street to Main Street | 31,093 | 76.1 | 35,800 | 76.7 | 37,700 | 77.0 | 0.8 | 0.2 |
| Main Street to SR-55 SB | 47,010 | 77.9 | 51,000 | 78.3 | 52,800 | 78.4 | 0.5 | 0.2 |
| Main Street | | | | | | | | |
| Segerstrom Avenue to Alton Avenue | 20,603 | 74.3 | 25,300 | 75.2 | 26,000 | 75.3 | 1.0 | 0.1 |
| Alton Avenue to McGaw Avenue(Columbine) | 23,743 | 74.9 | 28,500 | 75.7 | 29,500 | 75.9 | 0.9 | 0.1 |
| McGaw(Columbine) to MacArthur Boulevard | 28,675 | 75.8 | 29,800 | 75.9 | 30,900 | 76.1 | 0.3 | 0.2 |
| MacArthur Boulevard to Sunflower Avenue | 30,103 | 76.0 | 31,700 | 76.2 | 32,900 | 76.4 | 0.4 | 0.2 |

Noise

| | Existing Y | ear 2008 | Post-Year 20 Proj | | Post-Year 2030 With Project | | Increase in dBA | |
|---------------------------------------|----------------|--------------------------|----------------------|--------------------------|--------------------------------|--------------------------|------------------|-----------------------|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing | Due to the Project |
| McGaw Avenue (Alton) | | | | | | | | |
| Main Street to Halladay Street | 3,092 | 66.1 | 3,900 | 67.1 | 3,900 | 67.1 | 1.0 | 0 |
| Segerstrom Avenue | | | | | | | | |
| Bristol Street to Flower Street | 11,560 | 70.8 | 15,600 | 72.1 | 16,100 | 72.3 | 1.4 | 0.1 |
| Flower Street to Main Street | 18,676 | 72.9 | 23,600 | 73.9 | 24,300 | 74.0 | 1.1 | 0.1 |
| Warner Avenue | | | • | | • | | | |
| Grand Avenue to SR-55 | 18,190 | 73.8 | 34,500 | 76.6 | 35,600 | 76.7 | 2.9 | 0.1 |
| Sunflower Avenue | | | | | | | | |
| Bristol Street to Flower Street | 40,204 | 76.2 | 42,000 | 76.4 | 43,700 | 76.6 | 0.4 | 0.2 |
| Flower Street to Anton Boulevard | 18,032 | 72.7 | 19,600 | 73.1 | 21,400 | 73.5 | 0.7 | 0.4 |
| Anton Boulevard to Main Street | 19,454 | 73.1 | 21,900 | 73.6 | 24,400 | 74.1 | 1.0 | 0.5 |
| Browning Avenue | | | | | | | | |
| Walnut Avenue to I-5 | 4,501 | 65.6 | 6,200 | 67.0 | 6,400 | 67.2 | 1.5 | 0.1 |
| Bryan Avenue | | | | | | | | |
| Newport Boulevard to Red Hill Avenue | 15,300 | 73.0 | 18,800 | 73.9 | 19,000 | 74.0 | 0.9 | 0 |
| Red Hill Avenue to Browning | 16,200 | 73.3 | 18,600 | 73.9 | 18,700 | 73.9 | 0.6 | 0 |
| Browning Avenue to Tustin Ranch Road | 16,700 | 73.4 | 21,100 | 74.4 | 21,200 | 74.5 | 1.0 | 0 |
| Tustin Ranch Road to Jamboree Road | 16,800 | 73.4 | 21,800 | 74.6 | 21,900 | 74.6 | 1.2 | 0 |
| Edinger Avenue | | | | | | | | |
| West of Newport Avenue | 34,312 | 77.5 | 52,300 | 79.3 | 52,800 | 79.4 | 1.9 | 0 |
| Newport Avenue to Red Hill Avenue | 20,215 | 75.2 | 25,900 | 76.3 | 26,300 | 76.3 | 1.1 | 0.1 |
| Red Hill Avenue and Tustin Ranch Road | 22,340 | 76.5 | 31,300 | 78.0 | 31,900 | 78.1 | 1.5 | 0.1 |
| El Camino Real | | | | | | | | |
| Newport Avenue to Red Hill Avenue | 13,735 | 71.6 | 14,400 | 71.8 | 14,700 | 71.9 | 0.3 | 0.1 |
| Red Hill Avenue to Browning Avenue | 8,973 | 69.7 | 9,000 | 69.7 | 9,000 | 69.7 | 0 | 0 |
| Browning Avenue to Tustin Ranch Road | 8,392 | 69.4 | 9,800 | 70.1 | 9,900 | 70.1 | 0.7 | 0 |
| Tustin Ranch Road to Jamboree Road | 13,574 | 71.5 | 15,900 | 72.2 | 16,000 | 72.2 | 0.7 | 0 |

| | Existing Y | ear 2008 | Post-Year 20 Proj | | Post-Year . Proj | | Increase | e in dBA |
|--|----------------|--------------------------|----------------------|--------------------------|---------------------|--------------------------|------------------|-----------------------|
| Segment | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | ADT Volumes | CNEL (dBA @ 50 ft) | From Existing | Due to the Project |
| Irvine Center Drive | | | | | | | | |
| Red Hill Avenue to Jamboree Road | 22,340 | 75.6 | 27,600 | 76.5 | 28,200 | 76.6 | 1.0 | 0.1 |
| Jamboree Road to Harvard Avenue | 13,952 | 73.6 | 18,500 | 74.8 | 18,800 | 74.9 | 1.3 | 0.1 |
| Mitchell Avenue | | | | | | | | |
| Newport Avenue to Red Hill Avenue | 7,350 | 66.6 | 8,200 | 67.1 | 8,000 | 67.0 | 0.4 | -0.1 |
| Red Hill Avenue to Browning Avenue | 4,417 | 64.4 | 5,800 | 65.6 | 5,700 | 65.5 | 1.1 | -0.1 |
| Newport Avenue | | | | | | | | |
| El Camino Real to I-5 | 28,516 | 72.5 | 37,000 | 73.6 | 37,500 | 73.7 | 1.2 | 0.1 |
| I-5 to Mitchell Avenue | 31,417 | 72.9 | 40,100 | 74.0 | 40,600 | 74.0 | 1.1 | 0.1 |
| Mitchell Avenue to McFadden Avenue | 29,223 | 72.6 | 39,100 | 73.9 | 39,900 | 73.9 | 1.4 | 0.1 |
| North of Sycamore Avenue | 9,604 | 67.8 | 22,800 | 71.5 | 23,400 | 71.6 | 3.9 | 0.1 |
| Valencia Avenue to Edinger Avenue | 18,205 | 70.5 | 34,600 | 73.3 | 35,300 | 73.4 | 2.9 | 0.1 |
| Nisson Road | | | | | | | | |
| Newport Avenue to Red Hill Avenue | 5,593 | 65.4 | 6,000 | 65.7 | 6,000 | 65.7 | 0.3 | 0 |
| Red Hill Avenue to Browning Avenue | 3,915 | 63.9 | 5,200 | 65.1 | 5,200 | 65.1 | 1.2 | 0 |
| Red Hill Avenue | | | | | | | | |
| I-5 NB Ramps to El Camino Real | 43,222 | 74.3 | 43,200 | 74.3 | 43,200 | 74.3 | 0 | 0 |
| I-5 SB Ramps to I-5 NB Ramps | 38,996 | 73.8 | 39,000 | 73.8 | 39,000 | 73.8 | 0 | 0 |
| Nisson Road to I-5 SB | 38,235 | 73.8 | 38,200 | 73.8 | 38,200 | 73.8 | 0 | 0 |
| Nisson Road to Mitchell Avenue | 26,681 | 72.2 | 26,700 | 72.2 | 26,700 | 72.2 | 0 | 0 |
| Mitchell Avenue to Walnut Avenue | 25,830 | 72.1 | 26,000 | 72.1 | 26,500 | 72.2 | 0.1 | 0.1 |
| Walnut Avenue to Sycamore Avenue | 27,502 | 73.5 | 27,500 | 73.5 | 27,500 | 73.5 | 0 | 0 |
| Sycamore Avenue to Edinger Avenue | 29,957 | 73.9 | 30,000 | 73.9 | 30,000 | 73.9 | 0 | 0 |
| Edinger Avenue to Valencia Avenue | 25,507 | 73.2 | 28,300 | 73.6 | 29,000 | 73.7 | 0.6 | 0.1 |
| Valencia Avenue to Warner Avenue | 26,723 | 75.5 | 31,600 | 76.2 | 33,400 | 76.4 | 1.0 | 0.2 |
| Warner Avenue to Barranca Parkway/Dyer | 29,570 | 75.9 | 31,800 | 76.2 | 34,400 | 76.6 | 0.7 | 0.3 |

Noise

Table 5.9-11 Post-Year 2030 Traffic Noise Levels (dBA CNEL)

| | | (==== , | | | | | |
|------------|---|--|--|------------------------|---|------------------------|---|
| | | Post-Year 20 | 30 Without | Post-Year 2 | 2030 With | | |
| Existing Y | ear 2008 | Proj | Project | | ect | Increase in dBA | |
| | CNEL | | CNEL | | CNEL | | |
| ADT | (dBA @ | ADT | (dBA @ | ADT | (dBA @ | From | Due to the |
| Volumes | 50 ft) | Volumes | 50 ft) | Volumes | 50 ft) | Existing | Project |
| | | | | | | | |
| 9,036 | 67.5 | 7,400 | 66.6 | 7,500 | 66.7 | -0.8 | 0.1 |
| 7,758 | 66.8 | 8,400 | 67.2 | 8,500 | 67.2 | 0.4 | 0.1 |
| | | | | | | | |
| 32,560 | 76.3 | 38,500 | 77.0 | 38,300 | 77.0 | 0.7 | 0 |
| 21,087 | 74.4 | 36,600 | 76.8 | 36,900 | 76.9 | 2.4 | 0 |
| | | | | | | | |
| 3,690 | 65.9 | 15,900 | 72.2 | 16,500 | 72.4 | 6.5 | 0.2 |
| | | | | | | | |
| 15,375 | 72.1 | 20,800 | 73.4 | 21,000 | 73.4 | 1.4 | 0 |
| 15,579 | 72.1 | 17,400 | 72.6 | 17,500 | 72.6 | 0.5 | 0 |
| 19,862 | 73.2 | 22,500 | 73.7 | 22,700 | 73.7 | 0.6 | 0 |
| 18,249 | 72.8 | 21,000 | 73.4 | 21,200 | 73.5 | 0.7 | 0 |
| | | | | | | | |
| 13,682 | 72.6 | 34,300 | 76.5 | 35,900 | 76.7 | 4.2 | 0.2 |
| | 9,036 7,758 32,560 21,087 3,690 15,375 15,579 19,862 18,249 | Existing Year 2008 ADT Volumes CNEL (dBA @ 50 ft) 9,036 50 ft) 67.5 7,758 66.8 66.8 32,560 76.3 74.4 3,690 65.9 65.9 15,375 72.1 72.1 19,862 73.2 73.2 18,249 72.8 | Post-Year 20 Proj CNEL ADT (dBA @ ADT Volumes 50 ft) Volumes | Post-Year 2030 Without | Existing Year 2008 Project Proj ADT Volumes CNEL (dBA @ ADT Volumes) ADT Volumes ADT Volumes 9,036 67.5 7,400 66.6 7,500 7,758 66.8 8,400 67.2 8,500 66.8 8,400 67.2 8,500 32,560 76.3 38,500 77.0 38,300 21,087 74.4 36,600 76.8 36,900 36,600 76.8 36,900 33,690 65.9 15,900 72.2 16,500 72.2 16,500 15,579 72.1 17,400 72.6 17,500 19,862 73.2 22,500 73.7 22,700 18,249 72.8 21,000 73.4 21,200 | Post-Year 2030 Without | Existing Year 2008 Post-Year 2030 Without Project Post-Year 2030 With Project Increase ADT Volumes (dBA @ 50 ft) ADT (dBA @ 60.6) ADT (dBA @ 60.7) From Existing 9,036 67.5 7,400 66.6 7,500 66.7 -0.8 7,758 66.8 8,400 67.2 8,500 67.2 0.4 32,560 76.3 38,500 77.0 38,300 77.0 0.7 21,087 74.4 36,600 76.8 36,900 76.9 2.4 15,375 72.1 20,800 73.4 21,000 73.4 1.4 15,579 72.1 17,400 72.6 17,500 72.6 0.5 19,862 73.2 22,500 73.7 22,700 73.7 0.6 18,249 72.8 21,000 73.4 21,200 73.5 0.7 |

Source: FHWA Traffic Noise Prediction Model. Based on traffic volumes obtained from the traffic analysis prepared by Parson Brinkerhoff (December 2009) and speed limits obtained from Google Maps. NB: northbound; SB: southbound; EB: eastbound; WB: westbound

Traffic noise increases that are 3 dBA when noise levels are above 65 dBA are in **bold** in the tables below. Under the 2015 scenarios (interim year), maximum noise-level increases on local roadways due to the project would be minimal, 1.3 dBA CNEL or less. Increases in traffic levels solely from traffic volumes generated by the project would not result in a substantial noise increase along roadways in the project vicinity at year 2015. However, at full buildout, post-2030 traffic volumes would generate up to 3.3 dBA CNEL. Because the traffic growth in the IBC would generate traffic volumes on this roadway segment that would noticeably increase ambient noise levels, traffic noise impacts are considered significant for segments adjacent to noise-sensitive land uses.

Subsequent Development Pursuant to the Proposed Project

Traffic generated by the pending projects would contribute to the increases in traffic noise levels identified in Tables 5.9-10 and 5.9-11. Consequently, impacts associated with the individual development projects, Martin Street Condos, 2851 Alton, Avalon Jamboree II, Irvine Technology Center, Kilroy, Alton/Millikan Apartments, and 2852 Kelvin would not differ significantly from the IBC Vision Plan. Impacts are significant.

IMPACT 5.9-4:

STATIONARY-SOURCE NOISE GENERATED BY LAND USES WITHIN THE IBC WOULD COMPLY WITH THE CITY OF IRVINE MUNICIPAL CODE AND WOULD NOT SUBSTANTIALLY ELEVATE THE AMBIENT NOISE ENVIRONMENT. [THRESHOLD N-1 AND N-3]

Impact Analysis: Stationary-source noise is regulated by the City of Irvine through the City's Municipal Code. Buildout of the IBC would result in an increase in residential and commercial development in the City. The primary noise sources from these land uses include landscaping, maintenance activities, and air conditioning systems. In addition, future commercial uses may include loading docks. In general, residential or commercial uses are not substantial sources of noise because the ambient noise environment is dominated by roadway noise.



HVAC Systems and Use of Other Mechanical Equipment

The City of Irvine requires that noise from new stationary sources within the City comply with the City's Noise Ordinance, which limits the acceptable noise at the property line of the impacted use, to reduce nuisances to sensitive land uses. To achieve the noise standards of the Municipal Code, HVAC systems and other equipment would be selected based on their noise rating or would be acoustically engineered with mufflers and barriers to ensure that no exceedance of the City's noise standards would occur. Maintenance activities and use of leaf blowers are restricted to the least noise-sensitive portions of the day. Consequently, stationary-source noise from these types of proposed land uses would not substantially increase the noise environment.

Parking Lot Noise

The parking lots associated with the new high-density residential development would generate noise. Typical parking lot noises would be car-door slams, car horns, car audio systems, people talking, engine idling, and car beeps. However, in order to accommodate the growth associated with buildout of the IBC, the majority of parking spaces for the new residential structures would be in subterranean parking garages or in structures surrounded by residential units. The building structure would serve as a barrier and attenuate noise from the majority of parking lot activities. Consequently, noise from the parking area would not be substantial and no significant impacts would occur.

Truck Idling and Deliveries

Noise from truck loading/unloading activities would be primarily from the warning back-up bells and truck engine noise when backing up to the truck bays of the retail and commercial buildings. Noise levels from actual unloading and loading activities would be minimal, as the truck interior would be shielded from the exterior environment and unloading and loading activities would occur in the interior of the building after the truck is docked. Commercial deliveries or pick-ups for commercial properties that share a property line with any residential property are required to limit the hours of delivery/pick-up service to the hours of 7:00 AM to 10:00 PM daily. Moreover, commercial trucks are also prohibited from idling more than five minutes under the California Air Resources Board's In-Use Idling Airborne Toxic Control Measure. Consequently, impacts from these activities would be less than significant.

Subsequent Development Pursuant to the Proposed Project

Impacts associated with the individual development projects—Martin Street Condos, 2851 Alton, Avalon Jamboree II, Irvine Technology Center, Kilroy, Alton/Millikan Apartments, and 2852 Kelvin—would not differ significantly from the IBC Vision Plan. Impacts are less than significant.

IMPACT 5.9-5 SENSITIVE LAND USES COULD BE EXPOSED TO NOISE LEVELS THAT EXCEED 65 dBA CNEL FROM TRANSPORTATION OR STATIONARY SOURCES. [THRESHOLDS N-1 AND N-3]

Impact Analysis: An impact could be significant if the new residential developments are in areas that exceed the noise compatibility criteria of the City. The City applies the state's Community Noise and Land Use Compatibility standards, summarized in Table 5.9-3, for the purpose of assessing the compatibility of new development with existing noise sources, such as vehicles or loud stationary sources. It is the policy of the City of Irvine to require new noise-sensitive residential developments to achieve an exterior noise environment of 65 dBA CNEL. Commercial and industrial areas are not considered noise sensitive and have much higher tolerances for exterior noise levels.

In addition to the exterior noise compatibility standards, the City requires that buildings be constructed to achieve interior noise standards. The building interior of noise-sensitive structures is required to achieve noise levels of 45 dBA CNEL under the California Building Code and Title 21 of the California Code of Regulations for noise-sensitive structures within the 65 dBA CNEL contour of an airport (see Impact 5.9-6). While interior areas can be mitigated to achieve acceptable interior noise levels, it may not be possible to achieve the noise compatibility criteria for noise-sensitive exterior areas.

Exterior Noise Compatibility

The exact locations of residential developments and active recreational areas have not yet been determined and therefore specific impacts cannot be ascertained. However, roadways would generate noise levels above 65 dBA CNEL in the vicinity of the proposed project area. In addition, because many of the existing uses in the IBC are commercial and industrial, placement of a noise-sensitive development in the vicinity of existing sources of stationary noise (e.g., warehousing truck distribution centers, emergency generators, and other sources of mechanical or truck idling noise) may be potentially significant. Any siting of new noise-sensitive land uses (e.g., residential or noise-sensitive outdoor areas, such as tot-lots, swimming pools, or athletic fields) within a noise environment that exceeds the normally acceptable land use compatibility criterion creates a potentially significant impact and would require a separate noise study through the development review process to determine the level of impacts and required mitigation.

PPP 9-2 requires that an acoustic study be prepared to achieve the City of Irvine's exterior noise standards. While interior noise levels are required to achieve the interior noise limits of 45 dBA CNEL for residential structures and 55 dBA CNEL for commercial structures, exterior noise levels at noise-sensitive land uses (e.g., residential or noise-sensitive outdoor areas such as tot-lots, swimming pools, or athletic fields) may continue to exceed the 65 dBA CNEL noise compatibility criterion for the City despite exterior noise attenuation (i.e., walls and/or berms). PDF 9-3 requires that occupancy disclosure notices are provided to tenants for units with patios and/or balconies that do not meet the 65 dBA CNEL. Because noise-sensitive land uses could be exposed to noise levels that exceed 65 dBA CNEL, impacts would be potentially significant.

Interior Noise Levels

Pursuant to the California Building Code, noise-sensitive habitable rooms would be required to be designed to achieve an interior noise standard of 45 dBA CNEL. In general, exterior-to-interior transmission loss from standard building construction results in a minimum attenuation of 24 dBA (SAE 1971). While the exact locations of the noise-sensitive structures have not yet been determined, building facades within the 70 dBA CNEL noise contour would require architectural improvements, such as Sound Transmission Class (STC)-rated windows and doors, to achieve the required 45 dBA CNEL interior noise level limits. Because noise levels along major arterials could exceed these limits, noise-sensitive land uses could require additional insulation to meet the 45 dBA CNEL standard and impacts are potentially significant. However, PPP 9-2 requires that an acoustic study be prepared to achieve the City of Irvine's interior noise standards to ensure no significant impacts would occur.

Subsequent Development Pursuant to the Proposed Project

New residential developments would be required to achieve the 45 dBA CNEL interior noise standard. Consequently, impacts associated with the individual development projects—Martin Street Condos, 2851 Alton, Avalon Jamboree II, Irvine Technology Center, Kilroy, Alton/Millikan Apartments, and 2852 Kelvin—would be less than significant with adherence to PPP 9-2 and PDF 9-4.

IMPACT 5.9-6:

NOISE-SENSITIVE HABITABLE ROOMS IN STRUCTURES WITHIN THE 60 dBA CNEL NOISE CONTOUR OF THE JOHN WAYNE AIRPORT WOULD BE EXPOSED TO SUBSTANTIAL LEVELS OF AIRPORT-RELATED NOISE. [THRESHOLDS N-5]

Impact Analysis: Aircraft overflights, takeoffs, and landings associated with operations of the John Wayne Airport contribute to the ambient noise environment. Each of these events exposes sensitive receptors near the airport to elevated noise levels.

John Wayne Airport

The City of Irvine considers residential uses in the vicinity of the JWA to be normally acceptable within the airport noise environment so long as they do not extend into the 65 dBA CNEL noise contour. Title 21 of the California Code of Regulations requires that adequate acoustical insulation be provided for noise-sensitive uses within the 65 dBA CNEL noise contour to ensure that interior noise levels achieve 45 dBA CNEL. In addition, the City of Irvine has a supplemental criteria for single-event noise that also requires homes within the 60 dBA noise contour of the JWA to be constructed to mitigate the loudest 10 percent of aircraft noise events (single-event noise). This criteria is in addition to the interior noise standard of 45 dBA CNEL under Title 21 and Title 24 of the California Building Code. Since the loudest noise associated with aircraft is essentially the same during the day or evening, homes must be constructed to comply with the more stringent 55 dBA $L_{max}(10)$ criteria. The single-event noise standard is typically more



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restrictive than the 24-hour noise standard since it requires interior noise levels to achieve standards based on the loudest aircrafts taking off and landing from JWA rather than average 24-hour noise levels.

Sensitive areas in an airport noise environment that exceeds 65 dBA CNEL would be required to conduct a noise assessment and mitigate, as feasible, to achieve an exterior noise environment of 65 dBA CNEL. However, because much of the noise from the airport is overhead, walls, berms, and other intervening structures would do little to reduce noise from aircraft operations. Consequently, designation of any noise-sensitive land use (e.g., residential) within the 65 dBA CNEL noise contour of the John Wayne Airport would be considered significant.

Figure 5.9-2, *Projected John Wayne Airport Noise -Impact Zones*, shows noise-impacted areas within the IBC based on the projected increase in airport operations, as defined by the AELUP for the JWA. As shown in this figure, portions of the IBC are within the 60 and 65 dBA CNEL aircraft operation noise contours identified in the AELUP for John Wayne Airport. The most recent projected noise impact zones were adopted by the Airport Land Use Commission in April 2008. Within the 65 dBA CNEL noise contour, Noise Impact Zone 1, the AELUP defines the noise exposure to be High Noise Impact. Per the AELUP for JWA, the noise impact in this zone is sufficient to warrant restrictions on residential uses and to require sound attenuation measures on other uses. AELUP defines the noise exposure to be Moderate Noise Impact within the 60 dBA CNEL noise contour, Noise Impact Zone 2. Per the AELUP for JWA, noise impacts in this area are sufficient to require sound attenuation. Single-noise events in this area create serious disturbances for many inhabitants. AELUP notes that residents occupying residential units within Noise Impact Zone 2 may experience "inconvenience, annoyance, or discomfort arising from noise of aircraft at the airport." As outlined in the AELUP and Title 21, the residential use interior sound attenuation requirement within this noise impact zone is required to be a CNEL value not exceeding an interior level of 45 dB.

Under the proposed project, development of residential and noise-sensitive recreational uses would be limited to the Multi Use and Urban Neighborhood Districts. As shown in Figure 5.9-2, the Multi-Use and Urban Neighborhood Districts would not fall within the 65 dBA CNEL noise contour for the JWA. However, portions of these districts would fall within the 60 dBA CNEL noise contour for the airport. Residents and other noise-sensitive receptors (e.g., parks) located within the 60 dBA CNEL noise contour would not be exposed to excessive exterior noise levels from operations of the John Wayne Airport because exterior noise levels would not exceed 65 dBA CNEL, which is the City's land use compatibility criteria.

However, indoor habitable areas could potentially be exposed to excessive noise levels causing sleep disturbance from single-event aircraft overflights (i.e., the City's 55 dBA $L_{max}(10)$ criterion). Consequently, indoor and exterior environments would be exposed to elevated noise levels from aircraft overflights.

Interior noise levels are required to achieve the interior noise limits of 45 dBA CNEL and 55 dBA $L_{max}(10)$ for residential structures (PDF 9-4 and PPP 9-2) and 55 dBA CNEL (PPP 9-2) for commercial structures. No noise-sensitive residential developments would be located within the 65 dBA CNEL contour of the airport. Consequently, with PDF 9-4 and PPP 9-2, noise generated by aircraft overflights would not generate noise levels that exceed 45 dBA CNEL in habitable rooms and impacts would be less than significant.

Noise

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Subsequent Development Pursuant to the Proposed Project

Pending projects are not located within the 65 dBA CNEL noise contour of the JWA. Furthermore, residential development projects within the 60 dBA CNEL noise contour would be required to achieve both interior noise levels of 45 dBA CNEL in accordance with Title 24 and Title 21 of the California Building Code and the City's 55 dBA $L_{max}(10)$ criterion. Consequently, impacts associated with the individual development projects—Martin Street Condos, 2851 Alton, Avalon Jamboree II, Irvine Technology Center, Kilroy, Alton/Millikan Apartments, and 2852 Kelvin—would be less than significant.

5.9.4 Cumulative Impacts

Mobile-Source Noise

Traffic noise increases on local roadways in the vicinity of the project site were shown in Tables 5.9-10 and 5.9-11. The increase in traffic noise from the existing noise environment for year 2015 and post-2030 scenarios is cumulative noise increases, whereas the increase from the 2015 or 2030 baseline is the project's contribution to cumulative noise increases. Project-related cumulative noise impacts may occur if the project contributes (0.1 dBA or more) to substantial (3 dBA or more) cumulative noise increases. Roadway segments where substantial (+ 3 dBA) cumulative increases were identified are **bold** in the tables. As shown in these tables, the project would cumulatively contribute to substantial increases on the following roadway segments:

- Valencia Avenue between Newport Avenue and Red Hill Avenue (2015 and 2030)
- Warner Avenue between State Route 55 (SR-55) and Red Hill Avenue (2015 and 2030)
- McGaw Avenue between Jamboree Road and Murphy Avenue (2030)
- Birch Street between Mesa Drive and Bristol Street (2030)

Stationary-Source Noise

Unlike transportation noise, whose effects can extend well beyond the limits of the project site, stationary-source noise generated by the project is limited to impacts to sensitive receptors adjacent to the project site. However, no significant impacts were identified, as stationary-source noise is regulated by the City of Irvine through the City's Municipal Code. Furthermore, stationary sources are not substantial sources of ambient noise because the predominant noise source in the IBC is traffic on major roadways. Consequently, the project would not cumulatively contribute to stationary-source noise impacts.

Construction Noise and Vibration

Like stationary-source noise, cumulative construction noise and vibration impacts are confined to a localized area. Consequently, cumulative impacts would only occur if other projects are being constructed in the vicinity of the project at the same time as the project. Consequently, project-related construction noise and vibration added to construction noise and vibration from nearby development activities would substantially increase the ambient noise environment or generate perceptible levels of vibration. Cumulative impacts are therefore also considered significant.



5.9.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.9-4 and 5.9-6.

Impact 5.-4

The City of Irvine regulates stationary source noise through the City's Municipal. Stationary-source noise from HVAC systems, mechanical noise, parking lot noise, truck idling, and deliveries would not substantially increase the noise environment.

Impact 5.9-6

Interior noise levels are required to achieve the interior noise limits of 45 dBA CNEL and 55 dBA $L_{max}(10)$ for residential structures (PDF 9-4 and PPP 9-2) and 55 dBA CNEL (PPP 9-2) for commercial structures. No noise-sensitive residential developments would be located within the 65 dBA CNEL contour of the airport. Consequently, with PDF 9-4 and PPP 9-2, noise generated by aircraft overflights would not generate noise levels that exceed 45 dBA CNEL in habitable rooms and impacts would be less than significant.

Without mitigation, the following impacts would be potentially significant:

- Impact 5.9-1 Construction activities could result in temporary noise increases in the vicinity of the proposed project.
- Impact 5.9-2 Construction of the proposed project may generate perceptible levels of vibration at adjacent vibration-sensitive land uses.
- Impact 5.9-3 Project-related vehicle trips would substantially increase ambient noise at noise-sensitive receptors in the vicinity of the project site on McGaw Avenue between Jamboree Road and Murphy Avenue and cumulatively on Valencia Avenue between Newport Avenue and Red Hill Avenue, Warner Avenue between SR-55 and Red Hill Avenue, McGaw Avenue between Jamboree Road and Murphy Avenue, Birch Street between Mesa Drive and Bristol Street.
- Impact 5.9-5 Noise-sensitive land uses could be exposed to noise levels that exceed 65 dBA CNEL from transportation noise.

5.9.6 Mitigation Measures

Impact 5.9-1

No feasible mitigation measures are available.

Impact 5.9-2

No feasible mitigation measures are available.

Impact 5.9-3

No mitigation measures are available to reduce impacts associated with a substantial increase in traffic noise generated by project-related traffic and the project's contribution to cumulative growth in traffic levels. However, when new noise-sensitive residential developments are integrated into the IBC (Impact 5.9-5) they would be constructed to achieve the California Building Code interior noise standards (see PPP 9-2).

Impact 5.9-5

No feasible mitigation measures are available.

5.9.7 Level of Significance After Mitigation

Impact 5.9-1

PPP 9-1 and PDF 9-2 would minimize noise from construction activities to the extent feasible by requiring that activities be limited to the hours set forth in the City of Irvine Municipal Code and that stationary source equipment be placed as far as feasible from adjacent noise-sensitive land uses. However, because new development may occur near noise-sensitive land uses and could generate substantial noise levels for an extended period of time, impacts are considered potentially significant. The magnitude of impact would depend of the location and schedule of the new development and construction equipment. Impact 5.9-1 would remain **Significant and Unavoidable**.

Impact 5.9-2

PPP 9-1 and PDF 9-2 would minimize impacts associated with perceptible levels of vibration annoyance by requiring that activities be limited to the hours set forth in the City of Irvine Municipal Code and stationary-source equipment be placed as far as feasible from adjacent vibration-sensitive land uses. In addition, PDF 9-1 would ensure that less vibration-intensive equipment or construction techniques be used. However, because new development may occur near noise-sensitive land uses and could generate substantial vibration levels for an extended period of time, impacts are considered potentially significant. The magnitude of impact would depend of the location of the new development and construction equipment. Impact 5.9-2 would remain **Significant and Unavoidable**.

Impact 5.9-3

No feasible mitigation measures are available to reduce impacts associated with a substantial increase in traffic noise generated by project-related traffic and the project's contribution to cumulative noise impacts associated with increases in traffic levels. Consequently, Impact 5.9-3 and cumulative impacts would remain **Significant and Unavoidable**.

Impact 5.9-5

PPP 9-2 would require that an acoustic study be prepared to achieve the City of Irvine's interior and exterior noise standards. While interior noise levels are required to achieve the interior noise limits of 45 dBA CNEL for residential structures and 55 dBA CNEL for commercial structures, exterior noise levels may continue to exceed the 65 dBA CNEL noise compatibility criteria for the City despite exterior noise attenuation (i.e., walls and/or berms). PDF 9-3 would require that occupancy disclosure notices are provided to all future tenants for units with patios and/or balconies that do not meet the 65 dBA CNEL.



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However, exterior noise compatibility would be significant at noise sensitive outdoor area (e.g., residential patios and outdoor areas, such as tot-lots, swimming pools, or athletic fields). No feasible mitigation measures are available to reduce impacts associated with a substantial increase in traffic noise generated by project-related traffic and the project's contribution to cumulative noise impacts associated with increases in traffic levels. Consequently, Impact 5.9-5 would remain **Significant and Unavoidable**.