

## **5.5 Noise**

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## 5.5 NOISE

The purpose of this section is to evaluate noise source impacts to on-site and surrounding land uses as a result of Project implementation. This section evaluates short-term construction-related impacts, as well as future buildout conditions. Mitigation measures are also recommended to avoid or lessen the Project's noise impacts. Information in this section was obtained from the *El Segundo General Plan* (General Plan) and *El Segundo Municipal Code* (ESMC). For the purposes of mobile source noise modeling and contour distribution, information contained in the *El Segundo South Campus Specific Plan Traffic Impact Analysis*, (Traffic Impact Analysis) prepared by RBF Consulting (May 27, 2014) and included in Appendix 10.3, *Traffic Impact Analysis*, was used.

### 5.5.1 EXISTING REGULATORY SETTING

This section summarizes the laws, ordinances, regulations, and standards that are applicable to the Project. Regulatory requirements related to environmental noise are typically promulgated at the local level. However, Federal and State agencies provide standards and guidelines to the local jurisdictions. A discussion of the various noise descriptors and definitions can be found in Section 5.5.2.

#### STATE OF CALIFORNIA GUIDELINES

##### California Government Code

Government Code § 65302 (f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the California Department of Health Services.

The guidelines rank noise land use compatibility in terms of "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 Community Noise Equivalent Level (CNEL) and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

#### CITY OF EL SEGUNDO

##### El Segundo General Plan

The General Plan EIR provides land use compatibility standards for interior and exterior noise. Table 5.5-1, *Exterior and Interior Noise Compatibility Standards*, outlines the compatibility standards for various land uses.



**Table 5.5-1  
Exterior and Interior Compatibility Standards**

| Land Use                            | Ldn (dBA)               |                         |
|-------------------------------------|-------------------------|-------------------------|
|                                     | Exterior Noise Standard | Interior Noise Standard |
| Residential – single and two family | 65                      | 55                      |
| Residential – multiple family       | 75                      | 55                      |
| Community clubs                     | 75                      | 55                      |
| Schools                             | 75                      | 55                      |
| Parks – Sports oriented             | 75                      | 75                      |
| Parks – Relaxation oriented         | 65                      | 55                      |
| Libraries                           | 75                      | 55                      |
| Churches                            | 75                      | 55                      |
| Sanitariums                         | 65                      | 55                      |
| Homes for the aged                  | 65                      | 55                      |
| Commercial Activities               | 75                      | 75                      |
| Industrial Activities               | 75                      | 75                      |

Source: City of El Segundo, *General Plan Environmental Impact Report*, February 1992, Page 4.10-3.

## El Segundo Municipal Code

Based on the Federal and State regulations, the City established land use standards for noise, which are provided in ESMC Chapter 7-2, *Noise and Vibration*. ESMC § 7-2-4 establishes noise standards for residential, commercial, and residential properties; ESMC § 7-2-10 creates an exemption for temporary construction noise as specified below:

ESMC § 7-2-10, Exemptions. According to ESMC § 7-2-10, the following activities are exempted from ESMC Chapter 7-2:

*“(D) Construction Noise: Noise sources associated with or vibration created by construction, repair, or remodeling or any real property, provided said activities do not take place between the hours of six o’clock (6:00) P.M and seven o’clock (7:00) AM Monday through Saturday, or at any time on Sunday or a Federal holiday, and provided the noise level created by such activities does not exceed the noise standard of sixty five (65) dBA plus the limits specified in § 7-2-4C of this Chapter as measured on the receptor residential property line and provided any vibration created does not endanger the public health, welfare and safety.”*

For construction noise, a “substantial” noise increase can be defined as interference with activities during the day and night. One indicator that construction noise could interfere with daytime activities would be speech interference. As the City does not have quantitative guidelines for construction noise, the following criteria is utilized in the analysis to define relative construction-related noise impacts:



- *Speech Interference Criteria.* Speech Interference Level was designed as a simplified substitute for the Articulation Index.<sup>1</sup> As Speech Interference Level does not take the actual speech level into account, the associated masking effect depends upon vocal effort and speaker-to-listener distance. Speech spoken with slightly more vocal effort can be understood well, when the noise level is 65 dBA. A typical building can reduce noise levels by 20 dBA with the windows closed.<sup>2</sup> This noise reduction could be maintained only on a temporary basis in some cases, since it assumes windows would remain closed at all times. Therefore, this analysis utilizes an interior level of 65 dBA as a criterion level for determining significance for construction related activities, in the absence of an adopted specific construction noise related threshold by the City. Construction noise is considered exempt between the hours 7:00 a.m. to 6:00 p.m. (Monday through Saturday) by the ESMC. However, construction noise has been quantified and assessed against the speech interference criteria to evaluate whether it would create an impact that endangers public health, safety, and welfare.

## 5.5.2 EXISTING ENVIRONMENTAL SETTING

### NOISE SCALES AND DEFINITIONS

Sound is described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud, and 20 dBA higher four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various sound levels in different environments are illustrated on [Table 5.5-2, \*Sound Levels and Human Response\*](#).

Many methods have been developed for evaluating community noise to account for, among other things:

- The variation of noise levels over time;
- The influence of periodic individual loud events; and
- The community response to changes in the community noise environment.

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<sup>1</sup> Articulation index takes into account that some frequencies are more effective in masking speech than others. The frequency range from 250 to 7000 Hz is divided into 20 bands. The difference between file average speech peak level in each of these bands is calculated and the resulting numbers combined to give a single index.

<sup>2</sup> U.S. Department of Housing and Urban Development, *The Noise Guidebook*, March 1985.



**Table 5.5-2  
Sound Levels and Human Response**

| Noise Source   | dBA<br>Noise<br>Level | Response  |
|--|-----------------------|---|
|  | <b>150</b>            |   |
| Carrier Jet Operation  | <b>140</b>            | Harmfully Loud  |
|  | <b>130</b>            | Pain Threshold  |
| Jet Takeoff (200 ft.)<br>Discotheque   | <b>120</b>            |   |
| Unmuffled Motorcycle<br>Auto Horn (3 ft.)<br>Rock'n Roll Band<br>Riveting Machine                                      | <b>110</b>            | Maximum Vocal Effort<br>Physical Discomfort                 |
| Loud Power Mower<br>Jet Takeoff (2000 ft.)<br>Garbage Truck  | <b>100</b>            | Very Annoying<br>Hearing Damage<br>(Steady 8-Hour Exposure) |
| Heavy Truck (50 ft.)<br>Pneumatic Drill (50 ft.)   | <b>90</b>             |   |
| Alarm Clock<br>Freight Train (50 ft.)<br>Vacuum Cleaner (10 ft.)   | <b>80</b>             | Annoying  |
| Freeway Traffic (50 ft.)   | <b>70</b>             | Telephone Use Difficult                                     |
| Dishwashers<br>Air Conditioning Unit (20 ft.)  | <b>60</b>             | Intrusive   |
| Light Auto Traffic (100 ft.)   | <b>50</b>             | Quiet   |
| Living Room<br>Bedroom   | <b>40</b>             |   |
| Library<br>Soft Whisper (15 ft.)   | <b>30</b>             | Very Quiet  |
| Broadcasting Studio  | <b>20</b>             | Just Audible  |
|  | <b>10</b>             | Threshold of Hearing  |
| Source: Branch, Melville C., and Beland, R. Dale, <i>Outdoor Noise in the Metropolitan Environment</i> , 1970, Page 2. |                       |   |



Numerous methods have been developed to measure sound over a period of time, as presented in Table 5.5-3, Noise Descriptors.

**Table 5.5-3  
Noise Descriptors**

| Term   | Definition  |
|--|---|
| Decibel (dB)   | The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).  |
| A-Weighted Decibel (dBA)   | A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).  |
| Equivalent Sound Level ( $L_{eq}$ )                                | The sound level containing the same total energy as a time varying signal over a given time period. The $L_{eq}$ is the value that expresses the time averaged total energy of a fluctuating sound level.   |
| Maximum Sound Level ( $L_{max}$ )                                  | The highest individual sound level (dBA) occurring over a given time period.  |
| Minimum Sound Level ( $L_{min}$ )                                  | The lowest individual sound level (dBA) occurring over a given time period.   |
| Community Noise Equivalent Level (CNEL)                            | A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 PM to 10:00 PM, and +10 dBA for the night, 10:00 PM to 7:00 AM.   |
| Day/Night Average ( $L_{dn}$ )                                     | The $L_{dn}$ is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the $L_{eq}$ . The $L_{dn}$ is calculated by averaging the $L_{eq}$ 's for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 PM to 7:00 AM) by 10 dBA to account for the increased sensitivity of people to noises that occur at night. |
| Exceedance Level ( $L_n$ )   | The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% ( $L_{01}$ , $L_{10}$ , $L_{50}$ , $L_{90}$ , respectively) of the time during the measurement period.  |
| Source: Harris, Cyril M., <i>Handbook of Noise Control</i> , 1979. |   |



## HEALTH EFFECTS OF NOISE

Human response to sound is highly individualized. Annoyance is the most common issue regarding community noise. However, many factors influence people's response to noise. The factors can include the character of the noise, the variability of the sound level, the presence of tones or impulses, and the time of day of the occurrence. Additionally, non-acoustical factors, such as the person's opinion of the noise source, the ability to adapt to the noise, the attitude towards the source and those associated with it, and the predictability of the noise, all influence people's response. As such, response to noise varies widely from one person to another and with any particular noise, individual responses will range from "not annoyed" to "highly annoyed."

The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise on the community can be organized into six broad categories:

- Noise-Induced Hearing Loss;
- Interference with Communication;
- Effects of Noise on Sleep;
- Effects on Performance and Behavior;
- Extra-Auditory Health Effects; and
- Annoyance.

According to the United States Public Health Service, nearly ten million of the estimated 21 million Americans with hearing impairments owe their losses to noise exposure. Noise can mask important sounds and disrupt communication between individuals in a variety of settings. This process can cause anything from a slight irritation to a serious safety hazard, depending on the circumstance. Noise can disrupt face-to-face communication and telephone communication, and the enjoyment of music and television in the home. It can also disrupt effective communication between teachers and pupils in schools, and can cause fatigue and vocal strain in those who need to communicate in spite of the noise.

Interference with communication has proved to be one of the most important components of noise-related annoyance. Noise-induced sleep interference is one of the critical components of community annoyance. Sound level, frequency distribution, duration, repetition, and variability can make it difficult to fall asleep and may cause momentary shifts in the natural sleep pattern, or level of sleep. It can produce short-term adverse effects on mood changes and job performance, with the possibility of more serious effects on health if it continues over long periods. Noise can cause adverse effects on task performance and behavior at work, and non-occupational and social settings. These effects are the subject of some controversy, since the presence and degree of effects depends on a variety of intervening variables. Most research in this area has focused mainly on occupational settings, where noise levels must be sufficiently high and the task sufficiently complex for effects on performance to occur.

Annoyance can be viewed as the expression of negative feelings resulting from interference with activities, as well as the disruption of one's peace of mind and the enjoyment of one's environment. Field evaluations of community annoyance are useful for predicting the consequences of planned actions involving highways, airports, road traffic, railroads, or other noise sources. The consequences of noise-induced annoyance are privately held dissatisfaction, publicly expressed complaints to authorities, and potential adverse health effects, as discussed above. In a study conducted by the United States Department of



Transportation, the effects of annoyance to the community were quantified. In areas where noise levels were consistently above 60 dBA CNEL, approximately nine percent of the community is highly annoyed. When levels exceed 65 dBA CNEL, that percentage rises to 15 percent. Although evidence for the various effects of noise have differing levels of certainty, it is clear that noise can affect human health. Most of the effects are, to a varying degree, stress related.

## **GROUND-BORNE VIBRATION**

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. 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 or vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is typically used for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response. Typically, ground-borne vibration, generated by man-made activities, attenuates rapidly with distance from the source of vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source.

Both construction and operation of development projects can generate ground-borne vibration. In general, demolition of structures preceding construction generates the highest vibrations. Construction equipment such as vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible vibration during construction activities. Heavy trucks can also generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions.

## **SENSITIVE RECEPTORS**

Human response to noise varies widely depending on the type of noise, time of day, and sensitivity of the receptor. The effects of noise on humans can range from temporary or permanent hearing loss to mild stress and annoyance due to such things as speech interference and sleep deprivation. Prolonged stress, regardless of the cause, is known to contribute to a variety of health disorders. Noise, or the lack thereof, is a factor in the aesthetic perception of some settings, particularly those with religious or cultural significance. Certain land uses are particularly sensitive to noise, including schools, daycare/preschools, hospitals, rest homes, long-term medical and mental care facilities, and parks and recreation areas. Residential areas are also considered noise sensitive, especially during the nighttime hours.

Existing sensitive receptors located in the immediate project area include residential uses, schools, preschools/daycare centers, parks, places of worship; libraries, and hospitals; refer to [Table 5.5-4, \*Surrounding Off-Site Sensitive Receptors\*](#).

## **AMBIENT NOISE MEASUREMENTS**

In order to quantify existing ambient noise levels in the project area, RBF Consulting conducted noise measurements on August 7, 2013; refer to [Table 5.5-5, \*Noise Measurements\*](#). The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the project site. Ten-minute measurements were taken at each site, between approximately 10:00 a.m. and 11:30 a.m. Meteorological conditions were clear skies, warm, with light wind speeds (0 to 5 miles per hour), and low humidity.



**Table 5.5-4  
Surrounding Off-Site Sensitive Receptors**

| Type                | Name  | Distance from Project Site (feet) | Orientation from Project Site |
|---------------------|---|-----------------------------------|-------------------------------|
| Residential         | Residential Uses                            | 3,010                             | Northwest                     |
|                     |   | 2,112                             | East                          |
|                     |   | 3,802                             | South/Southwest               |
| Schools             | El Segundo Middle School                    | 3,696                             | Northwest                     |
|                     | Saint Anthony Catholic School               | 3,950                             | Northwest                     |
|                     | Center Street Elementary School             | 4,246                             | Northwest                     |
|                     | Webster University                          | 2,482                             | Northeast                     |
|                     | Juan de Anza Elementary School              | 5,016                             | Northeast                     |
|                     | Richard Henry Dana Middle School            | 3,010                             | Southeast                     |
|                     | Peter Burnett Elementary School             | 3,538                             | Southeast                     |
|                     | Vistamar School                             | 2,534                             | Southeast                     |
| Daycares/Preschools | Beach Babies, LLC                           | 750                               | East                          |
|                     | Beach Babies, LLC                           | 1,385                             | North                         |
|                     | Wondertree Kids                             | 1,065                             | South                         |
| Places of Worship   | Oceanside Christian Fellowship              | Adjacent                          | East                          |
|                     | Saint John's Lutheran Church                | 5,227                             | North/Northwest               |
|                     | Hilltop Community Church                    | 5,016                             | Northwest                     |
|                     | Saint Anthony Catholic Church               | 3,950                             | Northwest                     |
|                     | Church of Jesus Christ of Latter-Day Saints | 4,646                             | Northwest                     |
| Libraries           | Charles C. Lauritsen Library                | 1,214                             | East                          |
|                     | Wiseburn Library                            | 3,802                             | East                          |
| Parks               | Campus El Segundo                           | 3,168                             | North                         |
|                     | Del Aire Park                               | 3,274                             | Northeast                     |
|                     | Glasglow Park                               | 4,382                             | East                          |
|                     | Holly Glen Park                             | 4,277                             | East/Southeast                |
|                     | Marine Avenue Park                          | 5,174                             | South                         |
|                     | Manhattan Village Park                      | 3,590                             | South                         |
|                     | The Lakes at El Segundo Golf Course         | Adjacent                          | West                          |
|                     | Veterans Parkway                            | 4,963                             | Southwest                     |
|                     | Hilltop Park                                | 4,699                             | Northwest                     |
|                     | Washington Park                             | 4,224                             | Northwest                     |
|                     | Kansas Park                                 | 3,379                             | Northwest                     |

Source: Google Earth, 2013.

Note: Distances are measured within a one-mile radius from the exterior project boundary only and not from individual construction projects/areas within the interior of the project site.

**Table 5.5-5  
Noise Measurements**

| Site No. | Location   | Leq (dBA) | Lmin (dBA) | Lmax (dBA) | Peak (dBA) | Time       |
|----------|--|-----------|------------|------------|------------|------------|
| 1        | The Lakes at El Segundo Golf Course, near the practice putting green.                          | 54.2      | 48.6       | 70.4       | 93.4       | 10:21 a.m. |
| 2        | Commercial parking lot at the southeast corner of El Segundo Boulevard and Sepulveda Boulevard | 67.2      | 58.7       | 76.3       | 97.7       | 10:50 a.m. |
| 3        | Residence Inn (2135 E El Segundo Blvd, El Segundo, CA 90245), north of the project site.       | 68.0      | 48.7       | 84.1       | 104.6      | 11:17 a.m. |

Source: RBF Consulting, August 7, 2013.



Noise monitoring equipment used for the ambient noise survey consisted of a Brüel & Kjær Hand-held Analyzer Type 2250 equipped with a 4189 pre-polarized freefield microphone. The monitoring equipment complies with applicable requirements of the American National Standards Institute for Type I (precision) sound level meters. The results of the field measurements are indicated in Appendix 13.4, *Noise Data*. Existing measured noise levels range from approximately 54.2 to 68.0 dBA.

## MOBILE SOURCES

In order 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. The existing roadway noise levels in the vicinity of the project site were projected. Noise models were run using the Federal Highway Administration’s Highway Noise Prediction Model (FHWA RD-77-108) together with several roadway and site parameters. These parameters determine the projected impact of vehicular traffic noise and include the roadway cross-section (such as the number of lanes), roadway width, average daily traffic (ADT), vehicle travel speed, percentages of auto and truck traffic, roadway grade, angle-of-view, and site conditions (“hard” or “soft”). The model does not account for ambient noise levels (i.e., noise from adjacent land uses) or topographical differences between the roadway and adjacent land uses. A 35- to 45-mile per hour (mph) average vehicle speed was assumed for existing conditions based on empirical observations and posted maximum speeds along the adjacent roadways. Noise projections are based on modeled vehicular traffic as derived from the project’s *Traffic Impact Analysis*.

Existing noise contours were calculated for major arterial and secondary arterial roadways in the vicinity of the project site; refer to Table 5.5-6, *Existing Traffic Noise Levels*. Noise generation for each roadway link was calculated and the distance to the 60 dBA CNEL, 65 dBA CNEL, and 70 dBA CNEL contours was determined. As shown in Table 5.5-6, the existing traffic noise levels range from a low of 52.0 CNEL along Continental Boulevard south of El Segundo Boulevard to a high of 71.6 CNEL along Sepulveda Boulevard (SR-1) from Park Place to Rosecrans Avenue.

**Table 5.5-6  
Existing Traffic Noise Levels**

| Roadway Segment                           | ADT    | dBA @<br>100 Feet<br>from<br>Roadway<br>Centerline | Distance from<br>Roadway Centerline to: (Feet) <sup>1</sup> |                             |                             |
|---|--------|--|---|-----------------------------|-----------------------------|
|   |        |  | 60 CNEL<br>Noise<br>Contour                                 | 65 CNEL<br>Noise<br>Contour | 70 CNEL<br>Noise<br>Contour |
| <b>Sepulveda Boulevard (SR-1)</b>         |        |  |   |                             |                             |
| Imperial Highway (I-105) to Walnut Avenue | 63,160 | 70.8   | 1,480   | 468                         | 148                         |
| Maple Avenue to Mariposa Avenue           | 63,121 | 70.7   | 1,479   | 468                         | 148                         |
| Mariposa Avenue to Grand Avenue           | 57,785 | 70.4   | 1,354   | 428                         | 135                         |
| Grand Avenue to El Segundo Boulevard      | 57,983 | 70.3   | 1,360   | 430                         | 136                         |
| El Segundo Boulevard to Hughes Way        | 60,373 | 70.5   | 1,414   | 447                         | 141                         |
| Hughes Way to Park Place                  | 50,861 | 70.9   | 1,580   | 500                         | 158                         |
| Park Place to Rosecrans Avenue            | 60,048 | 71.6   | 1,865   | 590                         | 187                         |
| <b>Continental Boulevard</b>              |        |  |   |                             |                             |
| Grand Avenue to El Segundo Boulevard      | 6,708  | 59.7   | 116   | 37                          | 12                          |
| South of El Segundo Boulevard             | 2,258  | 52.0   | 35  | 16                          | 8                           |



**Table 5.5-6 [continued]  
Existing Traffic Noise Levels**

| Roadway Segment                                     | ADT    | dBA @<br>100 Feet<br>from<br>Roadway<br>Centerline | Distance from<br>Roadway Centerline to: (Feet) <sup>1</sup> |                             |                             |
|---|--------|--|---|-----------------------------|-----------------------------|
|   |        |  | 60 CNEL<br>Noise<br>Contour                                 | 65 CNEL<br>Noise<br>Contour | 70 CNEL<br>Noise<br>Contour |
| <b>Nash Street</b>                                  |        |  |   |                             |                             |
| Imperial Highway (1-405) to Atwood Way              | 5,279  | 58.9   | 91  | 29                          | 9                           |
| Atwood Way to Maple Avenue                          | 5,795  | 59.4   | 100   | 32                          | 10                          |
| Maple Avenue to Mariposa Avenue                     | 5,443  | 59.3   | 94  | 30                          | 9                           |
| Mariposa Avenue to Grand Avenue                     | 7,380  | 60.6   | 127   | 40                          | 13                          |
| Grand Avenue to El Segundo Boulevard                | 5,687  | 59.3   | 98  | 31                          | 10                          |
| South of El Segundo Boulevard                       | 3,335  | 53.7   | 46  | 21                          | 10                          |
| <b>Douglas Street</b>                               |        |  |   |                             |                             |
| Maple Avenue to Mariposa Avenue                     | 10,601 | 63.1   | 248   | 79                          | 25                          |
| Mariposa Avenue to El Segundo Boulevard             | 9,981  | 62.8   | 234   | 74                          | 23                          |
| El Segundo Boulevard to Transit Center              | 11,091 | 63.5   | 260   | 82                          | 26                          |
| <b>Aviation Boulevard</b>                           |        |  |   |                             |                             |
| El Segundo Boulevard to Utah Avenue                 | 28,434 | 67.5   | 667   | 211                         | 67                          |
| Rosecrans Avenue to 33 <sup>rd</sup> Street         | 44,669 | 69.3   | 1,047   | 331                         | 105                         |
| <b>Grand Avenue</b>                                 |        |  |   |                             |                             |
| Main Street to Lomita Street                        | 7,688  | 60.8   | 132   | 42                          | 13                          |
| Kansas Street to Sepulveda Boulevard (SR-1)         | 8,782  | 61.3   | 151   | 48                          | 15                          |
| Sepulveda Boulevard (SR-1) to Continental Boulevard | 13,492 | 59.9   | 116   | 37                          | 12                          |
| <b>El Segundo Boulevard</b>                         |        |  |   |                             |                             |
| West of Sepulveda Boulevard (SR-1)                  | 17,240 | 63.9   | 297   | 94                          | 30                          |
| Sepulveda Boulevard (SR-1) to Continental Boulevard | 21,007 | 64.6   | 362   | 114                         | 36                          |
| Continental Boulevard to Nash Street                | 24,716 | 65.4   | 426   | 135                         | 43                          |
| Nash Street to Douglas Street                       | 31,162 | 66.4   | 537   | 170                         | 54                          |
| Douglas Street to Aviation Boulevard                | 34,826 | 66.8   | 600   | 195                         | 60                          |
| Aviation Boulevard to Isis Avenue                   | 41,633 | 67.7   | 718   | 227                         | 72                          |
| Isis Avenue to La Cienega Avenue                    | 38,933 | 67.4   | 672   | 212                         | 67                          |
| East of La Cienega Boulevard                        | 31,419 | 66.7   | 541   | 171                         | 54                          |
| <b>Hughes Way</b>                                   |        |  |   |                             |                             |
| East of Sepulveda Boulevard (SR-1)                  | 4,830  | 59.7   | 113   | 36                          | 11                          |
| <b>Rosecrans Avenue</b>                             |        |  |   |                             |                             |
| Sepulveda Boulevard (SR-1) to Douglas Street        | 25,688 | 65.7   | 443   | 140                         | 44                          |
| Douglas Street to Aviation Boulevard                | 39,353 | 67.5   | 678   | 214                         | 68                          |
| Aviation Boulevard to Isis Avenue                   | 45,576 | 68.0   | 785   | 248                         | 79                          |
| East of I-405 freeway                               | 32,795 | 66.7   | 566   | 179                         | 57                          |

Source: Noise modeling is based upon traffic data within the *Raytheon South Campus Specific Plan Traffic Impact Analysis*, prepared by RBF Consulting, May 27, 2014.



Under existing conditions, very few areas within the City experience traffic noise levels in excess of 70 CNEL. From the noise levels provided in [Table 5.5-6](#) it can be inferred that the 70 dBA CNEL level is only exceeded at seven of the 36 roadway links analyzed at 100 feet from the roadway centerline. It should be noted that the FHWA RD-77-108 models do not account for variations in topography, intervening structures, or soundwalls. The 70-dBA contour along these roadway links, all located along Sepulveda Boulevard (SR-1), extends to a maximum of 187 feet from the roadway centerline. However, many of the City's commercial areas experience noise levels in excess of 65 CNEL adjacent to major arterial roadways and freeway rights-of-way. Residences located within this area may experience unacceptable noise levels. It should be noted that these are modeled traffic noise levels, and are not based upon actual site measurements.

## STATIONARY NOISE SOURCES

The Project area is highly urbanized, consisting primarily of commercial, office, and light industrial uses. The primary sources of stationary noise in the Project vicinity are urban-related activities (e.g., mechanical equipment, parking areas, conversations, and recreational areas). The noise associated with these sources may represent a single-event or a continuous occurrence.

### 5.5.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

*CEQA Guidelines* Appendix G contains analysis guidelines related to the assessment of noise impacts. These guidelines have been utilized as thresholds of significance for this analysis. As stated in Appendix G, a project would create a significant environmental impact if it would:

- Expose persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive ground borne vibration or ground borne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- 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; refer to [Section 8.0](#), *Effects Found Not To Be Significant*; and
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels; refer to [Section 8.0](#).



## NOISE IMPACT CRITERIA

### Significance of Changes in Traffic Noise Levels

An off-site traffic noise impact typically occurs when there is a discernible increase in traffic and the resulting noise level exceeds an established noise standard. In community noise considerations, changes in noise levels greater than 3 dB are often identified as substantial, while changes less than 1 dB will not be discernible to local residents. A 5 dB change is generally recognized as a clearly discernible difference.

As traffic noise levels at sensitive uses likely approach or exceed the City's Noise Standards (e.g., 65 dBA threshold for single-family residential uses and 75 dBA for multi-family, industrial, and commercial uses (refer to Table 5.5-1), a 3.0 dB increase as a result of the project is used as the increase threshold for the project. Thus, the project would result in a significant noise impact when a permanent increase in ambient noise levels of 3.0 dB occurs upon project implementation and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use.

### Significance of Changes in Stationary Noise Levels

The project would normally have a significant noise impact if it would:

- Exceed the stationary source noise criteria for the City of El Segundo as identified in Table 5.5-1, Exterior and Interior Noise Compatibility Standards.

### Significance of Changes in Cumulative Traffic Noise Levels

The project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds the perception level (i.e., auditory level increase) threshold. The combined effect compares the "cumulative with project" scenario to "existing" conditions. This comparison accounts for the traffic noise increase from the project generated in combination with traffic generated by projects in the cumulative projects list. The following criteria have been utilized to evaluate the combined effect of the cumulative noise increase.

- Combined Effects: The cumulative with project noise level ("Long-Range With Project" scenario) would cause a significant cumulative impact if a 3.0 dB increase over existing conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use.

Although there may be a significant noise increase due to the proposed project in combination with other related projects (combined effects), it must also be demonstrated that the project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.

- Incremental Effects: The "Long-Range With Project" scenario causes a 1 dBA increase in noise over the "Long-Range Without Project" scenario noise level.



A significant impact would result only if both the combined and incremental effects criteria have been exceeded and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use.

Based on these significance thresholds and criteria, the proposed project's effects have been categorized as either "no impact," a "less than significant impact," or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

## 5.5.4 IMPACTS AND MITIGATION MEASURES

### SHORT-TERM CONSTRUCTION NOISE IMPACTS

#### ● GRADING AND CONSTRUCTION ASSOCIATED WITH PROJECT IMPLEMENTATION COULD RESULT IN SIGNIFICANT TEMPORARY NOISE IMPACTS TO NEARBY NOISE SENSITIVE RECEPTORS.

**Impact Analysis:** Construction activities have a short and temporary duration, lasting from a few days to several months, depending upon the specific activity. Groundborne noise and vibration, as well as other types of construction-related noise impacts may occur during initial site preparation, which can create the highest levels of noise and vibration. Generally, site preparation has the shortest duration of all construction phases. Activities that occur during this phase include earthmoving and soils compaction. High groundborne noise and other vibration levels and other miscellaneous noise levels can occur during this phase by the operation of heavy-duty trucks, backhoes, and other heavy-duty construction equipment.

Noise from construction activities is generated by two primary sources: 1) the transport of workers and equipment to construction sites, and 2) the noise related to active construction equipment. These noise sources can be a nuisance to local residents and businesses or unbearable to sensitive receptors. The Federal Transit Administration (FTA) has compiled data regarding noise generating characteristics of specific types of construction equipment and typical construction activities. These noise levels would decrease rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance.

Potential future development associated with Project implementation could generate significant amounts of noise and vibration during grading and construction operations. Adjacent sensitive receptors would be exposed to sporadic high noise and vibration levels associated with construction activities (as a result of power tools, jack-hammers, truck noise, etc.). It is anticipated that construction traffic would access the potential construction sites within the Project area from several major roadways, including El Segundo Boulevard, Sepulveda Boulevard (SR-1), and Hughes Way. As previously stated, various sensitive receptors exist in close proximity to the Project area. The closest sensitive receptors are located immediately adjacent to the east (Oceanside Christian Fellowship Church) and west (The Lakes at El Segundo Golf Course) of the Project site; refer to [Table 5.5-4, Surrounding Off-Site Sensitive Receptors](#).

Construction noise can be created by the operation of heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, scrapers, and other heavy-duty construction equipment. [Table](#)



5.5-7, Maximum Noise Levels Generated by Construction Equipment, describes the anticipated construction equipment noise levels and is based on the quantity, type, and Acoustical Use Factor for each equipment type that would be used.

**Table 5.5-7  
Maximum Noise Levels Generated by Construction Equipment**

| Type of Equipment   | Acoustical Use Factor <sup>1</sup><br>(percent) | Lmax at 50 Feet (dBA) |
|---|---|-----------------------|
| Crane   | 16  | 81                    |
| Dozer   | 40  | 82                    |
| Excavator   | 40  | 81                    |
| Generator   | 50  | 81                    |
| Grader  | 40  | 85                    |
| Other Equipment (greater than five horse power)   | 50  | 85                    |
| Paver   | 50  | 77                    |
| Pile Driver (impact)  | 20  | 101                   |
| Pile Driver (sonic)   | 20  | 96                    |
| Roller  | 20  | 80                    |
| Tractor   | 40  | 84                    |
| Truck   | 40  | 80                    |
| Welder  | 40  | 73                    |
| Note:   |   |                       |
| 1. Acoustical use factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation. |   |                       |
| Source: Federal Highway Administration, Roadway Construction Noise Model (FHWA-HEP-05-054), January 2006.   |   |                       |

Operating cycles for construction equipment used during these phases may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). These noise level estimates take into account the distance to the receptor, attenuation from molecular absorption, and anomalous excess attenuation.

Construction noise impacts generally occur when construction activities occur in areas immediately adjoining noise sensitive land uses, during noise sensitive times of the day, or when construction durations last over extended periods of time. Construction activities associated with the Project would occur in multiple phases, based on market demand. The Oceanside Christian Fellowship Church, located approximately 50 feet east of the Project site, is the closest noise sensitive receptor to potential construction activities. The majority of the construction would occur at distances of 50 to 400 feet or more from the nearest sensitive receptors and would not be expected to interfere with normal recreational or institutional activities.

Construction activities would begin in one specific development area and subsequently move to the other specific development areas. Therefore, construction would not occur in any one location for an extended period of time. All future development within the El Segundo South Campus Specific Plan (ESSCSP) area would be subject to compliance with the implementing policies of the *El Segundo General Plan* Noise Element and ESMC Chapter 7-2 (Noise and



Vibration). Additionally, implementation of Mitigation Measure N-1 would reduce construction noise associated with future development by requiring preparation of a Construction Noise Management Plan that includes limiting construction to the less noise sensitive periods of the day (i.e., between the hours of 7:00 AM and 6:00 PM per ESMC § 7-2-10) and ensuring that proper operating procedures are followed during construction so that nearby sensitive receptors are not adversely affected by noise and vibration (i.e., pursuant to the standards set forth in ESMC § 7-2-4). Therefore, following compliance with the ESMC and implementation of Mitigation Measure N-1, impacts would be reduced to a less than significant level.

### ***Mitigation Measures:***

N-1 Before the City issues grading permits, the Project Applicant must demonstrate, to the satisfaction of the Director of Public Works that the Project complies with the following:

- All construction equipment must be equipped with mufflers and sound control devices (e.g., intake silencers and noise shrouds) no less effective than those provided on the original equipment and no equipment shall have an un-muffled exhaust.
- The contractor must maintain and tune-up all construction equipment to minimize noise emissions.
- Stationary equipment must be placed so as to maintain the greatest possible distance to the sensitive receptors.
- All equipment servicing must be performed so as to maintain the greatest possible distance to the sensitive receptors.
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction are required to be hydraulically or electronically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler must be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves must be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures must be used, such as drills rather than impact equipment, whenever feasible.
- A qualified "Noise Disturbance Coordinator" will be retained amongst the construction crew to be responsible for responding to any local complaints about construction noise. When a complaint is received, the Disturbance Coordinator shall notify the City within 24 hours of the complaint and determine the cause of the noise complaint (e.g., starting too early, malfunctioning muffler, etc.) and implement reasonable measures to resolve the complaint, as deemed acceptable by the Director of Planning and Building Safety.
- Select demolition methods to minimize vibration, where possible (e.g., sawing masonry into sections rather than demolishing it by pavement breakers).

***Level of Significance:*** Less Than Significant Impact with Mitigation.



## VIBRATION IMPACTS

● **IMPLEMENTATION OF THE PROPOSED PROJECT COULD RESULT IN SIGNIFICANT VIBRATION IMPACTS TO NEARBY SENSITIVE RECEPTORS.**

**Impact Analysis:** Project construction can generate varying degrees of ground-borne vibration, depending on the construction procedure and equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The FTA has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 inch/second) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. The vibration produced by construction equipment, is illustrated in Table 5.5-8, Typical Vibration Levels for Construction Equipment.

**Table 5.5-8  
Typical Vibration Levels for Construction Equipment**

| Equipment   | Approximate peak particle velocity at 25 feet (inches/second) | Approximate peak particle velocity at 50 feet (inches/second) |
|---|---|---|
| Large bulldozer   | 0.089   | 0.031   |
| Loaded trucks   | 0.076   | 0.027   |
| Small bulldozer   | 0.003   | 0.001   |
| Auger/drill rigs  | 0.089   | 0.031   |
| Jackhammer  | 0.035   | 0.012   |
| Vibratory hammer  | 0.035   | 0.012   |
| Vibratory compactor/roller  | 0.003   | 0.001   |
| Notes:<br>1. Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Guidelines</i> , May 2006. Table 12-2.<br>2. Calculated using the following formula:<br><br>$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$ where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance<br>PPV (ref) = the reference vibration level in in/sec from Table 12-2 of the FTA <i>Transit Noise and Vibration Impact Assessment Guidelines</i><br>D = the distance from the equipment to the receiver |   |   |
| Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Guidelines</i> , May 2006.   |   |   |



Ground-borne vibration decreases rapidly with distance. As indicated in Table 5.5-8, based on the FTA data, vibration velocities from typical heavy construction equipment operations that would be used during Project construction range from 0.003 to 0.089 inch-per-second peak particle velocity (PPV) at 25 feet from the activity source. The closest structures to the nearest construction activity area are commercial/light industrial and institutional uses located approximately 50 feet east of the Project site. With regard to the Project, ground-borne vibration would be generated primarily during site clearing and grading activities on-site and by off-site haul-truck travel. At 50 feet from the activity source, vibration velocities range from 0.001 to 0.031 inch-per-second PPV. Therefore, as each of these values is below the 0.2 inch-per-second PPV significance threshold, vibration impacts associated with construction would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Level of Significance:** Less Than Significant Impact.

## LONG-TERM MOBILE NOISE IMPACTS

- **TRAFFIC GENERATED BY THE PROPOSED PROJECT COULD SIGNIFICANTLY CONTRIBUTE TO EXISTING TRAFFIC NOISE IN THE AREA OR EXCEED THE CITY'S ESTABLISHED STANDARDS.**

### **Impact Analysis:**

#### **Off-Site Noise Conditions**

##### Forecast Year 2015 Traffic Noise

As indicated in Table 5.5-9, Forecast Year 2015 Noise Scenario, under the "Without Phase I Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 52.1 dBA to 71.8 dBA. The highest noise levels under the "Without Phase I Project" scenario would occur along Sepulveda Boulevard between Park Place and Rosecrans Avenue. Under the "With Phase I Project" scenario, the highest noise levels would also occur along Sepulveda Boulevard between Park Place and Rosecrans Avenue. The Project would increase noise levels on the surrounding roadways by a maximum of 2.4 dBA along Continental Boulevard south of El Segundo Boulevard. As stated under the *Significance Criteria*, a significant impact would occur if noise levels increase by 3.0 dBA or more and exceed the City's Noise Standards outlined in Table 5.5-1. Therefore, forecast 2015 traffic noise levels resulting from the Project would be less than significant.

##### Forecast Long-Range Traffic Noise

As indicated in Table 5.5-10, Forecast Long-Term Noise Scenario, under the "Forecast Long-Term Without Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 52.0 dBA to 73.7 dBA. The highest noise levels under the "Forecast Long-Range Without Project" scenario would occur along Sepulveda Boulevard between Park Place and Rosecrans Avenue. Under the "Forecast Long-Range With Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 59.1 dBA to 73.9 dBA. The highest noise levels would also occur along Sepulveda Boulevard between Park Place and Rosecrans Avenue.



**Table 5.5-9  
Forecast Year 2015 Noise Scenario**

| Roadway Segment                                     | Without Phase I Project Scenario |  | With Phase I Project Scenario |  | Difference in dBA @ 100 feet from Roadway | 3.0 dBA Increase or Greater? | Exceeds City's Noise Standards? |
|---|----------------------------------|--|-------------------------------|--|---|------------------------------|---------------------------------|
|   | ADT                              | dBA @ 100 Feet from Roadway Centerline | ADT                           | dBA @ 100 Feet from Roadway Centerline |   |                              |                                 |
| <b>Sepulveda Boulevard (SR-1)</b>                   |                                  |  |                               |  |   |                              |                                 |
| Imperial Highway (I-105) to Walnut Avenue           | 63,348                           | 70.8                                   | 68,424                        | 71.1                                   | 0.3                                       | No                           | No                              |
| Maple Avenue to Mariposa Avenue                     | 67,637                           | 71.0                                   | 67,901                        | 71.0                                   | 0   | No                           | No                              |
| Mariposa Avenue to Grand Avenue                     | 61,767                           | 70.6                                   | 62,221                        | 70.7                                   | 0.1                                       | No                           | No                              |
| Grand Avenue to El Segundo Boulevard                | 61,407                           | 70.5                                   | 61,935                        | 70.5                                   | 0   | No                           | No                              |
| El Segundo Boulevard to Hughes Way                  | 63,453                           | 70.8                                   | 63,981                        | 70.8                                   | 0   | No                           | No                              |
| Hughes Way to Park Place                            | 53,846                           | 71.2                                   | 54,374                        | 71.2                                   | 0   | No                           | No                              |
| Park Place to Rosecrans Avenue                      | 63,124                           | 71.8                                   | 63,652                        | 71.9                                   | 0.1                                       | No                           | No                              |
| <b>Continental Boulevard</b>                        |                                  |  |                               |  |   |                              |                                 |
| Grand Avenue to El Segundo Boulevard                | 7,767                            | 60.3                                   | 7,767                         | 60.3                                   | 0   | No                           | No                              |
| South of El Segundo Boulevard                       | 2,281                            | 52.1                                   | 4,017                         | 54.5                                   | 2.4                                       | No                           | No                              |
| <b>Nash Street</b>                                  |                                  |  |                               |  |   |                              |                                 |
| Imperial Highway (I-105) to Atwood Way              | 7,205                            | 60.2                                   | 7,205                         | 60.2                                   | 0   | No                           | No                              |
| Atwood Way to Maple Avenue                          | 8,471                            | 61.1                                   | 5,471                         | 59.2                                   | -1.9                                      | No                           | No                              |
| Maple Avenue to Mariposa Avenue                     | 8,863                            | 61.4                                   | 8,939                         | 61.4                                   | 0   | No                           | No                              |
| Mariposa Avenue to Grand Avenue                     | 10,312                           | 62.0                                   | 10,388                        | 62.1                                   | 0.1                                       | No                           | No                              |
| Grand Avenue to El Segundo Boulevard                | 9,688                            | 61.7                                   | 9,764                         | 61.7                                   | 0   | No                           | No                              |
| South of El Segundo Boulevard                       | 3,368                            | 53.7                                   | 5,408                         | 55.8                                   | 2.1                                       | No                           | No                              |
| <b>Douglas Street</b>                               |                                  |  |                               |  |   |                              |                                 |
| Maple Avenue to Mariposa Avenue                     | 10,989                           | 63.2                                   | 10,989                        | 63.2                                   | 0   | No                           | No                              |
| Mariposa Avenue to El Segundo Boulevard             | 10,315                           | 63.0                                   | 10,315                        | 63.0                                   | 0   | No                           | No                              |
| El Segundo Boulevard to Transit Center              | 11,778                           | 63.7                                   | 12,118                        | 63.8                                   | 0.1                                       | No                           | No                              |
| <b>Aviation Boulevard</b>                           |                                  |  |                               |  |   |                              |                                 |
| El Segundo Boulevard to Utah Avenue                 | 29,252                           | 67.6                                   | 29,856                        | 67.7                                   | 0.1                                       | No                           | Yes                             |
| Rosecrans Avenue to 33 <sup>rd</sup> Street         | 46,118                           | 69.5                                   | 46,420                        | 69.5                                   | 0   | No                           | No                              |
| <b>Grand Avenue</b>                                 |                                  |  |                               |  |   |                              |                                 |
| Main Street to Lomita Street                        | 8,575                            | 61.3                                   | 8,651                         | 61.3                                   | 0   | No                           | No                              |
| Kansas Street to Sepulveda Boulevard (SR-1)         | 10,406                           | 62.1                                   | 10,482                        | 62.1                                   | 0   | No                           | No                              |
| Sepulveda Boulevard (SR-1) to Continental Boulevard | 16,227                           | 60.7                                   | 16,227                        | 60.7                                   | 0   | No                           | No                              |
| <b>El Segundo Boulevard</b>                         |                                  |  |                               |  |   |                              |                                 |
| West of Sepulveda Boulevard (SR-1)                  | 18,172                           | 64.2                                   | 18,360                        | 64.2                                   | 0   | No                           | No                              |
| Sepulveda Boulevard (SR-1) to Continental Boulevard | 23,533                           | 65.1                                   | 24,779                        | 65.3                                   | 0.2                                       | No                           | No                              |
| Continental Boulevard to Nash Street                | 27,899                           | 65.9                                   | 29,371                        | 66.1                                   | 0.2                                       | No                           | No                              |
| Nash Street to Douglas Street                       | 37,754                           | 67.2                                   | 40,208                        | 67.5                                   | 0.3                                       | No                           | No                              |
| Douglas Street to Aviation Boulevard                | 41,274                           | 67.5                                   | 43,388                        | 67.8                                   | 0.3                                       | No                           | No                              |
| Aviation Boulevard to Isis Avenue                   | 47,423                           | 68.3                                   | 47,989                        | 68.3                                   | 0   | No                           | No                              |
| Isis Avenue to La Cienega Avenue                    | 44,696                           | 68.0                                   | 45,262                        | 68.1                                   | 0.1                                       | No                           | Yes                             |
| East of La Cienega Boulevard                        | 35,647                           | 67.3                                   | 36,213                        | 67.3                                   | 0   | No                           | No                              |
| <b>Hughes Way</b>                                   |                                  |  |                               |  |   |                              |                                 |
| East of Sepulveda Boulevard (SR-1)                  | 4,878                            | 59.8                                   | 4,878                         | 59.8                                   | 0   | No                           | No                              |
| <b>Rosecrans Avenue</b>                             |                                  |  |                               |  |   |                              |                                 |
| Sepulveda Boulevard (SR-1) to Douglas Street        | 28,201                           | 66.1                                   | 28,201                        | 66.1                                   | 0   | No                           | No                              |
| Douglas Street to Aviation Boulevard                | 42,567                           | 67.8                                   | 42,907                        | 67.8                                   | 0   | No                           | No                              |
| Aviation Boulevard to Isis Avenue                   | 48,384                           | 68.3                                   | 48,648                        | 68.3                                   | 0   | No                           | Yes                             |
| East of I-405 freeway                               | 33,857                           | 66.8                                   | 34,121                        | 66.8                                   | 0   | No                           | No                              |

Source: Noise modeling is based upon traffic data within the *Raytheon South Campus Specific Plan Traffic Impact Analysis*, prepared by RBF Consulting, dated May 27, 2014.



The Project would increase noise levels on the surrounding roadways by a maximum of 8.3 dBA along Nash Street south of El Segundo Boulevard. As stated under the *Significance Criteria*, a significant impact would occur if noise levels increase by 3.0 dBA or more, and exceed the City's Noise Standards. Although noise levels would increase by more than 3.0 dBA along Continental Boulevard south of El Segundo Boulevard (7.1 dBA increase for a resultant noise level of 66.7 dBA), Nash Street south of El Segundo Boulevard (8.3 dBA increase for a resultant noise level of 62.0 dBA), and Hughes Way east of Sepulveda Boulevard (7.0 increase for a resultant noise level of 66.7 dBA), the City's allowable maximum exterior noise standard for the land uses along these segments is 75 dBA, which would not be exceeded. Therefore, forecast long-range traffic noise levels resulting from the Project would be less than significant.

As indicated in Table 5.5-9, Forecast Year 2015 Noise Scenario, under the "Without Phase I Project" scenario, noise levels at a distance of 100 feet from the centerline would range from approximately 52.1 dBA to 71.8 dBA. The highest noise levels under the "Without Phase I Project" scenario would occur along Sepulveda Boulevard between Park Place and Rosecrans Avenue. Under the "With Phase I Project" scenario, the highest noise levels would also occur along Sepulveda Boulevard between Park Place and Rosecrans Avenue. The Project would increase noise levels on the surrounding roadways by a maximum of 2.4 dBA along Continental Boulevard south of El Segundo Boulevard. As stated under the *Significance Criteria*, a significant impact would occur if noise levels increase by 3.0 dBA or more and exceed the City's Noise Standards. Therefore, forecast 2015 traffic noise levels resulting from the Project would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Level of Significance:** Less Than Significant Impact.

## LONG-TERM STATIONARY NOISE IMPACTS

### ● PROJECT IMPLEMENTATION COULD RESULT IN A SIGNIFICANT INCREASE IN LONG-TERM STATIONARY NOISE LEVELS.

**Impact Analysis:** As indicated in Table 3-4, Project implementation would result in an additional 2,142,457 gross square feet (1,916,376 net square feet) over existing conditions, including office, warehousing, light industrial, and retail/restaurant uses. The ESSCSP establishes three land use categories for the proposed land uses: Commercial/Office Mixed Use (CMU), Office/Industrial Mixed Use (O/I MU), and Recreation/Open Space (OS/REC). Noise associated with operational activities of the proposed uses is typically generated by the following sources:

- Delivery trucks;
- Mechanical equipment (air conditioners, trash compactors, emergency generators, etc.);
- Light industrial production (manufacturing equipment, etc.); and
- Typical parking lot activities (e.g., parking lot traffic and car door slamming).



**Table 5.5-10  
Forecast Long Range Noise Scenario**

| Roadway Segment                                     | Long-Range Without Project |  | Long-Range With Project |  | Difference in dBA @ 100 feet from Roadway | 3.0 dBA Increase or Greater? | Exceeds City's Noise Standards? |
|---|----------------------------|--|-------------------------|--|---|------------------------------|---------------------------------|
|   | ADT                        | dBA @ 100 Feet from Roadway Centerline | ADT                     | dBA @ 100 Feet from Roadway Centerline |   |                              |                                 |
| <b>Sepulveda Boulevard (SR-1)</b>                   |                            |  |                         |  |   |                              |                                 |
| Imperial Highway (I-105) to Walnut Avenue           | 103,858                    | 72.9                                   | 108,484                 | 73.1                                   | 0.2                                       | No                           | No                              |
| Maple Avenue to Mariposa Avenue                     | 103,393                    | 72.8                                   | 108,735                 | 73.0                                   | 0.2                                       | No                           | No                              |
| Mariposa Avenue to Grand Avenue                     | 97,329                     | 72.6                                   | 103,181                 | 72.9                                   | 0.3                                       | No                           | No                              |
| Grand Avenue to El Segundo Boulevard                | 97,599                     | 72.5                                   | 103,777                 | 72.8                                   | 0.3                                       | No                           | No                              |
| El Segundo Boulevard to Hughes Way                  | 97,597                     | 72.6                                   | 80,890                  | 71.8                                   | -0.8                                      | No                           | No                              |
| Hughes Way to Park Place                            | 88,085                     | 73.3                                   | 92,625                  | 73.5                                   | 0.2                                       | No                           | No                              |
| Park Place to Rosecrans Avenue                      | 97,272                     | 73.7                                   | 101,812                 | 73.9                                   | 0.2                                       | No                           | No                              |
| <b>Continental Boulevard</b>                        |                            |  |                         |  |   |                              |                                 |
| Grand Avenue to El Segundo Boulevard                | 7,700                      | 60.3                                   | 7,700                   | 60.3                                   | 0   | No                           | No                              |
| South of El Segundo Boulevard                       | 2,258                      | 52.0                                   | 11,654                  | 59.1                                   | 7.1                                       | Yes                          | No                              |
| <b>Nash Street</b>                                  |                            |  |                         |  |   |                              |                                 |
| Imperial Highway (I-105) to Atwood Way              | 7,339                      | 60.3                                   | 8,670                   | 61.1                                   | 0.8                                       | No                           | No                              |
| Atwood Way to Maple Avenue                          | 8,600                      | 61.1                                   | 9,931                   | 61.8                                   | 0.7                                       | No                           | No                              |
| Maple Avenue to Mariposa Avenue                     | 8,809                      | 61.4                                   | 11,593                  | 62.5                                   | 1.1                                       | No                           | No                              |
| Mariposa Avenue to Grand Avenue                     | 10,238                     | 62.0                                   | 13,022                  | 63.1                                   | 1.1                                       | No                           | No                              |
| Grand Avenue to El Segundo Boulevard                | 9,631                      | 61.6                                   | 12,415                  | 62.7                                   | 1.1                                       | No                           | No                              |
| South of El Segundo Boulevard                       | 3,335                      | 53.7                                   | 22,841                  | 62.0                                   | 8.3                                       | Yes                          | No                              |
| <b>Douglas Street</b>                               |                            |  |                         |  |   |                              |                                 |
| Maple Avenue to Mariposa Avenue                     | 15,467                     | 64.7                                   | 15,467                  | 64.7                                   | 0   | No                           | No                              |
| Mariposa Avenue to El Segundo Boulevard             | 11,059                     | 63.3                                   | 11,059                  | 63.3                                   | 0   | No                           | No                              |
| El Segundo Boulevard to Transit Center              | 11,745                     | 63.7                                   | 12,295                  | 63.9                                   | 0.2                                       | No                           | No                              |
| <b>Aviation Boulevard</b>                           |                            |  |                         |  |   |                              |                                 |
| El Segundo Boulevard to Utah Avenue                 | 31,802                     | 67.9                                   | 34,008                  | 68.2                                   | 0.3                                       | No                           | Yes                             |
| Rosecrans Avenue to 33 <sup>rd</sup> Street         | 47,837                     | 69.6                                   | 49,349                  | 69.8                                   | -0.2                                      | No                           | No                              |
| <b>Grand Avenue</b>                                 |                            |  |                         |  |   |                              |                                 |
| Main Street to Lomita Street                        | 8,488                      | 61.2                                   | 8,814                   | 61.4                                   | 0.2                                       | No                           | No                              |
| Kansas Street to Sepulveda Boulevard (SR-1)         | 10,308                     | 62.0                                   | 10,634                  | 62.2                                   | 0.2                                       | No                           | No                              |
| Sepulveda Boulevard (SR-1) to Continental Boulevard | 16,732                     | 60.9                                   | 16,732                  | 60.9                                   | 0   | No                           | No                              |
| <b>El Segundo Boulevard</b>                         |                            |  |                         |  |   |                              |                                 |
| West of Sepulveda Boulevard (SR-1)                  | 18,376                     | 64.2                                   | 18,682                  | 64.3                                   | 0.1                                       | No                           | No                              |
| Sepulveda Boulevard (SR-1) to Continental Boulevard | 28,195                     | 65.9                                   | 29,394                  | 66.1                                   | 0.2                                       | No                           | No                              |
| Continental Boulevard to Nash Street                | 32,522                     | 66.7                                   | 33,314                  | 66.7                                   | 0   | No                           | No                              |
| Nash Street to Douglas Street                       | 42,312                     | 67.7                                   | 55,088                  | 68.9                                   | 1.2                                       | No                           | No                              |
| Douglas Street to Aviation Boulevard                | 49,560                     | 68.3                                   | 61,786                  | 69.3                                   | 1.0                                       | No                           | No                              |
| Aviation Boulevard to Isis Avenue                   | 56,343                     | 69.0                                   | 64,631                  | 69.6                                   | 0.6                                       | No                           | No                              |
| Isis Avenue to La Cienega Avenue                    | 55,587                     | 69.0                                   | 63,875                  | 69.6                                   | 0.6                                       | No                           | Yes                             |
| East of La Cienega Boulevard                        | 43,654                     | 68.1                                   | 48,563                  | 68.6                                   | 0.5                                       | No                           | No                              |
| <b>Hughes Way</b>                                   |                            |  |                         |  |   |                              |                                 |
| East of Sepulveda Boulevard (SR-1)                  | 4,830                      | 59.7                                   | 24,349                  | 66.7                                   | 7.0                                       | Yes                          | No                              |
| <b>Rosecrans Avenue</b>                             |                            |  |                         |  |   |                              |                                 |
| Sepulveda Boulevard (SR-1) to Douglas Street        | 30,000                     | 66.4                                   | 30,000                  | 66.4                                   | 0   | No                           | No                              |
| Douglas Street to Aviation Boulevard                | 44,309                     | 68.0                                   | 44,859                  | 68.0                                   | 0   | No                           | No                              |
| Aviation Boulevard to Isis Avenue                   | 52,572                     | 68.7                                   | 53,204                  | 68.7                                   | 0   | No                           | Yes                             |
| East of I-405 freeway                               | 35,865                     | 67.1                                   | 36,497                  | 67.1                                   | 0   | No                           | No                              |

Source: Noise modeling is based upon traffic data within the *Raytheon South Campus Specific Plan Traffic Impact Analysis*, prepared by RBF Consulting, dated May 27, 2014.



### Slow-Moving Trucks (Deliveries)

The Project proposes office, warehousing, light industrial, and retail/restaurant uses that would necessitate occasional truck delivery operations. Typically, a medium two-axle truck used to make deliveries can generate a maximum noise level of 75 dBA at a distance of 50 feet. These are levels generated by a truck that is operated by an experienced “reasonable” driver with typically applied accelerations. Higher noise levels may be generated by the excessive application of power. Lower levels may be achieved, but would not be considered representative of normal truck operations. Delivery trucks would access the proposed uses, which are interspersed throughout the Project site, via the proposed Continental Boulevard and Nash Street extensions, and Hughes Way. The nearest sensitive receptors that would be subject to noise generated from delivery trucks on the Project site are Oceanside Christian Fellowship Church (approximately 50 feet east) and The Lakes at El Segundo Golf Course (approximately 70 feet west). At these distances, these uses would be subject to noise levels of 72.1 dBA and 75.0 dBA, respectively. These projected noise levels are within the City’s allowable exterior noise level thresholds (75 dBA) for churches and outdoor sports parks (*El Segundo General Plan EIR*). As such, these sensitive receptors would not be directly exposed to excessive noise levels from delivery trucks associated with the Project. Impacts would be less than significant in this regard.

### Mechanical Equipment

Future uses within the ESSCSP area would use heating, ventilation, and air conditioning units (HVAC). HVAC systems typically result in noise levels that average between 40 and 50 dBA Leq at 50 feet from the equipment. As the nearest sensitive receptors are located over 50 feet from the Project site’s eastern boundary, and are further from the closest potential location of the HVAC equipment, potential noise levels would be below the City’s limits of 75 dBA for churches and outdoor sports parks. Further, the Metro Green Line railway is located between the Project area and the nearest sensitive receptor to the east (Oceanside Christian Fellowship Church). As such, the Green Line would buffer the Project’s mechanical equipment from the church. The church is also subject to noise from the Green Line, which would mask any noise from the Project’s mechanical equipment. Therefore, impacts are less than significant level in this regard.

### Parking Areas

The ESSCSP proposes surface parking lots in the central portion of this site, with parking structures at the east, west, and southern portions. Noise associated with the proposed parking structures would be of greatest annoyance to the existing adjacent sensitive receptors to the east and west. The parking structure at the western portion of the Project site would be as close as 130 feet east of the Lakes at El Segundo Golf Course, and the parking structure in the eastern portion of the site would be approximately 385 feet west of the Oceanside Christian Fellowship Church. As shown in Table 5.5-11, *Maximum Noise Levels Generated by Parking Lots*, during Project operations, noise levels from parking activities would range from approximately 51.7 to 54.7 dBA at the exteriors of the Lakes at El Segundo Golf Course, the closest sensitive receptor to the proposed parking area in the western portion of the Project site. Thus, noise associated with parking activities would not exceed the City’s exterior standard of 75 dBA for outdoor sports parks; refer to Table 5.5-1. As such, impacts would be less than significant in this regard.



**Table 5.5-11  
Maximum Noise Levels Generated by Parking Lots**

| Noise Source   | Maximum Noise Levels at 50 Feet from Source (dBA L <sub>eq</sub> ) | Maximum Noise Levels at 130 Feet from Source (dBA L <sub>eq</sub> ) <sup>1,2</sup> |
|--|--|--|
| Car door slamming  | 63   | 54.7   |
| Car starting   | 60   | 51.7   |
| Car idling   | 61   | 52.7   |
| Notes:<br>1. Distance is from the nearest sensitive receptor to the closest parking space at the project site.<br>2. Estimated parking lot activity noise level is calculated by applying a 6-dBA reduction per doubling distance to the noise profiles at 50 feet. More precisely, the formula is as follows:<br><br>$dBA2 = dBA1 + 10\text{Log}_{10} (d1/d2)^2$ where:<br>dBA2 = Estimated Parking Lot Activity Noise Level;<br>dBA1 = Reference noise level at 50 feet;<br>d1 = reference distance of 50 feet;<br>d2 = Approximate Receptor Location Distance |  |  |

**Train Noise**

The elevated Los Angeles Metropolitan Transportation Authority (LA Metro) Green Line railway is located adjacent to the eastern Project boundary and the El Segundo Metro Rail Station is located adjacent to the northeast corner of the Project site, at 2226 East El Segundo Boulevard. The proposed retail uses located in the northeastern portion of the Project site could be located as close as 70 feet southwest of the railway centerline. However, these retail uses are not considered noise sensitive receptors and would not be impacted by the Green Line. Thus, noise impacts to future retail uses near the Green Line would be less than significant.

**Mitigation Measures:** No mitigation is required.

**Level of Significance:** Less Than Significant Impact.

**5.7.5 CUMULATIVE IMPACTS**

Table 4-1, Cumulative Projects List – City of El Segundo, and Table 4-2, Cumulative Projects List – Other Jurisdictions, identify the related projects and other possible development in the area determined as having the potential to interact with the proposed Project to the extent that a significant cumulative effect may occur. The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

**SHORT-TERM CONSTRUCTION NOISE IMPACTS**

- **DEVELOPMENT ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD RESULT IN SIGNIFICANT SHORT-TERM NOISE IMPACTS TO NEARBY NOISE SENSITIVE RECEIVERS.**



**Impact Analysis:** Construction activities associated with the proposed Project and cumulative projects may overlap, resulting in construction noise in the area. However, as analyzed above, construction noise impacts primarily affect the areas immediately adjacent to the construction site. Construction noise for the proposed Project was determined to be less than significant following compliance with the ESMC and Mitigation Measure N-1. This Project-level impact is due to local receptors and would not contribute cumulatively to construction noise in other areas of El Segundo, Culver City, Hawthorne, Inglewood, Los Angeles City, Los Angeles County, or Manhattan Beach; and Manhattan Beach, where the related projects are located.

The closest cumulative project is the Oceanside Christian Fellowship Church project that involves institutional uses (i.e., church and school) located directly east of the Project site. Although the Oceanside Christian Fellowship Church is located approximately 50 feet east of the proposed Project site, the Green Line railway is located between the two project areas, which would buffer construction noise. Due to the distance and the intervening uses and structures, the Oceanside Christian Fellowship Church construction noise would not interact with the Project's construction noise. Therefore, this cumulative project combined with proposed Project would result in less than significant construction-related cumulative noise impacts.

Further, the Project Applicant has no control over the timing or sequencing of the related projects, and as such, any quantitative analysis to ascertain the daily noise that assumes multiple, concurrent construction would be highly speculative. Construction-related noise for the proposed Project and each related project would be localized. In addition, each of the related projects would be subject to compliance with the applicable provisions of their respective Municipal Codes, as well as mitigation measures that may be prescribed pursuant to CEQA provisions that require significant impacts to be reduced to the extent feasible.

Thus, as construction noise is localized in nature and drops off rapidly from the source, and with implementation of Project-specific mitigation measures, less than significant cumulative construction-related noise impacts would result.

**Mitigation Measures:** Refer to Mitigation Measure N-1.

**Level of Significance:** Less Than Significant With Mitigation Incorporated.

## **LONG-TERM CUMULATIVE NOISE IMPACTS**

- **DEVELOPMENT ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD RESULT IN CUMULATIVELY CONSIDERABLE LONG-TERM NOISE IMPACTS.**

**Impact Analysis:**

### **Cumulative Stationary Noise**

Although related cumulative projects have been identified within the study area (see [Tables 4-1](#) and [4-2](#)), the noise generated by stationary equipment on-site cannot be quantified given the conceptual nature of each development and since speculation would be involved. However, each cumulative project would require separate discretionary approval and CEQA assessment,



which would address potential noise impacts and identify necessary attenuation measures, where appropriate. Additionally, as noise dissipates as it travels away from its source, noise impacts from stationary sources would be limited to each of the respective development sites and their vicinities.

As noted above, the Oceanside Christian Fellowship Church project site is located approximately 50 feet to the east of the Project site. Operational activities associated with the Oceanside Christian Fellowship Church project would involve stationary noise sources such as occasional noise from delivery trucks, parking activities, and HVAC equipment. However, as noted above, the Green Line railway is located between the Project site and Oceanside Christian Fellowship Church, which would buffer noise levels generated at each site. Consequently, the proposed Project would not contribute to a cumulative stationary noise impact and impacts would be less than significant. The proposed Project would not result in stationary long-term equipment that would significantly affect surrounding sensitive receptors. Thus, the Project and identified cumulative projects are not anticipated to result in a significant cumulative impact. Less than significant impacts would occur in this regard.

### Cumulative Mobile Noise

The cumulative mobile noise analysis is conducted in a two-step process. First, the combined effects from both the proposed Project and other projects are compared. Second, for combined effects that are determined to be cumulatively significant, the proposed Project's incremental effects are then analyzed. A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect compares the "cumulative plus project" condition to "existing" conditions. This comparison accounts for the traffic noise increase generated by the proposed Project combined with the traffic noise increase generated by the cumulative projects. The following criteria have been utilized to evaluate the combined effect of the cumulative noise increase.

- ***Combined Effects:*** The cumulative with project noise level ("Long-Range With Project" scenario) would cause a significant cumulative impact if a 3 dBA increase over existing conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use.

Although there may be a significant noise increase due to the proposed Project in combination with identified cumulative projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed Project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.

- ***Incremental Effects:*** The "Long-Range With Project" causes a 1 dBA increase in noise over the "Long-Range Without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been met. Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Consequently, only the cumulative development in the Project's general vicinity would contribute to cumulative noise impacts. [Table 5.5-12, \*Cumulative Noise Scenario\*](#), lists the traffic noise effects along roadway segments in the Project vicinity for "Existing," "Long-Range Without Project," and "Long-Range With Project," including incremental and net cumulative impacts. First, it must be determined whether the cumulative plus Project



increase above existing conditions (*Combined Effects*) is exceeded. Per [Table 5.5-12](#), this criterion is exceeded at five roadway segments along Continental Boulevard, Nash Street, and Hughes Way. However, noise levels along these roadways would range from 59.1 dBA to 66.7 dBA, which are within the City’s land use compatibility criteria for the land uses surrounding the Project site. Therefore, a significant impact regarding combined effects would not occur in this regard. Next, under the *Incremental Effects* criteria, cumulative noise impacts are defined by determining if the ambient (Long-Range Without Project) noise level is increased by 1 dB or more.

**Table 5.5-12  
Cumulative Noise Scenario**

| Roadway Segment                                     | Existing                               | Long-Range Without Project             | Long-Range With Project                | Combined Effects   | Incremental Effects  | Cumulatively Significant Impact? |
|---|--|--|--|--|--|----------------------------------|
|   | dBA @ 100 Feet from Roadway Centerline | dBA @ 100 Feet from Roadway Centerline | dBA @ 100 Feet from Roadway Centerline | Difference in dBA Between Existing and Long-Range With Project | Difference in dBA Between Long-Range Without Project and Long-Range With Project |                                  |
| <b>Sepulveda Boulevard (SR-1)</b>                   |  |  |  |  |  |                                  |
| Imperial Highway (I-105) to Walnut Avenue           | 70.8                                   | 72.9                                   | 73.1                                   | 2.3  | 0.2  | No                               |
| Maple Avenue to Mariposa Avenue                     | 70.7                                   | 72.8                                   | 73.0                                   | 2.3  | 0.2  | No                               |
| Mariposa Avenue to Grand Avenue                     | 70.4                                   | 72.6                                   | 72.9                                   | 2.5  | 0.3  | No                               |
| Grand Avenue to El Segundo Boulevard                | 70.3                                   | 72.5                                   | 72.8                                   | 2.5  | 0.3  | No                               |
| El Segundo Boulevard to Hughes Way                  | 70.5                                   | 72.6                                   | 71.8                                   | 1.3  | -0.8   | No                               |
| Hughes Way to Park Place                            | 70.9                                   | 73.3                                   | 73.5                                   | 2.6  | 0.2  | No                               |
| Park Place to Rosecrans Avenue                      | 71.6                                   | 73.7                                   | 73.9                                   | 2.3  | 0.2  | No                               |
| <b>Continental Boulevard</b>                        |  |  |  |  |  |                                  |
| Grand Avenue to El Segundo Boulevard                | 59.7                                   | 60.3                                   | 60.3                                   | 0.6  | 0  | No                               |
| South of El Segundo Boulevard                       | 52.0                                   | 52.0                                   | 59.1                                   | 7.1  | 7.1  | No <sup>1</sup>                  |
| <b>Nash Street</b>                                  |  |  |  |  |  |                                  |
| Imperial Highway (1-405) to Atwood Way              | 58.9                                   | 60.3                                   | 61.1                                   | 2.2  | 0.8  | No                               |
| Atwood Way to Maple Avenue                          | 59.4                                   | 61.1                                   | 61.8                                   | 2.4  | 0.7  | No                               |
| Maple Avenue to Mariposa Avenue                     | 59.3                                   | 61.4                                   | 62.5                                   | 3.2  | 1.1  | No                               |
| Mariposa Avenue to Grand Avenue                     | 60.6                                   | 62.0                                   | 63.1                                   | 2.5  | 1.1  | No                               |
| Grand Avenue to El Segundo Boulevard                | 59.3                                   | 61.6                                   | 62.7                                   | 3.4  | 1.1  | No                               |
| South of El Segundo Boulevard                       | 53.7                                   | 53.7                                   | 62.0                                   | 8.3  | 8.3  | No <sup>1</sup>                  |
| <b>Douglas Street</b>                               |  |  |  |  |  |                                  |
| Maple Avenue to Mariposa Avenue                     | 63.1                                   | 64.7                                   | 64.7                                   | 1.6  | 0  | No                               |
| Mariposa Avenue to El Segundo Boulevard             | 62.8                                   | 63.3                                   | 63.3                                   | 0.5  | 0  | No                               |
| El Segundo Boulevard to Transit Center              | 63.5                                   | 63.7                                   | 63.9                                   | 0.4  | 0.2  | No                               |
| <b>Aviation Boulevard</b>                           |  |  |  |  |  |                                  |
| El Segundo Boulevard to Utah Avenue                 | 67.5                                   | 67.9                                   | 68.2                                   | 0.7  | 0.3  | No                               |
| Rosecrans Avenue to 33 <sup>rd</sup> Street         | 69.3                                   | 69.6                                   | 69.8                                   | 0.5  | -0.2   | No                               |
| <b>Grand Avenue</b>                                 |  |  |  |  |  |                                  |
| Main Street to Lomita Street                        | 60.8                                   | 61.2                                   | 61.4                                   | 0.6  | 0.2  | No                               |
| Kansas Street to Sepulveda Boulevard (SR-1)         | 61.3                                   | 62.0                                   | 62.2                                   | 0.9  | 0.2  | No                               |
| Sepulveda Boulevard (SR-1) to Continental Boulevard | 59.9                                   | 60.9                                   | 60.9                                   | 1.0  | 0  | No                               |
| <b>Aviation Boulevard</b>                           |  |  |  |  |  |                                  |
| El Segundo Boulevard to Utah Avenue                 | 67.5                                   | 67.9                                   | 68.2                                   | 0.7  | 0.3  | No                               |
| Rosecrans Avenue to 33 <sup>rd</sup> Street         | 69.3                                   | 69.6                                   | 69.8                                   | 0.5  | -0.2   | No                               |



**Table 5.5-12 [continued]  
Cumulative Noise Scenario**

| Roadway Segment   | Existing                               | Long-Range Without Project             | Long-Range With Project                | Combined Effects   | Incremental Effects  | Cumulatively Significant Impact? |
|---|--|--|--|--|--|----------------------------------|
|   | dBA @ 100 Feet from Roadway Centerline | dBA @ 100 Feet from Roadway Centerline | dBA @ 100 Feet from Roadway Centerline | Difference in dBA Between Existing and Long-Range With Project | Difference in dBA Between Long-Range Without Project and Long-Range With Project |                                  |
| <b>Grand Avenue</b>   |  |  |  |  |  |                                  |
| Main Street to Lomita Street  | 60.8                                   | 61.2                                   | 61.4                                   | 0.6  | 0.2  | No                               |
| Kansas Street to Sepulveda Boulevard (SR-1)   | 61.3                                   | 62.0                                   | 62.2                                   | 0.9  | 0.2  | No                               |
| Sepulveda Boulevard (SR-1) to Continental Boulevard   | 59.9                                   | 60.9                                   | 60.9                                   | 1.0  | 0  | No                               |
| <b>El Segundo Boulevard</b>   |  |  |  |  |  |                                  |
| West of Sepulveda Boulevard (SR-1)  | 63.9                                   | 64.2                                   | 64.3                                   | 0.4  | 0.1  | No                               |
| Sepulveda Boulevard (SR-1) to Continental Boulevard   | 64.6                                   | 65.9                                   | 66.1                                   | 1.5  | 0.2  | No                               |
| Continental Boulevard to Nash Street  | 65.4                                   | 66.7                                   | 66.7                                   | 1.3  | 0  | No                               |
| Nash Street to Douglas Street   | 66.4                                   | 67.7                                   | 68.9                                   | 2.5  | 1.2  | No                               |
| Douglas Street to Aviation Boulevard  | 66.8                                   | 68.3                                   | 69.3                                   | 2.5  | 1.0  | No                               |
| Aviation Boulevard to Isis Avenue   | 67.7                                   | 69.0                                   | 69.6                                   | 1.9  | 0.6  | No                               |
| Isis Avenue to La Cienega Avenue  | 67.4                                   | 69.0                                   | 69.6                                   | 2.2  | 0.6  | No                               |
| East of La Cienega Boulevard  | 66.7                                   | 68.1                                   | 68.6                                   | 1.9  | 0.5  | No                               |
| <b>Hughes Way</b>   |  |  |  |  |  |                                  |
| East of Sepulveda Boulevard (SR-1)  | 59.7                                   | 59.7                                   | 66.7                                   | 7.0  | 7.0  | No <sup>1</sup>                  |
| <b>Rosecrans Avenue</b>   |  |  |  |  |  |                                  |
| Sepulveda Boulevard (SR-1) to Douglas Street  | 65.7                                   | 66.4                                   | 66.4                                   | 0.7  | 0  | No                               |
| Douglas Street to Aviation Boulevard  | 67.5                                   | 68.0                                   | 68.0                                   | 0.5  | 0  | No                               |
| Aviation Boulevard to Isis Avenue   | 68.0                                   | 68.7                                   | 68.7                                   | 0.7  | 0  | No                               |
| East of I-405 freeway   | 66.7                                   | 67.1                                   | 67.1                                   | 0.4  | 0  | No                               |
| Notes: ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level  |  |  |  |  |  |                                  |
| Source: Noise modeling is based upon traffic data within the <i>Raytheon South Campus Specific Plan Traffic Impact Analysis</i> , prepared by RBF Consulting, dated May 27, 2014.   |  |  |  |  |  |                                  |
| Notes:  |  |  |  |  |  |                                  |
| 1. Although both the combined and incremental effects thresholds are exceeded, the resultant noise levels do not exceed the City's Noise Standards for the land uses along this roadway segment, and would not result in a cumulatively significant impact. |  |  |  |  |  |                                  |

Based on the results shown in Table 5.5-12, eight roadway segments would have incremental noise level increases over a 1.0 dBA (along Continental Boulevard, Nash Street, El Segundo Boulevard, and Hughes Way). However, the resultant noise levels would range from 59.1 dBA to 69.3 dBA, which are within the City's Noise Standards for the land uses along these roadway segments. Therefore, there would not be any roadway segments that would result in significant impacts, as they would not exceed both the combined and incremental effects criteria, as well as the City's Noise Standards. It should be noted that the criterion for determining a project's cumulative mobile noise impacts differs from the criterion for determining a project's long-term mobile noise impacts; refer to Section 5.5.3, *Impact Thresholds and Significance Criteria*. The proposed Project would not result in long-term mobile noise impacts based on Project-generated traffic combined with cumulative and incremental noise levels. Therefore, the proposed Project, combined with cumulative background traffic noise levels, would result in a less than significant cumulative impact in this regard.



**Mitigation Measures:** No mitigation is required.

**Level of Significance:** Less Than Significant Impact.

## **5.5.6 SIGNIFICANT UNAVOIDABLE IMPACTS**

No unavoidable significant noise impacts have been identified.

## **5.5.7 SOURCES CITED**

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