

INTRODUCTION

Noise is usually defined as unwanted sound. It is an undesirable by-product of society's normal day-to-day activities. Generally, sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The definition of noise as unwanted sound implies that it has an adverse effect on people and their environment.

CHARACTERISTICS OF NOISE

Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). The human ear does not respond uniformly to sounds at all frequencies, being less sensitive to low and high frequencies than to medium frequencies that correspond with human speech. In response to this noise condition, the A-weighted noise level (or scale) has been developed. It corresponds with a person's subjective judgment of sound levels. This A-weighted sound level is called the "noise level" referenced in units of dB(A). As stated, noise is measured on a logarithmic scale; a doubling of sound energy results in a 3 dB(A) increase in noise levels. However, changes in a community noise level of less than 3 dB(A) are not typically noticed by the human ear.¹ Changes from 3 to 5 dB(A) may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dB increase is readily noticeable, while the human ear perceives a doubling of sound to be a 10 dB increase in sound level.

Noise sources occur in two forms: (1) point sources, such as noise from stationary equipment; and (2) line sources, such as noise along a roadway with a large number of point sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dB for each doubling of distance from the source at acoustically "hard" sites and 7.5 dB at acoustically "soft" sites.² Sound generated by a line source typically attenuates at a rate of 3 dB and 4.5 dB per doubling of distance, for hard and soft sites, respectively.³ Sound levels can also be attenuated by man-made or natural barriers, as illustrated in **Figure 4.9-1**.

¹ Federal Highway Administration, U.S. Department of Transportation: *Highway Noise Fundamentals*, p. 81. Springfield, Virginia: September 1980.

² Federal Highway Administration, U.S. Department of Transportation: *Highway Noise Fundamentals*, p. 97. A "hard" or reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt, concrete, and very hard packed soils. An acoustically "soft" or absorptive site is characteristic of normal earth and most ground with vegetation.

³ *Ibid.*, p. 97.

Screen walls, berms, or depressed roads typically reduce noise levels by 5 to 10 dB(A).⁴ Sound levels for a source may also be attenuated 3 to 5 dB(A) by a first row of houses and 1.5 dB(A) for each additional row of homes. Exterior to interior noise attenuation provided by typical structures in the southern United States is provided in **Table 4.9-1**.

Table 4.9-1
Outside to Inside Noise Attenuation

Building Type	Noise Reduction - dB(A)	
	Open Windows	Closed Windows
Residences	12	20
Schools	12	20
Churches	20	30
Hospitals/Convalescent Homes	17	25
Offices	17	25
Theaters	20	30
Hotels/Motels	17	25

Source: *Highway Noise Fundamentals*, p. 117.

When assessing community reaction to noise, there is an obvious need for a scale, which averages noise levels over a longer time period. Several scales have been developed which address this issue. The most applicable are the equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL). L_{eq} is the equivalent A-weighted sound level averaged over a given time interval. L_{eq} can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods. CNEL is the average equivalent A-weighted sound levels that occur over a 24-hour day, obtained after the addition of five decibels to sound levels occurring during the evening from 7 PM to 10 PM, and the addition of ten decibels to sound levels occurring during the nighttime from 10 PM to 7 AM. The five- and ten-decibel penalties are applied because people have an increased sensitivity to noise during these time periods.

NOISE ANALYSIS METHODOLOGY

The purpose of the noise analysis is twofold: (1) to evaluate the RiverPark Project in terms of design to ensure that land uses are planned appropriately from a noise perspective; and (2) to evaluate the noise impact of the project on surrounding land uses.

⁴ Federal Highway Administration, U.S. Department of Transportation: *Highway Noise Mitigation*, p. 18. Springfield, Virginia: September 1980.

Figure 4.9-1
Noise Attenuation by Barriers

The analysis of existing and future traffic noise presented in this section of the Draft EIR is based on noise level prediction modeling. Noise prediction modeling involves the calculation of vehicular noise levels along roadway segments in the project vicinity using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108). Current and future traffic volumes used data obtained from the project traffic report and additional information provided by the traffic engineer. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and on site environmental conditions (i.e., topography, barriers, etc.). Noise energy rates utilized in the FHWA Model have been modified to reflect average vehicle noise energy rates identified by the California Department of Transportation.⁵

In addition to forecasting roadway noise levels, an acoustical analysis was conducted for a ballpark that could be developed within the Specific Plan Area subject to a special use permit.⁶ Although the ballpark would be used primarily for sporting events, the noise analysis is based on amplified concert events which represents a worst case scenario with regards to noise impacts resulting from ballpark use.

PLANS AND POLICIES FOR NOISE CONTROL

Plans and policies that pertain to noise and its effect of the surrounding environs are discussed below. These plans and policies include: (1) the City of Oxnard *2020 General Plan* Noise Element and Ordinance; and (2) the State of California, Department of Environmental Health, Office of Noise Control guidelines for noise and land use compatibility.

City of Oxnard *2020 General Plan*

The California Government Code requires that a noise element be included in the *General Plan* of each county and city in the state. Local government goals, objectives, and policies for noise control are established by the noise element of the *General Plan* and the passage of specific noise ordinances. The City of Oxnard has adopted a noise ordinance and also uses the Noise Element of the *2020 General Plan* as the basis for the adoption and enforcement of noise standards. The objectives and policies identified in the Noise Element of the *General Plan* regarding the noise environment that pertain to this proposed project are as follows:

⁵ Rudolf W. Hendriks, California Department of Transportation: *California Vehicle Noise Emission Levels*, Sacramento, California, January 1987, NTIS, FHWA/CA/TL-87/03.

⁶ Shen, Milsom, Wilke & Paoletti, Inc., February 2001.

Objectives

1. Provide acceptable noise levels for residential and other noise-sensitive land uses consistent with State guidelines.
2. Protect noise sensitive uses from areas with high ambient noise levels.

Policies

- a) The City should encourage land uses that are not noise sensitive in areas that are permanently committed to noise-producing land uses, such as transportation corridors.
- b) The City shall promote, where feasible, alternative sound attenuation measures other than the traditional wall barrier. These may include berms, a combination of berms and landscaping, or relocating buildings away from the roadway or other noise source.
- c) Proposed development projects shall not generate more noise than classified as “satisfactory,” as determined by the noise compatibility standards, on nearby property. Project applicants shall reduce or buffer the noise generated by their projects.
- d) The City shall continue to enforce State Noise Insulation Standards for proposed projects (such as the proposed project) in suspected high noise environments. The Planning Division shall notify prospective developers that, as a condition of permit issuance, they must comply with noise mitigation measures which are designed by an acoustical engineer. No building permits will be issued without City staff approval of the acoustical report/design.

California Department of Environmental Health

The State of California, Department of Environmental Health (CDEH) Office of Noise Control, also published recommended guidelines for mobile source noise and land use compatibility. Each jurisdiction is required to consider these guidelines when developing its *General Plan* Noise Element and determining the acceptable noise levels within its community. The City of Oxnard defers to these guidelines when assessing a project’s noise compatibility with motor vehicle noise sources. These guidelines are illustrated in **Figure 4.9-2**.

As shown, the State and City typically consider an exterior noise level of 60 dB(A) CNEL as the value which separates normally acceptable noise from conditionally acceptable levels for single family detached residential uses. A noise level of 65 dB(A) CNEL typically separates normally acceptable and conditionally acceptable noise conditions for multi-family units and transient lodging. A noise level of 70 dB(A) CNEL is typically used to divide acceptable and unacceptable noise for all noise sensitive uses.

Figure 4.9-2
Land Use Compatibility Guidelines for Noise

ENVIRONMENTAL SETTING

Dominant noise sources on and near the Specific Plan Area include vehicular traffic traveling along the local roadway system, operations at the on-site sand and gravel mine, as well as agricultural operations. Each of these noise sources are discussed and described below.

Traffic Noise

In order to characterize the existing ambient noise environment, noise levels created by vehicular traffic traveling along the roadway segments which would be most affected by the project were calculated. Noise sensitive uses located along these roadways were identified as uses that could be potentially impacted by increases in traffic noise. The results are presented below in **Table 4.9-2**.

Table 4.9-2
Existing Roadway Noise Levels

ROADWAY	Land Uses along Roadway Segments	dB(A) CNEL¹
VINEYARD		
Los Angeles/Central	Residential	67.9
Simon/Stroube	Residential	64.8
Stroube/Ventura	Residential/School	64.7
VENTURA		
Wagon Wheel/Vineyard	Residential	72.6
Vineyard/Gonzales	Residential	76.9
OXNARD		
Gonzales/Vineyard	Residential	78.2
GONZALES		
Ventura/Oxnard	Residential/Medical Clinic	74.9
WAGON WHEEL		
Esplanade/US 101 SB Ramps	Residential/Motel	55.6
STROUBE		
East of Vineyard	Residential	55.7
JOHNSON		
Telephone/Ralston	Residential/School	67.2
Ralston/Bristol	Residential	69.2
Bristol/North Bank	Residential	73.1
VICTORIA		
Valentine/Telephone	Residential	78.1
TELEPHONE		
Victoria/Johnson	School/Church	67.2
RALSTON		
Victoria/Johnson	Residential	63.0
VALENTINE		
Victoria/US 101 SB Ramps	Hotel	63.7

¹ Distance from centerline is variable based on existing roadway configurations
Source: Impact Sciences, Inc. Calculations provided in **Appendix 4.9**.

As shown in **Table 4.9-2**, the majority of noise sensitive land uses along the studied roadway segments presently experience noise levels between 55.6 and 78.2 dB(A) CNEL. Specific noise sensitive uses include multi- and single-family residential uses, as well as schools, motels, hotels, and churches.

Sand and Gravel Mine

The Hanson Aggregates Mine Site, which makes up RiverPark Area 'B', is one of several sand and gravel mining sites located along the eastern edge of the Santa Clara River. Mining on this site has ceased. Active plant facilities on the mine site include two ready mix concrete batch plants operated by Associated Ready Mix, an asphalt plant operated by Sully Miller, a recycling plant operated by Hanson Aggregates, and related shop areas and offices. Hanson Aggregates has recently removed some facilities and completed other site maintenance activities in accordance with the approved reclamation plan for the site. Over the past year Hanson Aggregates has removed a rock and sand plant, various equipment in other locations on the property, an underground asphalt oil tank, and three transformer. Primary noise associated with the remaining on site facilities include the operational noise generated from the plant facilities as well as the mobile source noise generated from trucks entering and leaving the site. Noise generated from the sand and gravel mine site will cease when the existing plants and related activities cease.

Agricultural Operations

Agricultural activities consisting of the cultivating and growing of row crops occurs on site. Tractors and similar mechanized equipment of typical sizes used on Ventura County farms produce noise levels in the range of 75 to 85 dB(A) at 50 feet.⁷ The on-site agricultural uses presently exist south of the Hanson Aggregates property. Both single and multi-family homes, which exists east of the agricultural fields, experiences noise from the adjacent farming operations. At build out of the Specific Plan, the existing agricultural fields would be developed and, consequently, noise associated with the agricultural operations would cease. As a result, the residential uses would no longer experience farming operation noise.

PROJECT IMPACTS

Thresholds of Significance

Noise thresholds used by the City of Oxnard consider both the Noise Compatibility Criteria (**Figure 4.9-2**) and community responses to changes in noise levels. Changes in a noise level of less than 3 dB(A) are not typically noticed by the human ear.⁸ Changes from 3 to 5 dB(A) may be noticed by some individuals who are sensitive to changes in noise. A 5 dB(A) increase is readily noticeable. Based on this information, the City of Oxnard has selected the following thresholds for this analysis:

⁷ Ventura County *General Plan, Hazards Appendix*, May 24, 1988.

⁸ Federal Highway Administration, *Highway Noise Fundamentals*, 1980.

1. An increase of 5 dB(A) or greater in noise levels that occurs from project-related activities would be considered noticeable, but not significant, if the resulting noise level would be within the acceptable range as identified in the *General Plan*. However, an increase of 3 dB(A) or greater in noise levels that occur from project-related activities would be significant if the resulting noise level would be greater than the acceptable range as identified in the *General Plan*.
2. Noise associated with the operation of any facility within the Specific Plan Area is considered significant if it would create, maintain, cause or allow the sound level, when measured on any other property, to exceed the allowable exterior sound level for a cumulative period of more than thirty (30) minutes in any hour.
3. Construction noise is considered significant when it exceeds the levels in identified below in **Table 4.9-3**. Additionally, the City has adopted a Noise Ordinance which regulate the permitted hours of construction. As stated in §19-60.9, construction activity is permitted between the hours of 7 AM and 6 PM Monday through Saturday. As shown, mobile construction noise sources that would exceed 75 dB(A) L_{eq} at single family residences during permitted construction hours would result in a significant impact, while stationary noise sources exceeding 60 dB(A) L_{eq} at single family residences would result in a significant impact.

**Table 4.9-3
Construction Equipment Noise Thresholds**

Residential Structures			
	Single Family Residential	Multi-Family Residential	Commercial¹
Mobile Equipment: Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment:			
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	75 dB(A) L_{eq}	80 dB(A) L_{eq}	85 dB(A) L_{eq}
Daily, 8:00 PM to 7:00 AM and all day Sunday and legal holidays	60 dB(A) L_{eq}	64 dB(A) L_{eq}	70 dB(A) L_{eq}
Stationary Equipment: Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment:			
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	60 dB(A) L_{eq}	65 dB(A) L_{eq}	70 dB(A) L_{eq}
Daily, 8:00 PM to 7:00 AM and all day Sunday and legal holidays	50 dB(A) L_{eq}	55 dB(A) L_{eq}	60 dB(A) L_{eq}
Business Structures			
		All Structures	
Mobile Equipment: Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:			
Daily, including Sunday and legal holidays, all hours		85 dB(A) L_{eq}	

¹Refers to residential structures within a commercial area. This standard does not apply to commercial structures.

Project Impacts

Construction Impacts

The U.S. Environmental Protection Agency has compiled data regarding the noise generating characteristics of specific types of construction equipment. These data are presented in **Figure 4.9-3**. As shown, noise levels generated by heavy equipment can range from approximately 68 dB(A) to noise levels in excess of 100 dB(A) when measured at 50 feet. These noise levels decrease rapidly as distance from the construction site increases. Specifically, noise levels diminish at a rate of approximately 6 dB(A) per doubling of distance. For example, a noise level of 68 dB(A) measured at 50 feet from the noise source to the receptor would reduce to 62 dB(A) at 100 feet from the source to the receptor, and further reduced by another 6 dB(A) to 56 dB(A) at 200 feet from the source to the receptor.

Development of the proposed RiverPark Project would involve two main phases of construction activities. First, overall site development, involving mass grading and construction of all major infrastructure and primary roadways would occur over the entire Specific Plan Area. The second phase of construction would consist of the construction of individual building projects within the Specific Plan Area. Construction of individual building projects is projected to occur periodically from 2002 to 2020. Equipment used would range from heavy machinery such as graders, scrapers, tractors, loaders and cranes during site development, to jackhammers, pneumatic tools, saws, and hammers during individual building projects. This equipment would generate both steady state and episodic noise that would be heard both on and off the Specific Plan Area. Potential noise impacts are analyzed separately for the site development and individual building projects.

Site Development

Site development of the RiverPark Project would involve rough grading and site preparation activities occurring over an estimated 12 month period. As discussed in **Section 2.0, Environmental Setting**, the Specific Plan Area consists of two primary development areas, RiverPark Area 'A' and RiverPark Area 'B'. As illustrated in **Figure 4.9-4**, RiverPark Area 'A' is primarily comprised of agricultural fields while RiverPark Area 'B' is primarily comprised of the Hanson Aggregates Property.

RiverPark Area 'A' is bordered by the El Rio West Residential Neighborhood to the east, the Ventura Freeway to the south and the Santa Clara River to the west. RiverPark Area 'B' is bordered by industrial uses to the north, Vineyard Avenue, the El Rio Community and agricultural uses to the east and the El Rio West Neighborhood to the south. RiverPark Area 'A' is currently under agricultural

Figure 4.9-3
Noise Levels of Typical Construction Equipment

FIGURE 4.9-4
Development areas and surrounding uses

production and is relatively flat. Grading and site preparation requirements in RiverPark Area 'A' are not the same as those for RiverPark Area 'B'. RiverPark Area 'B' has historically been used for sand and gravel mining activities. As a result, soils in the area consist of uncompacted sandy soils unsuitable for development. Additionally, there are three existing mint pits as well as the existing El Rio Retention Basins 1 and 2 in RiverPark Area 'B'. These areas would require extensive earthwork in order to properly engineer the soils to accommodate the proposed land uses. As a result of these existing conditions the RiverPark Area 'B' area would require greater amounts of grading and site preparation.

Site development activities, which involve the use of backhoes, tractors, scrapers, graders, and trucks, would be conducted throughout the Specific Plan Area, and in the case of the El Rio West Neighborhood, immediately adjacent to existing residences. As one can see by referencing **Figure 4.9-3**, equipment used during the site development and preparation activities typically generate the loudest noise levels of all standard construction equipment. These noise levels would primarily affect adjacent land uses, as there would not be any on site uses during this construction phase. Specifically, adjacent land uses include residential uses in the El Rio West Neighborhood to the east of the Specific Plan Area with some industrial uses to the north and existing mid-rise offices in the southwest corner of the plan area. However, of these adjacent uses, only the residences in the El Rio West Neighborhood and El Rio Community, as shown on **Figure 4.9-4**, would be sensitive to noise generated from the construction activities. El Rio West is located directly adjacent to RiverPark Area 'A' and 'B', while the El Rio Community is separated from RiverPark Area 'B' by Vineyard Avenue. The El Rio Community has four residences fronting the RiverPark Specific Plan Area separated by Vineyard Avenue, while El Rio West has a total of sixteen (16) single-family residences and one multi-family complex directly fronting the plan area. Of these, eight residences directly front RiverPark Area 'A' with the remaining eight residences and the multi-family complex front RiverPark Area 'B'. Due to the proximity of El Rio West to the construction area, noise levels resulting from construction activities would be greater at these residences than the four located in the El Rio Community. The El Rio West residences would receive unattenuated sound waves from the on site construction activities, while concurrently providing attenuation to the El Rio West residences directly adjacent to them. Unattenuated noise levels at the residences fronting the Specific Plan Area could exceed 95 dB(A) during grading activities in which the grading equipment is operating along the project boundary. It should be noted that these noise levels would only occur as grading and site preparation activities are occurring in the vicinity of the sensitive receptors. When compared to the noise thresholds identified in **Table 4.9-3**, the short-term 95 dB(A) noise level generated by the heavy grading equipment would exceed the threshold and result in a significant impact.

Individual Building Projects

As discussed above, the site development phase of the proposed project would last approximately 12 months. During this time, all infrastructure and major topographic grades would be established in preparation for development of the individual building projects. After the initial site development is completed, build-out of the allowed uses would begin. Full build-out of the Specific Plan Area is assumed by 2020. No pre-determined phasing plan has been developed to guide which uses would be developed when and where within the Specific Plan Area. Therefore, there is not enough information available at this time to fully assess potential development and construction noise impacts on both on and off-site locations without making several assumptions, which are discussed below.

On-Site

As individual building projects are carried out, potential construction noise impacts to on-site uses could occur. Again, as no phasing plan exists, no specific land use orientations or configurations exist from which to base potential construction noise impacts to future on-site uses.

However, all future building project construction activities would be subject to noise regulations outlined within the City's Noise Ordinance. Specifically, §19-60.9 of the Oxnard Noise Ordinance limits the hours of construction between 7 AM and 6 PM Monday through Saturday. For the purposes of this analysis, the residential and school uses proposed for the RiverPark Project would be considered sensitive receptors and basing noise impacts at these receptors represents a worst-case noise analysis for potential future on-site construction noise impacts. Furthermore, it is reasonable to assume that development immediately adjacent to constructed future uses would have a direct line of sight to the construction activity which would result in unattenuated noise levels at these adjacent land uses. Based on a reasonably worst case scenario, and comparing typical construction equipment noise identified on **Figure 4.9-3** with the construction thresholds presented in **Table 4.9-3**, it is reasonable to infer that construction activities adjacent to sensitive receptors would exceed the thresholds for construction noise and result in a significant impact.

Off-Site

As with potential construction noise impacts to on site uses as a result of individual building projects, potential construction noise impacts to existing and proposed off-site uses could also occur. As discussed earlier, the El Rio West and El Rio Community currently exist adjacent to the RiverPark Project Area. Additionally, there is a potential for development of an existing vacant parcel within the El Rio West area that is immediately adjacent to the RiverPark Area 'A' area. For the purposes of this discussion, assuming that this parcel would be developed with single family residences would assume a worst case

scenario with respect to potential construction noise impacts to off-site locations, as single family residences are considered sensitive receptors.

Again, §19-60.9 of the Oxnard Noise Ordinance limits the hours of construction between 7 AM and 6 PM Monday through Saturday. Construction activities are not permitted to occur outside of this time range except for emergency situations. Again, for the purposes of this analysis, the residential uses adjacent to the RiverPark Project, specifically in the El Rio West Neighborhood would be considered sensitive receptors and analyzing noise impacts at these receptors represents a worst-case noise analysis for potential future off-site construction noise impacts. Furthermore, it is reasonable to assume that development immediately adjacent to constructed future uses would have a direct line of site to the construction activity which would result in unattenuated noise levels at these adjacent land uses. Based on a reasonably worst case scenario, and comparing typical construction equipment noise identified on **Figure 4.9-3** with the construction thresholds presented in **Table 4.9-3**, it is reasonable to conclude that individual building projects adjacent to sensitive receptors would exceed the thresholds for construction noise and result in a significant impact.

Mobile Construction Noise

Another aspect of construction related noise involves the use of heavy trucks to haul equipment and materials to the site, as well as transport debris. Additionally, all workers would most likely be transported to the site by automobiles utilizing the local roadway system which would in-turn generate additional noise. However, as Vineyard Avenue currently experiences traffic volumes in excess of 20,000 ADT, the addition of related construction workers to the roadway's ADT would not result in a noticeable difference in ambient noise levels. It should be noted that the RiverPark Project would balance all soils on site. Therefore, the project would not require the use of truck haul routes to either import or export soils which is a substantial factor in potential off site noise impacts. Impacts resulting from mobile construction noise would not be significant.

Operational Impacts

Potential noise impacts could also result from operational activities both on and off the RiverPark Project area. These impacts are attributable to mobile source noise, stationary source noise and human activity. Each of these potential noise sources is described below.

Mobile Source Noise

Mobile source noise associated with buildout of the proposed project could affect the surrounding environment in two possible ways. First, traffic noise can potentially impact receptors located within

the Specific Plan Area and secondly, traffic noise can potentially impact off site uses. Both, on and off-site noise impacts associated with vehicular noise are discussed below.

On Site Roadway Noise

In order to help guide and configure the land uses into areas considered acceptable according to the land use compatibility guidelines, **Table 4.9-4** identifies those land use types planned for the specified roadway segments and compares them with the predicted noise levels based on traffic volumes forecasted in the traffic study.

Table 4.9-4
Future On-site Noise Contours and Land Use Types

ROADWAY Segment	Planned Land Uses	Distance from Center of Roadway				
		CNEL at		Noise Contour (ft.)		
		75 feet	75 dB(A) CNEL	70 dB(A) CNEL	65 dB(A) CNEL	60 dB(A) CNEL
OXNARD BOULEVARD						
US 101/Town Center	Commercial	68.3	45	64	117	243
Town Center/Santa Clara River	Commercial/ Mixed Use	63.6	29	38	65	132
South Park/North Park	Multi-Family	59.6	27	30	41	71
North of North Park	Single Family	56.6	27	38	33	50
SOUTH PARK DRIVE						
Santa Clara River/Oxnard	Single Family/ Multi-Family	56.8	20	24	30	49
West of Oxnard	Single Family/ Multi-Family	49.4	<10	<10	12	18
SANTA CLARA RIVER BOULEVARD						
Vineyard/South Park	Single Family/School	63.0	40	44	60	110
South Park/Oxnard	Multi-Family/ Commercial	61.3	39	42	53	88
Town Center/Oxnard	School/ Commercial	61.3	28	32	48	90
MYRTLE STREET						
Town Center/Vineyard	Single Family/ Commercial	58.3	<26	28	36	60
Town Center/Santa Clara River	Single Family/ Commercial	54.9	<26	26	30	42
TOWN CENTER DRIVE						
Santa Clara River/Oxnard	Commercial	60.0	23	27	40	75
Oxnard/Myrtle	Commercial	58.9	22	25	35	64
NORTH PARK DRIVE						
Oxnard/Vineyard	Single Family	57.0	<22	24	30	50
West of Oxnard	Single Family	51.8	<22	22	24	30

Source: Impact Sciences, Inc. Calculations are provided in **Appendix 4.9**. Predicted noise levels assume no attenuation by barriers. Intervening walls, terrain, setbacks and structures proposed by the project will reduce these noise levels.

Based on traffic volumes consistent with **Section 4.7, Transportation & Circulation** of this EIR, noise modeling was conducted to predict noise contours along on-site roadways. As presented in **Table 4.9-4**, noise levels along the roadways within the Specific Plan Area are predicted to range from 49.4 dB(A) CNEL along South Park Drive to 68.3 dB(A) CNEL along Oxnard Boulevard when measured at 75 feet from the roadway centerline. It is important to note that the noise levels in **Table 4.9-4** assume no attenuation by either natural or man-made barriers and, as such, represent maximum, worst-case, noise levels.

While setbacks and roadway widths have been drafted, the configuration, orientation of specific land use types along the fixed roadway segments are unknown at the present time and would not be defined until individual tract maps are prepared. However, forecasted noise contours for the fixed roadways can be used as a guide to determine if the proposed land uses would be significantly impacted as a result of vehicular traffic noise.

As shown on **Figure 4.9-3**, noise levels normally acceptable for single family residences ranges up to 60 dB(A) CNEL. When compared to the forecasted noise levels expected for roadway segments adjacent to single family residences, only one segment exceeds the standard. As all the other on site roadway segments adjacent to single family uses would be below the 60 dB(A) threshold, no impacts would occur at these locations. Projected noise levels along Santa Clara River Boulevard between Vineyard Avenue and South Park Drive are 63 dB(A) at 75 ft. A 60 ft. landscaped buffer would separate Santa Clara River Boulevard from existing homes in the El Rio West Neighborhood to the south. Located to the south of Santa Clara River Boulevard with a 4 to 8 ft. berm included in the 60 ft. buffer. With the 60 ft. buffer and 4 to 9 foot berm, resulting noise levels would be attenuated by at least 5 dB(A).⁹ Therefore, the expected 63 dB(A) roadway noise level would be reduced to approximately 58 dB(A) at 75 ft. Consequently, no significant impact would occur.

Noise levels normally acceptable for multi-family residences ranges up to 65 dB(A) CNEL. All roadway segments adjacent to multi-family uses would not exceed 65 dB(A) CNEL. Therefore, as the projected noise levels would not exceed the threshold, no impacts associated with on site vehicular noise sources on multi-family uses would occur.

The RiverPark Specific Plan proposes two school sites along Santa Clara River Boulevard on the eastern and western project boundaries. Specifically, one site is located along Vineyard Avenue, between North and South Park Drive, while the other school site on the western edge of the Specific

⁹ Federal Highway Administration, U.S. Department of Transportation: *Highway Noise Mitigation*, p. 18. Springfield, Virginia: September 1980.

Plan Area. The land use compatibility guidelines for noise indicate that normally acceptable noise levels for school site ranges up to 70 dB(A) CNEL. Neither of the roadway segments that are adjacent to these school sites would exceed 63 dB(A) CNEL. Therefore, as the noise levels would not exceed the threshold, no impacts would occur.

Finally, both parks and commercial uses would be located adjacent to on site roadways. Both of these land use categories, when compared to the land use compatibility guidelines for noise, should not exceed 70 dB(A) CNEL. The roadway segment with the highest forecasted noise level resulting from vehicular noise is Oxnard Boulevard between US 101 and Town Center Drive. The expected noise level along this roadway is 68.3 dB(A) CNEL. Therefore, as the highest noise level would not exceed the threshold, no noise impacts would occur to the proposed park and commercial facilities.

Off-site Mobile Noise

A similar method was used in calculating the expected noise levels resulting from vehicular noise at off site sensitive receptor locations. **Table 4.9-5**, below, identifies those land use types along the specified roadway segments and compares them with the predicted noise levels based on traffic volumes forecasted in the traffic study to the land use compatibility guidelines. Off-site noise level impacts are based on the difference between existing traffic volumes and existing traffic volumes plus project-generated trips.

As shown, noise level changes attributable to the Specific Plan Area at off site locations are predicted to range between -0.6 dB(A) and 1.6 dB(A). The greatest increase in ambient noise levels (1.6 dB(A)) attributable to the project would occur along Ventura Road between Wagon Wheel Road and Vineyard Avenue. It is noted that several noise sensitive uses found along off-site study roadways are expected to experience noise levels in excess of the land use compatibility guidelines for noise thresholds. However, as stated earlier, an increase of less than 3 dB(A) CNEL would not exceed the off-site mobile source thresholds of significance for this analysis and would hardly be perceptible to the human ear. Therefore, the proposed project would not result in any significant off site noise impacts resulting from vehicular sources at off site locations.

**Table 4.9-5
Existing Plus Project Roadway Noise Levels**

ROADWAY Segment	Noise Sensitive Land Uses	Existing CNEL	Existing + Project CNEL	Increase in CNEL	Significant Project Impact
VINEYARD AVENUE					
Los Angeles/Central	Residential	67.9	68.6	0.7	NO
Stroube/Ventura	Residential/School	64.7	64.4	-0.3	NO
North Park/Stroube	School	64.8	64.8	0.0	NO
VENTURA ROAD					
Wagon Wheel/Vineyard	Residential	72.6	74.2	1.6	NO
Vineyard/Gonzales	Residential	76.9	77.7	0.8	NO
OXNARD BOULEVARD					
Gonzales/Vineyard	Residential	78.2	78.7	0.5	NO
GONZALES ROAD					
Ventura/Oxnard	Residential/Medical	74.9	75.5	0.6	NO
WAGON WHEEL ROAD					
Esplanade/US 101 SB Ramps	Residential/Motel	55.6	55.0	-0.6	NO
STROUBE STREET					
East of Vineyard	Residential	55.7	56.5	0.8	NO
JOHNSON DRIVE					
Telephone/Ralston	Residential/School	67.2	67.4	0.2	NO
Ralston/Bristol	Residential	69.2	69.5	0.3	NO
Bristol/North Bank	Residential	73.1	73.3	0.2	NO
VICTORIA AVENUE					
Valentine/Telephone	Residential	78.1	78.6	0.5	NO
TELEPHONE ROAD					
Victoria/Johnson	School/Church	67.2	67.4	0.2	NO
RALSTON STREET					
Victoria/Johnson	Residential	63.0	63.1	0.1	NO
VALENTINE ROAD					
Victoria/US 101 SB Ramps	Hotel 6	63.7	63.9	0.2	NO

Source: Impact Sciences, Inc. Calculations provided in **Appendix 4.9**.

Other Noise Sources

The Specific Plan permits development of a 5,000-seat multi-use ballpark in Planning District D between the Ventura Freeway, Oxnard Boulevard, Santa Clara River Boulevard and Myrtle Street. Development of this use is subject to the issuance of a Special Use Permit (SUP) by the City of Oxnard. The RiverPark Specific Plan would permit the ballpark facility to be used by a minor league baseball team and be available for other public and entertainment events, such as festivals, fairs, and concerts. The ballpark would also be made available for use by high school and college baseball teams. The precise location, specific design and operational characteristics of this facility would be proposed at the time an application for a SUP is submitted to the City.

Use of amplified sound for the ballpark could result in noise impacts, however, amplified sound would not be used at all activities. While the precise location of such a facility within District D is not

known at this time, the potential for impacts can be assessed based on the type of sound system design typical for such a facility. Noise from operation of the ballpark would be significant if it exceeds established thresholds for land uses. The proposed RiverPark Specific Plan would permit development of high density housing in along portions of Oxnard Boulevard, Santa Clara River Boulevard and Myrtle Street. High and medium density housing is also permitted to the west, north and east of Planning District D. Housing in these areas would be separated from Planning District D by major streets including Oxnard Boulevard, Santa Clara River Boulevard and Myrtle Street.

A preliminary acoustic analysis for a ballpark was prepared based on the sound requirements for a typical outdoor concert ballpark facility.¹⁰ This preliminary analysis utilized existing sound data acquired from a similar ballpark. Potential noise impacts can be assessed by assuming what type of sound system is used, sound monitoring equipment and sound equipment location. All sound equipment in this type of facility would typically be positioned to focus or aim the amplified sound towards the intended recipients within the ballpark and away from the surrounding land uses.

However, as opposed to establishing noise contours as done with roadway noise or stationary source noise that dictates established and constant noise levels at given distances, noise from concerts and similar events vary dramatically and are intermittent in nature. Typical noise levels from a concert event could be 100 dB(A) at 125 feet from the stage. As the Specific Plan would allow residential development in and adjacent to Planning District D, there is some potential for noise from a ballpark facility to impact residential uses, depending on the location and orientation of the ballpark in relation to areas where residential uses are permitted and the sound system design. Utilizing this estimated maximum sound level, residential uses near the ballpark could experience noise levels in excess of the acceptable exterior noise level for residential uses. Therefore, as noise generated from the ballpark could exceed the allowable exterior sound level for more than thirty (30) minutes in any hour, this potential impact is considered significant.

Cumulative Impacts

Cumulative noise impacts could primarily occur as a result of increased traffic on local streets attributable to the build-out of the Specific Plan Area as well as other related projects. In order to analyze the potential cumulative noise impacts, cumulative traffic volumes from the traffic study have been modeled to forecast changes in roadway noise levels for the year 2020. The cumulative noise

¹⁰ Shen, Milsom, Wilke & Paoletti, Inc., February 2001.

impact analysis is based on a comparison between the existing roadway noise levels identified in **Table 4.9-2** and the future noise levels identified in **Table 4.9-6** below.

Table 4.9-6
Cumulative Roadway Noise Levels

ROADWAY Segment	Noise Sensitive Land Uses	Existing CNEL	2020 Buildout Plus Project CNEL	Increase in CNEL	Significant Cumulative Impact
VINEYARD AVENUE					
Los Angeles/Central	Residential	67.9	69.4	1.5	NO
Stroube/Ventura	Residential/School	64.7	65.5	0.8	NO
North Park/Stroube	School	64.8	65.1	0.4	NO
VENTURA ROAD					
Wagon Wheel/Vineyard	Residential	72.6	74.8	2.2	NO
Vineyard/Gonzales	Residential	76.9	79.3	2.4	NO
OXNARD BOULEVARD					
Gonzales/Vineyard	Residential	78.2	79.6	1.4	NO
GONZALES ROAD					
Ventura/Oxnard	Residential/Medical	74.9	77.2	2.3	NO
WAGON WHEEL ROAD					
Esplanade/US 101 SB Ramps	Residential/Motel	55.6	59.2	3.6	NO
STROUBE STREET					
East of Vineyard	Residential	55.7	57.3	1.6	NO
JOHNSON DRIVE					
Telephone/Ralston	Residential/School	67.2	67.6	0.4	NO
Ralston/Bristol	Residential	69.2	69.7	0.5	NO
Bristol/North Bank	Residential	73.1	75.3	2.2	NO
VICTORIA AVENUE					
Valentine/Telephone	Residential	78.1	79.1	1.0	NO
TELEPHONE ROAD					
Victoria/Johnson	School/Church	67.2	67.6	0.4	NO
RALSTON STREET					
Victoria/Johnson	Residential	63.0	63.4	0.4	NO
VALENTINE ROAD					
Victoria/US 101 SB Ramps	Hotel 6	63.7	65.3	1.6	NO

Source: Impact Sciences, Inc. Calculations provided in **Appendix 4.9**.

As shown in **Table 4.9-6**, the proposed project in conjunction with buildout of the uses allowed by the 2020 General Plan, including all known General Plan Amendments as well as regional growth, would result in noise level increases between 0.4 dB(A) CNEL along four separate roadway segments to maximum noise level increases of 3.6 dB(A) CNEL along Wagon Wheel Road.

Referring to the established noise thresholds stated earlier in this section, an increase of 5 dB(A) or greater in noise level that occurs from project-related activities would be considered noticeable, but not significant, if the resulting noise level would be within the acceptable range as identified in the *General Plan*. Therefore, although the noise increase of 3.6 dB(A) along Wagon Wheel Road is above the 3 dB(A) increase threshold, the resulting noise level is still below the acceptable outside residential noise standard of 60dB(A) CNEL. As such, the noise level increase along this roadway segment would not generate a significant cumulative impact, as any increase less than 5.0dB(A) is acceptable if the resulting ambient noise level is below acceptable land use compatibility guidelines noise levels. Cumulative roadway noise impacts are not significant.

MITIGATION MEASURES

Construction

The following measures are recommended to minimize impacts associated with remediation, grading and construction activities:

- 4.9-1 On-site construction activities shall be limited to between the hours of 7:00 AM and 6:00 PM, and exclude Sundays.
- 4.9-2 Staging areas shall be provided on-site to minimize off-site transportation of heavy construction equipment. These staging areas shall be located to maximize the distance to residential areas.
- 4.9-3 Construction equipment is fitted with modern sound-reduction equipment.
- 4.9-4 When construction operations occur adjacent to occupied residential areas, additional noise reduction measures shall be implemented, including, but are not limited to, changing the location of stationary construction equipment, shutting off idling equipment and notifying adjacent residences in advance of construction work.
- 4.9-5 During rough grading construction activities adjacent to the El Rio West Neighborhood, the temporary acoustical barriers shall be provided along the property boundary separating the construction site from the residences. These barriers shall be at height equal to that of the tallest mobile equipment being used.

Operational

- 4.9-6 Where practical, locate loading zones and trash receptacles in commercial, office, and restaurant areas away from adjacent residential areas.
- 4.9-7 Any application for a Special Use Permit for a ballpark facility in Planning District D shall be accompanied by an acoustical study, based on a sound system plan for the facility, demonstrating that no areas where residential uses are permitted by the Specific Plan would have noise levels over the allowable exterior sound level for more than thirty (30) minutes in any hour.

UNAVOIDABLE SIGNIFICANT IMPACTS

No unavoidable significant noise impacts would result from the RiverPark Project.