

CHAPTER 13

NOISE

13.1 AFFECTED ENVIRONMENT

13.1.1 Introduction/Region of Influence

This section addresses noise impacts associated with the proposed projects and alternatives. Because noise levels decrease with increasing distance from the noise source, the ROI for noise is limited to a distance of 500 feet (152 m) from the principal noise source.

Sound travels through the air in waves of minute air pressure fluctuations that are caused by some type of vibration. Sound level meters are designed to detect these sound waves and to register different sound frequency ranges on a logarithmic decibel (dB) scale. Because the human ear is not equally sensitive to all frequencies, an “A-weighted” decibel scale (dBA) is commonly used to represent the response of the human ear.

Average noise exposure over a 24-hour period is often presented as a community noise equivalent level (CNEL). CNEL values are calculated from average hourly noise levels, in which the values for the evening period (7 PM to 10 AM) are increased by 5 dB and values for the nighttime periods (10 PM to 7 AM) are increased by 10 dB. Such weighting of evening and nighttime noise levels is intended to take into account the greater human disturbance potential of nighttime noises.

13.1.2 Regulatory Considerations

The Federal Noise Control Act of 1972 (42 USC § 4901 et seq. [1994]) established a requirement that all federal agencies must comply with applicable federal, state, interstate, and local noise control regulations. Federal agencies also were directed to administer their programs in a manner that promotes an environment free from noise that jeopardizes public health or welfare.

The California Department of Health Services (1987) has published guidelines for the noise element of local general plans. These guidelines include a noise level/land use compatibility chart that categorizes outdoor CNEL levels into the four compatibility categories of normally

acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable, depending on land use. The chart in the state noise element guidelines identifies normally acceptable noise levels for low density residential uses as CNEL values below 60 dB. The normally acceptable range for high-density residential uses is identified as CNEL values below 65 dB.

Santa Cruz County General Plan. In California, cities and counties are required to adopt a noise element as part of their General Plan. The land use compatibility guidelines must be at least as stringent as the state standards discussed above. The noise element of the Santa Cruz County General Plan (Santa Cruz County 1994) contains guidelines that generally are more stringent than state standards. While the noise element focuses on requirements for new development, Policy 6.9.7 requires mitigation of construction noise as a condition of project approvals. Mitigation of construction noise often includes limiting the time of day that construction may take place.

13.1.3 Existing Noise Environment

The project area is in a coastal residential neighborhood. Sensitive noise receptors in the area include residences within half a mile of the project area and open space/recreation uses. The primary noise source in the area is vehicular traffic and environmental background noises, such as winds and the ocean.

13.2 ENVIRONMENTAL CONSEQUENCES

Impact Methodology

Annoyance effects are a primary consideration for most noise impact assessments. Because the reaction to noise level changes involves both physiological and psychological factors, the magnitude of a noise level change can be as important as the resulting overall noise level. A readily noticeable increase in noise levels often is considered a significant effect by local residents, even if the overall noise level is still within land use compatibility guidelines. On the other hand, noise level increases that are not noticeable to most people generally are not considered a significant change, even if the overall noise level is close to or somewhat above land use compatibility guidelines.

A variety of factors related to the nature of a noise source also can affect people's reaction to it. Most people find evening and nighttime noise the most objectionable and are more willing to accept noise sources that operate only during daytime hours. Similarly, temporary noise sources generally are tolerated more than permanent noise sources. Depending on the repetition pattern, intermittent noise sources can be either more or less objectionable than continuous noise sources.

Potential impacts from the proposed projects described in Chapter 2 could be construction-related or operation-related. The Santa Cruz County General Plan noise element contains land use compatibility guidelines and other noise-related policies, which are described in Section 13.1.2. The noise element contains no specific guidelines related to construction noise levels, but it does require mitigation of construction noise as a condition of project approvals. Mitigation of construction noise often includes limiting equipment used or restricting the time of day that construction may take place.

Thresholds of Significance

In this analysis, an alternative is considered to have a significant noise impact if it were to result in any of the following:

- Increase in the ambient noise level for adjoining areas;
- Violation of County General Plan noise standards; or
- Would be substantially affected by existing noise levels.

13.2.1 Full Bluff Armoring (Alternative 1)

The primary sources of noise under Alternative 1 would be heavy equipment used for construction and demolition and pneumatic equipment used to apply concrete to the bluff protection structures. Minor indirect noise increases also may occur from the projects if they were to attract more traffic to East Cliff Drive.

Significant Impacts

Impact 13.1 Short-Term Construction Noise

Construction and demolition noise would cause significant short-term impacts on sensitive land uses. Residences are approximately 50 feet (15 meters) north of the bluff, and three residences are between East Cliff Drive and the bluff. Open space and recreation uses occur along the bluff and beach area. Construction noise would be temporary and intermittent, and noise levels would vary depending on the construction project. Table 13-1 contains typical construction site noise levels.

**Table 13-1
Typical Construction Site Noise Levels**

Receptor Distance (feet)	Noise Level Increment (dBA) at Receptor			Combined Equipment Noise (dBA)	Work Day L _{dn} Increment (dB)
	Bulldozer	Loader	Truck		
50	85.0	80.0	85.0	88.6	84.8
100	78.9	73.9	79.0	82.6	78.8
200	72.7	67.8	72.9	76.4	72.6
400	66.2	61.5	66.7	70.1	66.3
600	62.2	57.7	63.0	66.3	62.5
800	59.3	54.9	60.3	63.5	59.7
1,000	56.9	52.6	58.1	61.2	57.4
1,500	52.2	48.3	54.1	57.0	53.2
2,000	48.6	45.1	51.2	53.7	49.9
2,500	45.5	42.4	48.7	51.1	47.3
3,000	42.8	40.1	46.7	48.8	45.0
4,000	38.0	36.0	43.2	45.0	41.2
5,280	32.7	31.7	39.6	40.9	37.1
7,500	24.6	25.3	34.4	35.3	31.5
9,000	19.6	21.4	31.3	32.0	28.2
10,560	14.6	17.6	28.4	28.9	25.1

Notes: Combined equipment noise level and CNEL increment calculations assume a bulldozer, front-end loader, and heavy truck operating concurrently in proximity to each other over a 10-hour workday. Noise calculations include minimum atmospheric absorption rates of 0.75 dB/100 meters for bulldozers, 0.5 dB/100 meters for front-end loaders, and 0.32 dB/100 meters for heavy trucks.

As shown in Table 13-1, construction could result in noise levels as high as 88 dBA in the immediate vicinity of the construction activity and at the nearest residences. These noise levels would occur only while equipment is operating; noise levels would be less some of the time. Noise levels also would decrease with increasing distance from the construction site; but, given the proximity of residences, outdoor noise levels would be high in some locations during certain periods of construction. In addition, the noise of applying concrete with a pneumatic device could annoy some people more than the noise of the device itself. Indoor noise levels would be less than outdoor noise levels and would vary depending on the degree of insulation of walls, windows, and doors. Although construction noise is a short-term impact (approximately three to six months), it may be considered significant.

Mitigation 13.1

To minimize impacts associated with short-term construction noise, the County Redevelopment Agency shall ensure that the following noise control measures are incorporated into the final construction design plans for the projects:

- Limit construction that involves motorized equipment to Monday through Friday from 7:30 AM to 4:30 PM to avoid the times of day and the days of the week when noise effects would cause the greatest annoyance to residents and to those using the area for recreation;
- Allow exceptions to the specified construction hours only for construction emergencies and when requested by the Department of Public Works Construction Inspector and approved by County Planning; and
- Post a sign that is clearly visible to users on East Cliff Drive that provides the phone number for the public to call to register complaints about construction-related noise problems. A single “disturbance coordinator” shall be assigned to log in and respond to all calls. All verified problems shall be resolved within 24 hours of registering the complaint.

Implementing these mitigation measures would reduce this potential significant impact to a less than significant level.

Nonsignificant Impacts

Long-Term Operational Noise

Minimal adverse effects would result from the projects. Completion of these projects would not result in a significant direct increase in noise levels. Implementing this alternative may result in a minor indirect increase in noise from vehicle traffic if improvements attract more visitors to the area. Because parking space and road capacity is limited, this would not be a significant impact.

Consistency with the Santa Cruz County General Plan Noise Element

The Santa Cruz County General Plan Noise Element does not contain specific guidelines pertaining to construction noise, but it does require that construction noise be mitigated as a condition of approval for the projects. The final construction plan shall contain noise mitigations such as those described above to comply with this policy.

Alternative 1 does not introduce new land uses to the project area; therefore, there would be no noise impacts related to land use compatibility guidelines.

13.2.2 Partial Bluff Armoring with Full Improvements (Alternative 2)

Alternative 2 would result in similar noise effects as those described for Alternative 1. Alternative 2 would provide a decreased level of bluff protection, compared to Alternative 1, but other improvements would be the same, subject to bluff stability.

Significant Impacts

Impact 13.2 Short-Term Construction Noise

Construction and demolition noise would cause significant short-term impacts on sensitive land uses similar to those described under Alternative 1. Construction noise levels described in Table 13-1 would occur under this alternative, though the length of the construction may be slightly less. The duration of use for the pneumatic equipment to apply concrete to the bluff protection structure also would be shorter, lessening the annoyance effects.

Mitigation 13.2

Mitigation measures shall be the same as those described for Alternative 1. Implementing these mitigation measures would reduce this potential significant impact to a less than significant level.

Nonsignificant Impacts

Long-Term Operational Noise

As with Alternative 1, minimal adverse effects would result from the projects. Completion of the projects would not result in a significant direct increase in noise levels. Implementing this alternative may result in a minor indirect increase in noise from vehicle traffic if improvements were to attract more visitors to the area. Because parking space and road capacity is limited, this would not be a significant impact.

Consistency with the Santa Cruz County General Plan Noise Element

The Santa Cruz County General Plan Noise Element does not contain specific guidelines pertaining to construction noise; however, it does require that construction noise be mitigated as a condition of approval for the projects. The final construction plan shall contain noise mitigations such as those described in Alternative 1 to comply with this policy.

Alternative 2 does not introduce new land uses to the project area; therefore, there would be no impacts related to land use compatibility guidelines.

13.2.3 Partial Bluff Armoring with Limited Improvements (Alternative 3)

Alternative 3 would result in fewer noise effects than described for alternatives 1 and 2. Alternative 3 would result in a lesser degree of construction than the other two alternatives. No retaining wall improvements or reinforced backfill for build-out areas would be made. Other improvements would be the same except that one instead of two paths would be constructed, and no groundwater drainage would be provided.

Significant Impacts

Impact 13.3 Short-term Construction Noise

Construction and demolition noise would cause significant short-term impacts on sensitive land uses. These impacts would be to a slightly lesser degree than under alternatives 1 and 2 because less bluff protection work would occur. Construction noise levels described in Table 13-1 may occur at times under this alternative. The duration of use for the pneumatic equipment would be shorter than under alternatives 1 and 2.

Mitigation 13.3

Mitigation measures shall be the same as those described for Alternative 1. Implementing these mitigation measures would reduce this potential significant impact to a less than significant level.

Nonsignificant Impacts

Long-term Operational Noise

Similar to alternatives 1 and 2, minimal adverse effects would result from operation of the projects. Completion of the projects would not result in a significant direct increase in noise levels. Implementing this alternative may result in a minor indirect increase in noise from vehicle traffic if improvements attract more visitors to the area. Since parking space and road capacity is limited, this would not be a significant impact.

Consistency with the Santa Cruz County General Plan Noise Element

The Santa Cruz County General Plan Noise Element does not contain specific guidelines pertaining to construction noise; however, it does require mitigation of construction noise as a condition of approval for the project. The final construction plan shall contain noise mitigations such as those described above to comply with this policy.

Alternative 3 does not introduce new land uses to the project area; therefore, there would be no impacts related to land use compatibility guidelines.

13.2.4 Groins and Notch Infilling (Alternative 4)

Alternative 4 would result in fewer noise effects than described for the other alternatives, because it would result in a lesser degree of construction. No bluff protection structures would be constructed, though three subtidal groins would be constructed to trap sand and form protective beaches, and undercut areas would be filled with shotcrete. Other improvements would be the same as described for Alternative 3.

Significant Impacts

Impact 13.4 Short-Term Construction Noise

Construction and demolition noise would cause significant short-term impacts on sensitive land uses. These impacts on residents would be to a lesser degree than those under alternatives 1, 2, and 3 because there would be less bluff protection work. Additionally, groins construction would take place below the bluff, and therefore, away from houses. However, heavy equipment would be used and this would disrupt, temporarily, recreational uses of the parkway and the beach.

Construction noise levels described in Table 13-1 could occur under this alternative, though levels would be lower much of the time. The duration of use for the pneumatic equipment would be much shorter than under the other alternatives. However, the duration of use of heavy equipment could be as long as under alternatives 1, 2, and 3.

Mitigation 13.4

Mitigation measures shall be the same as those described for Alternative 1. Implementing these mitigation measures would reduce this potential significant impact to a less than significant level.

Nonsignificant Impacts

Long-Term Operational Noise

Similar to alternatives 1 and 2, minimal adverse effects would result from the projects. Completion of the projects would not result in a significant direct increase in noise levels. Implementing this alternative could result in a minor indirect increase in noise from vehicle traffic if improvements were to attract more visitors to the area. Because parking space and road capacity is limited, this would not be a significant impact.

Consistency with the Santa Cruz County General Plan Noise Element

The Santa Cruz County General Plan Noise Element does not contain specific guidelines pertaining to construction noise; however, it does require construction noise to be mitigated as a condition of approval for the projects. The final construction plan shall contain noise mitigations such as those described above to comply with this policy.

Alternative 4 does not introduce new land uses to the project area; therefore, there would be no impacts related to land use compatibility guidelines.

13.2.5 No Action Alternative

No direct or indirect noise effects would result from the No Action Alternative because there would be no change to existing conditions.

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