Chapter P5

Long-Term Noise

Introduction

This chapter presents a revised analysis of project impacts related to:

- traffic noise impacts along Bristol Curve associated with the applicant's revised realignment of Stevenson Drive; and
- long-term noise associated with ventilation fans at the Inn at Spanish Bay and the Lodge at Pebble Beach.

This revised analysis replaces the discussion of long-term noise related to the ventilation fans and supplements the discussion of long-term traffic noise at Bristol Curve in Chapter 3.9 (direct) in the Draft EIR.

Revisions Since Draft EIR

The key changes in analysis of long-term noise in this document compared to the Draft EIR are as follows:

- The significance criteria for long-term noise was changed. In the Draft EIR, the criteria identified a significant impact as an increase in project-related noise of 5 dBA or greater, regardless of the absolute noise level. As described below, the PRDEIR eliminates the 5 DBA criteria where the resultant absolute noise level with project is 55 dBA or less, because the County has determined that noise levels less than 55 dBA are suitable for all residential noise-sensitive uses and consistent with the County's guidelines and thus that a significant impact to residential noise-sensitive uses does not occur when noise levels are 55 dBA or less.
- Impacts related to long-term noise were re-evaluated with the revised significance criteria related to ventilation noise, and found to still be significant. The significance level of impacts identified in the Draft EIR did not change with the new criteria. However, the performance standard for the mitigation for this impact has been changed from avoiding a 5-dBA increase to avoiding a resultant noise level of greater than 55 dBA.

- Analysis of traffic noise along Bristol Curve due to the applicant's revised Stevenson Drive alignment has been added. The analysis conclusion is that the revised alignment would not result in a significant impact as the resultant noise level for residences along Bristol Curve would be 55 dBA or less.

The long-term noise impact analysis and new discussions that are added to the Draft EIR Noise section (Chapter 3.9) are summarized below.

PRDEIR Text	DEIR Text Affected by PRDEIR Text
Introduction	**New Text**
Revisions Since DEIR	**New Text**
Summary of Project Impacts	**No Change**
Relevant Project Characteristics	**Adds** new text on page 3.9-4 regarding proposed realignment of Stevenson Drive.
Impacts and Mitigation Measures ▪ Criteria for Determining Significance ▪ Noise Impact BIO-A1	**Revises** Criteria A. **Adds new Impact** discussion regarding Bristol Curve and **replaces** discussion of ventilation noise and associated Mitigation Measure NOISE-A1 on pages 3.9-9 and 3.9-10.
Environmental Setting	**Adds** new text regarding Bristol Curve.

Summary of Project Impacts

IMPACT TOPIC	GC	EC	SBI	SBE	SBR	PBL	SUB	CY	RD	HWY
A. Long-term Increase in Noise										
1. Exposure to levels exceeding County standards and/or exposure of outdoor activity areas to significant noise increases due to project operations	○	○	◉	○	○	◉	○	○	○	○

Notes:
● = Significant Unavoidable Impact
◉ = Significant Impact that can be Mitigated to Less-than-Significant
○ = Less than Significant Impact
— = No Impact or not applicable to the development site

GC – Golf Course; **EC** – Equestrian Center; **SBI** – Inn at Spanish Bay; **SBE** – Spanish Bay Employee Housing; **SBR** – Spanish Bay Driving Range; **PBL** – The Lodge at Pebble Beach; **SUB** – Residential Subdivisions; **CY** – Corporation Yard Employee Housing; **RD** – Internal Roadway; **HWY** - Highway 1/Highway 68/17-Mile Drive Improvement

Terminology

The following is a brief background discussion of noise terminology.

- **Sound.** A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Maximum Sound Level (L_{max}).** The maximum sound level measured during the measurement period.
- **Minimum Sound Level (L_{min}).** The minimum sound level measured during the measurement period.
- **Equivalent Sound Level (L_{eq}).** The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy.
- **Percentile-Exceeded Sound Level (L_{xx}).** The sound level exceeded "x" percent of a specific time period. L_{10} is the sound level exceeded 10% of the time.
- **Day-Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.

L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent and are treated as such in this assessment. Human sound perception is generally such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level. Monterey County exterior community noise standards are expressed as "L_{dn} or CNEL." In this report, references to these standards use the term L_{dn}.

Relevant Project Characteristics

Revised Realignment of Stevenson Drive Realignment

Proposed Golf Course. Stevenson Drive would be realigned at Bristol Curve easterly to connect with Forest Lake Road. Bristol Curve would be mostly abandoned. Stevenson Drive and Spyglass Hill Road would be widened and improved at their intersection. There would be a single connection to the retained part of Bristol Curve to provide access to Bristol Lane and Silver Court. The proposed Stevenson Drive realignment is shown in Appendix F. This design is slightly different than that presented in the Draft EIR, in that there would be a single entrance to Bristol Lane and Silver Court from Stevenson Drive.

Existing and future with-project traffic peak hour volumes in this area are shown in Table P5-1.

Table P5-1. Two-Way Peak Hour Traffic Volume Forecasts for Realigned Stevenson Drive

Segment	Existing	Cumulative	Cumulative with project
Stevenson Drive North of Bristol Curve	284	306	270
Stevenson Drive South of Bristol Curve	274	296	270

Source: Fehr & Peers 2004 (see Appendix B.6).
NOTE: Daily traffic generally represents 10 times the peak one-hour traffic. Traffic volumes are lower on Stevenson Drive with project due to distribution of some traffic from Stevenson Drive to Forest Lake Corridor.

Impacts and Mitigation Measures

Criteria for Determining Significance

In accordance with CEQA, State CEQA Guidelines, Monterey County plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

A. Long-Term Increases in Noise

- Expose persons to or generate noise levels in excess of standards established in the County's "Land Use Compatibility for Exterior Community Noise" chart in the existing General Plan,
- *Expose outdoor activity areas of noise-sensitive land uses to a 5 dB increase or more in noise where the with-project noise levels would be above 55 dBA* L_{dn}, or

- Expose outdoor activity areas of noise-sensitive land uses to a 5 dB increase *or more* in noise where the existing noise levels *are above 55 dBA but* below 60 dBA L_{dn}, or a 3 dB increase in noise where existing noise levels are between 60 and 65 dBA L_{dn}, or a 1.5 dB increase in noise where existing noise levels are above 65 dBA L_{dn}.

[NOTE: revisions to Draft EIR criteria are in *italics*.]

Impacts and Mitigation Measures

Direct and Indirect Impacts

A. Long-Term Increases in Noise

Impact NOISE-A1. The proposed project would not result in exposure of persons to noise levels in excess of standards established in the County's "Land Use Compatibility for Community Noise" chart and/or exposure of outdoor activity areas of noise-sensitive uses to a significant change in noise due to project operations with the exception of noise related to ventilation fans for underground parking structures at the Lodge at Pebble Beach and Inn at Spanish Bay. The impact related to the ventilation fans is significant but can be reduced to less than significant with mitigation.

Bristol Curve

Noise measurements were conducted along Bristol Curve to establish baseline noise levels during the evening peak hour. Existing noise levels range from 41 to 50 dB (L_{dn}).

The applicant has proposed to realign Stevenson Drive from its current location northward. This would shift traffic closer to residences along Bristol Curve relative to current conditions, resulting in an increased of traffic noise. Using the projected cumulative traffic volumes with project, the resultant noise levels at the property line of residences along Bristol Curve would increase by about 4 dB, with resultant noise levels between 45 and 54 dBA (L_{dn}) as shown in Table P5-2. Based on the significance criteria noted above, this is a *less than significant* noise impact. The noise technical study for Bristol Curve is included in Appendix J in this document.

Table P5-2. Bristol Curve Traffic Noise (DBA, L_{dn})

Segment	Existing	Cumulative with Project	Change with Project
Bristol Curve at Stevenson Drive	50.0	53.9	+3.9
Bristol Curve at Bristol Lane	44.5	48.0	+3.5
Bristol Curve at Silver Court	41.1	45.1	+4.0

Based on Brown & Buntin analysis in Appendix J.

Ventilation Noise

The only long-term aspect of the Proposed Project anticipated to potentially generate noise levels or increases in noise levels that exceed the significance criteria is the mechanical ventilation equipment associated within the proposed underground parking structures proposed at The Inn at Spanish Bay and The Lodge at Pebble Beach. Noise measurements conducted at the existing Casa Palmero underground parking garage, which is smaller than the facility proposed for The Inn at Spanish Bay, and larger than either of the facilities proposed at The Lodge at Pebble Beach, indicate that an exhaust fan generates a noise level of 62.4 dBA L_{dn} at 50 ft from the fan outlet, while the supply fan generates 55.4 dBA L_{dn} at 50 ft from the inlet vent. It is anticipated that operation of both fans concurrently would generate a combined noise source level of 63 dBA L_{dn} at a distance of 50 ft. Point-source attenuation of 6 dB per doubling of distance, as well as molecular absorption of 0.7 dB per 1,000 ft and anomalous excess attenuation of 1 dB per 1,000 ft, are assumed (Hoover 1996).

With ambient noise levels in the range of 41 to 51 dB L_{dn}, the resultant with-project noise levels would be greater than 55 dBA at outdoor areas of noise-sensitive residential land uses and the increase would be greater than 5 dB. The noise impact of fan operation is therefore considered to be *significant*. Implementation of the following mitigation measure would reduce this impact to a *less-than-significant* level.

Mitigation Measure NOISE-A1: Employ noise-reducing treatments on parking structure fan systems. The applicant would employ noise-reducing treatments on parking structure fan systems such that noise from the fans does not increase the ambient noise level to more than 55 dBA L_{dn} at the nearest residences.

Noise from the fans and the ambient noise level will be expressed in terms of L_{dn}. Treatments may include but are not limited to:

- use of acoustical louvers for the supply and exhaust air vent openings;
- acoustically lining the ductwork between the inlets and outlets of the fans; and
- acoustically shielding the fan inlets and outlets from the closest noise-sensitive receivers.

The applicant would submit a report to the County detailing the noise control design of the fan systems and how the appropriate noise reduction would be achieved.

Environmental Setting

Bristol Curve Background Noise Level Measurements

Additional noise monitoring was conducted along Bristol Curve in 2004. The results are presented in Table P5-3. The noise study and monitoring locations are shown in Appendix J.

Table P5-3. Summary of Bristol Curve Ambient Noise Survey Results

Site Number	Site Description	Daily L_{dn} Values, dBA[1]
5A	Bristol Curve at Stevenson Drive	50.0
5B	Bristol Curve at Bristol Lane	44.5
5C	Bristol Curve at Silver Court	41.1

1. at nearest residence property line to intersection.
Source: Brown-Buntin Associates 2004