

**The Commons at Gateway**  
**Pleasanton, California**

Environmental Noise Assessment

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*Prepared for:*


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## INTRODUCTION

This report summarizes our environmental noise assessment for The Commons at Gateway residential project in Pleasanton, California. The purpose of this study is to quantify the noise environment, compare it with City and State goals for environmental noise, and propose conceptual noise mitigation measures as needed based on the current site plan.

Following is a summary of our findings:

1. The project will incorporate sound-rated windows, doors and exterior walls into the building shell(s) to reduce traffic noise to DNL<sup>1</sup> 45 dB<sup>2</sup> or lower indoors. Preliminary estimates suggest that sound insulation ratings up to approximately STC<sup>3</sup> 39 will be sufficient for residences along Interstate 680.
2. Ventilation or air conditioning systems will be provided in apartment units so the interior noise goal will be met if occupants desire to close their windows.
3. The proposed apartment buildings, noise berm/barrier in the southern portion of the site, and selected row house yard barriers, will reduce estimated traffic noise in the central park and pool area, and single-family house yards, to between approximately DNL 60 to 65 dB.
4. Noise from mechanical equipment, such as air-conditioning equipment, must meet the Pleasanton Municipal Code limits. This should be evaluated in detail when equipment types, locations and sizes are selected.

## DESCRIPTION

The project will consist of 97 detached houses and 210 rental apartment units in nine buildings on a 26.7-acre site between Interstate 680 (I-680) and Valley Avenue (see Figure 1, attached). Detached houses will consist of 62 three-story row houses and 35 two-story single-family houses, most of which will be partially shielded from I-680 by the three-story apartment buildings. Outdoor use space will include a 1.3-acre community park, and individual yards for single-family houses. Amenities associated with the community park will include a business center, conference facilities, workout area, pool, barbeque, fire pit, and tot lot.

The site is generally flat, with approximately a five foot elevation differential which ranges from about three to eight feet below the elevation of I-680. Existing residences are located across I-680 to the southwest, shielded from the freeway by an earthen berm, and across Valley Avenue to the northeast. A commercial development borders the site to the north, between the site and Bernal Avenue. Stores include Safeway and CVS, which both have loading docks adjacent to the northern portion of the site.

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<sup>1</sup> Day-Night Average Sound Level (DNL) – A descriptor established by the U.S. Environmental Protection Agency to describe the average day-night level with a penalty applied to noise occurring during the nighttime hours (10 pm - 7 am) to account for the increased sensitivity of people during sleeping hours.

<sup>2</sup> A-Weighted sound pressure level (or noise level) represents the noisiness or loudness of a sound by weighting the amplitudes of various acoustical frequencies to correspond more closely with human hearing. A 10-dB (decibel) increase in noise level is perceived to be a doubling of loudness. A-Weighting is specified by the U.S. EPA, OSHA, Caltrans, and others for use in noise measurements. All sound levels (dB) in this document are A-weighted.

<sup>3</sup> Sound Transmission Class (STC) – A single-number rating derived from the sound insulation properties of a partition. Numerically, STC represents the number of decibels of speech sound reduction from one side of the partition to the other.

## ACOUSTICAL CRITERIA

### *The Pleasanton General Plan*

The Noise Element of the Pleasanton General Plan 2005-2025, adopted 21 July 2009, contains land use compatibility guidelines for environmental noise in the community. Table 1, below, summarizes these guidelines for residential land uses and park areas.

Table 1: Summary of Table 11-5: Noise and Land Use Compatibility Guidelines

DNL Value in Decibels			Compatibility Level
Detached Residential	Multi-Family Residential	Parks and Recreation Areas	
60 dB or less	65 dB or less		<i>Normally Acceptable</i> Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements.
60 to 75 dB	65 to 75 dB	65 to 80 dB	<i>Conditionally Acceptable</i> Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.
Greater than 75 dB		Greater than 80 dB	<i>Unacceptable</i> New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.

In addition to the land use compatibility guidelines, the Noise Element outlines the following noise level goals:

- Interior noise goal of DNL 45 dB or lower for all single and multi-family residences.
- Maximum instantaneous noise level goals indoors, when the noise source is rail activity or aircraft. The project site is located far outside both the DNL 60 dB railroad noise contour and the CNEL 60 dB airport noise contour for Livermore Municipal Airport. Therefore, this analysis assumes these instantaneous noise level goals do not apply.

The Final Supplemental EIR for General Plan Amendment and Rezoning, dated December 2011, identifies DNL 65 dB as the outdoor noise goal for residential outdoor use spaces.

### *Pleasanton Municipal Code*

Section 9.04.030 of the Pleasanton Municipal Code limits noise levels from mechanical equipment such as air-conditioners to 60 dB at residential property lines. Section 9.04.100 limits construction noise to the levels indicated in the Construction Noise section below.

### *California Building Code (CBC)*

The California Building Code limits indoor noise from outdoor sources to DNL 45 dB in habitable rooms of attached housing.<sup>4</sup> Projects exposed to an outdoor DNL greater than 60 dB require an acoustical analysis during the design phase showing that the proposed design will limit outdoor noise to the prescribed allowable interior level. Additionally, if windows must be closed to meet the interior standard, “the design for the structure must also specify a ventilation or air-conditioning system to provide a habitable interior environment.”

<sup>4</sup> 2010 California Building Code, California Code of Regulations, Title 24, Part 2, Chapter 12, Section 1207: Sound Transmission.

## NOISE ENVIRONMENT

Environmental noise at the site is primarily from vehicle traffic on I-680. To quantify the existing noise environment, two long-term monitors each continuously measured noise levels at the site between 13 and 15 January 2010, between 6 and 8 July 2011, and between 5 and 7 November 2012. In addition, short-term “spot” measurements were conducted and compared with corresponding time periods of the long-term monitors to determine how noise levels vary at different locations on-site and at different elevations. Table 2 summarizes existing noise levels at the site. Figure 1, attached, shows approximate measurement locations.

Table 2: Existing Noise Environment

Site	Location	Date / Time	DNL
LT-1	I-680 Monitor Approximately 155' NE of I-680 centerline, 12' above ground	January 2010 July 2011 and November 2012 <sup>5</sup>	74 dB
LT-2 and LT-3	Valley Avenue Monitor Approximately 12' SW of from near lane centerline, 12' above ground		62 to 67 dB
ST-1	I-680 Spot Measurement Approximately 155' NE of I-680 centerline, 10' / 40' above ground	15:45 to 16:00 15 Jan 2010	72 / 75 dB

The Circulation Element of the Pleasanton General Plan 2025 indicates that peak-hour traffic volumes along I-680 are expected to increase by up to 14 percent in the year 2025. This corresponds with approximately a 1-decibel increase in environmental noise. The estimated future noise level at the setback of future homes along I-680, based on this increase in future traffic, is shown in Figure 1, attached.

## ANALYSIS AND RECOMMENDATIONS

### *Environmental Noise*

As indicated in Figure 1 attached, estimated future noise levels range from approximately DNL 60 to 75 dB across the site, and DNL 76 dB along the pedestrian / bike trail. This falls into the *conditionally acceptable* category for land use compatibility. The following is based on the preliminary floor plans and elevations dated 10 January 2013.

1. The project will incorporate sound-rated elements into the building shell to reduce environmental noise to DNL 45 dB or lower indoors.
  - Apartments - To provide an estimate of the extent of mitigation that may be needed, preliminary estimates assume a 12-foot by 14-foot room with approximately one-third of one or two exterior facades consisting of windows, and exterior walls consisting of 3-coat stucco over wood sheeting, insulation in stud cavities, and one layer of gypsum board on the interior (two layers on the I-680 façade). Based on these assumptions, preliminary estimates suggest that windows in rooms along I-680 will need to be in the range of STC 35 to 39, and windows in rooms perpendicular to I-680 will need to be in the range of STC 32 to 36. On the façade opposite the freeway, and in the shielded courtyards, needed sound insulation ratings are expected to be STC 30 or lower.
  - Detached Houses – Based on the preliminary site and floor plans provided, initial estimates suggest that windows and doors with sound insulation ratings up to STC 36 will be needed in the homes closest to I-680, and that STC ratings will decrease at houses located farther from the roadway and where they are shielded by barriers or other buildings.

<sup>5</sup> The adjacent Safeway and CVS stores appeared to be operational and open during the November 2012 measurements.

- Sound insulation will need to be determined during the design phase, when floor plans and final grading plans are known, and should include treatment for roof vents and other penetrations.
- 2. Window and door sound insulation ratings must be for the complete assemblies, including frames and operable sashes. Sound insulation ratings should be from tests conducted by an NVLAP accredited laboratory. For reference, standard dual-pane construction-grade windows and sliding glass doors have sound insulation ratings in the range of STC 26 to 28. Sound insulation ratings of up to STC 36 can typically be achieved using high quality insulated windows with glazing selected to meet the required ratings. Sound insulation ratings between STC 36 and 39 can be achieved by some specialty window manufacturers by using 1-inch or 1¼-inch glazing sections. Ratings above STC 39 typically require dual sash or “four track” windows.
- 3. Since windows of the apartment units will need to be closed to meet the interior noise criterion, the design will include “... a ventilation or air-conditioning system to provide a habitable interior environment.” This will be coordinated with the project mechanical engineer so as not to compromise sound insulation of the exterior assemblies.
- 4. Noise levels in outdoor spaces will vary, depending on the location and orientation on site. The site plan shows the community park and pool in the center of the site, which will be mostly shielded from I-680 by the apartment buildings. As shown in Figure 1, the design will include a 16-foot tall combination earthen berm (8-foot) and noise barrier (8-foot) in the southern portion of the site, and 8-foot tall noise barriers at selected yards of detached houses. Following are initial comments that assume the site grade will not change significantly in the future.
  - Apartments – As shown in the preliminary site plan, the combined distance and shielding from the proposed apartment buildings will reduce estimated future traffic noise in the community park and pool area to approximately DNL 65 dB or lower. This is consistent with the City’s goal for this space.
  - Detached Houses –
    - o At the setback of the proposed houses nearest to I-680, estimated future un-shielded traffic noise (at the second and third stories), is approximately DNL 73 dB. The planned 16-foot tall earthen berm and noise barrier, and noise barriers at detached houses, will reduce traffic noise to approximately DNL 65 dB and below in shielded yards at-grade.
    - o Along Valley Avenue, it is assumed that homes will front the roadway with side or rear yards. Shielding from the proposed homes will reduce estimated traffic noise to between approximately DNL 60 and 65 dB in these yards.
  - Pedestrian / Bike Trail – Estimated future traffic noise along the pedestrian / bike trail is approximately DNL 76 dB.
  - Effective noise barriers must be solid from bottom to top with no cracks or gaps, and must have a minimum surface density of approximately three pounds per square foot. Barriers may be constructed of a variety of materials including earthen berms, CMU, and plaster walls. Options include a combination of more than one material, such as a CMU wall atop an earthen berm.
- 5. The northern portion of the site is located adjacent to commercial businesses which include a Safeway loading dock and CVS drive-through pharmacy. The north westernmost apartment building will be located approximately 65 feet from the nearest drive isle and 145 feet from Safeway’s loading dock. The nearest homes to CVS’s drive-through will be approximately 150 feet away. The businesses are constrained by conditions of approval included in PUD-02-07M, dated 19 October 2010, which includes the following provisions for loading/off-loading activities and drive through activities.
  - Safeway delivery/loading/unloading hours are limited to between 6:00 AM and 12:00 PM (midnight)
  - CVS drive-through pharmacy activity is limited to pharmaceutical purchases only
  - Parking lot sweeping and garbage pick-up is limited to between 6:00 AM and 10:00 PM
  - Delivery trucks and vendors shall access the site via Bernal AvenueThe adjacency of the site to the retail space to the north should be disclosed to potential residents,

and they should expect to hear some noise from commercial activity, including Safeway's loading docks.

### **TRAFFIC NOISE ASSOCIATED WITH THE PROJECT**

Project-generated traffic volumes are provided in a letter titled Trip Generation Analysis for Residential Development of Bernal Property, dated 8 November 2012, by Hexagon Transportation Consultants, Inc. The letter indicates that traffic volumes associated with the project will be less than both the previously planned and approved office project, and the recently re-designated residential use for the site. Corresponding noise levels from project-generated traffic will be less at off-site residences than they would have been with either of those projects. Further, based on the peak-hour traffic volumes included in the letter, and noise levels measure at the site, estimated traffic noise from vehicles associated with the project will increase environmental noise levels (DNL) at residence across Valley Avenue from the site by 2-decibels or less. This is generally considered a less-than-significant increase.

### **MECHANICAL EQUIPMENT NOISE ASSOCIATED WITH THE PROJECT**

Stationary noise sources associated with the project may consist of residential air-conditioning units. Units should be selected and located to meet the City's Municipal Code limit of 60 dB at adjacent residential property lines. Mitigation for these types of sources generally consists of selecting quiet units and locating far from property lines. Details should be determined during the design phase.

### **CONSTRUCTION NOISE**

The project shall incorporate the following guidelines to reduce the potential impact of construction noise. These guidelines are taken from Noise Mitigation Measure 4.J-1 from the Final Supplemental EIR, General Plan Amendment and Rezoning report dated December 2011.

- Comply with the applicable construction noise exposure criteria established in the Pleasanton Municipal Code, Section 9.04.100.
  - Notwithstanding any other provision of this chapter, between the hours of 8:00 a.m. and 8:00 p.m. daily, except Sunday and holidays, when the exemption shall apply between 10:00 a.m. and 6:00 p.m., construction, alteration or repair activities which are authorized by valid city permit shall be allowed if they meet at least one of the following noise limitations.
    - No individual piece of equipment shall produce a noise level exceeding 83 dB at a distance of 25 feet. If the device is housed within a structure on the property, the measurement shall be made outside the structure at a distance as close to 25 feet from the equipment as possible; or
    - The noise level at any point outside of the property plane of the project shall not exceed 86 dB.
- Locate stationary construction equipment as far from adjacent occupied building as possible.
- Select routes for movement of construction-related vehicles and equipment so that noise-sensitive areas, including residences, and outdoor recreation areas, are avoided as much as possible. Include these routes in materials submitted to the City of Pleasanton for approval prior to the issuance of building permits.
- All site improvements and construction activities shall be limited to the hours of 8:00 a.m. to 5:00 p.m., Monday through Saturday. In addition, no construction shall be allowed on State and federal holidays. If complaints are received regarding the Saturday construction hours, the Community Development Director may modify or revoke the Saturday construction hours. The Community Development Director may allow earlier "start-times" for specific construction activities (e.g., concrete-foundation/floor pouring). If it can be demonstrated to the satisfaction of the Community

Development Director that the construction and construction traffic noise will not affect nearby residents.

- All construction equipment must meet DMV noise standards and shall be equipped with muffling devices.
- Designate a noise disturbance coordinator who will be responsible for responding to complaints about noise during construction. The telephone number of the noise disturbance coordinator shall be conspicuously posted at the construction site and shall be provided to the City of Pleasanton. Copies of the construction schedule shall also be posted at nearby noise-sensitive areas.

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● INDICATES APPROXIMATE NOISE MEASUREMENT LOCATION  
 NOTE: DRAWING PROVIDED BY OTHERS; NO SCALE

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# THE COMMONS AT GATEWAY SITE PLAN INDICATING ESTIMATED FUTURE NOISE ENVIRONMENT

## FIGURE 1

CSA PROJECT NO. 12-0519  
 10 JUNE 2013  
 JMR