
APPENDIX C

Environmental Noise Assessment

***GAVILAN HOLLISTER CAMPUS & FAIRVIEW CORNERS
RESIDENTIAL MASTER PLAN PROJECT
SAN BENITO COUNTY, CALIFORNIA***

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INTRODUCTION

This report presents the results of the environmental noise impact assessment of the proposed Gavilan Hollister Campus and Fairview Corners Residential Master Plan Project. The Project proposes a mixed-use development consisting of a community college campus, single-family residential units, mixed-use retail and on-campus housing units, open space/walk path/park, and athletic fields in unincorporated San Benito County, California. The project site is located north of Airline Highway and east of Fairview Road. The Setting section of the report presents a discussion of the fundamentals of environmental acoustics to assist those unfamiliar with acoustical terminology. A description of state and local guidelines is presented to establish the regulatory criteria used in the noise impact assessment. The results of the noise measurements made in the site vicinity are then summarized. The Impact and Mitigation Measures section identifies project impacts including the compatibility of the proposed use with the on-site noise environment and the potential that the project would result in a substantial permanent or temporary increase in noise levels at sensitive receivers in the project vicinity. Where future noise levels exceed the applicable significance thresholds, a significant noise impact is identified. Mitigation is presented to achieve a compatible development with respect to the noise environment and existing noise-sensitive land uses in the project vicinity.

SETTING

Fundamentals of Environmental Acoustics

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level or dBA*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms

of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq} . The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level*, *CNEL*, is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level*, L_{dn} , is essentially the same as *CNEL*, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

TABLE 1 Definitions of Acoustical Terms Used in this Report

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period. The hourly Leq used for this report is denoted as dBA $L_{eq[h]}$.
Day-Night Level, L_{dn}	L_{dn} is the equivalent noise level for a continuous 24-hour period with a 10-decibel penalty imposed during nighttime and morning hours (10:00 pm to 7:00 am).
Community Noise Exposure Level, CNEL	CNEL is the equivalent noise level for a continuous 24-hour period with a 5-decibel penalty imposed in the evening (7:00 pm to 10:00 pm) and a 10-decibel penalty imposed during nighttime and morning hours (10:00 pm to 7:00am)
$L_1, L_{10}, L_{50}, L_{90}$	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
	120 dBA	
Jet fly-over at 300 meters		Rock concert
	110 dBA	
Pile driver at 20 meters		Night club with live music
	100 dBA	
	90 dBA	
Large truck pass by at 15 meters		Noisy restaurant
	80 dBA	
Gas lawn mower at 30 meters		Garbage disposal at 1 meter
Commercial/Urban area daytime		Vacuum cleaner at 3 meters
Suburban expressway at 90 meters		Normal speech at 1 meter
Suburban daytime		Active office environment
	50 dBA	
Urban area nighttime		Quiet office environment
	40 dBA	
Suburban nighttime		Library
Quiet rural areas		Quiet bedroom at night
	30 dBA	
Wilderness area		Quiet recording studio
	20 dBA	
	10 dBA	
Threshold of human hearing		Threshold of human hearing
	0 dBA	

Regulatory Background

The State of California and San Benito County establish guidelines, plans, and policies designed to limit noise exposure at noise sensitive land uses. These include the State CEQA Guidelines, Appendix G, the 2007 California Building Code, the County of San Benito General Plan, and the County of San Benito Noise Ordinance. Activities at public schools are not normally subject to local regulatory criteria, however, these plans and policies provide a measure of acceptability for community noise.

State CEQA Guidelines. The California Environmental Quality Act (CEQA) has established guidelines to evaluate the significance of environmental noise impacts attributable to a proposed project. A significant noise impact would be identified if a project results in:

- (1) Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies.
- (2) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
- (3) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- (4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- (5) For a project located within an airport land use plan or, where such a plan has not been adopted within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.
- (6) For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

Items 1, 3, and 4 would be applicable to the proposed project. Item 2 is not applicable because the project is not located near sources of groundborne vibration (e.g., railroads) and would not generate perceptible groundborne vibration at off-site locations during construction or operation of the project. Items 5 and 6 are not applicable because the project site is not located within the vicinity of a public or private airport. Items 2, 5, and 6 are not carried forward in the analysis.

County of San Benito General Plan. San Benito County's revised 1984 Plan identifies noise and land use compatibility standards for various land uses. The County's goal is to, "...protect the health, safety and welfare of San Benito County residents through the elimination of annoying or harmful noise levels." Figure 10, Land Use Compatibility for Community Noise Environments, of the Noise Element indicates that residential uses are considered "Clearly Acceptable" up to 60 dBA L_{dn} and "Normally Acceptable" up to 65 dBA L_{dn} . It also indicates that educational facilities are considered "Clearly Acceptable" up to 60 dBA L_{dn} and "Normally Acceptable" up to 65 dBA L_{dn} .

County of San Benito Noise Ordinance. San Benito County's Noise Ordinance identifies noise standards for noise emanating from any source, as it affects surrounding properties (Ordinance 667 Section 44.3). The noise ordinance specifies that residential land uses shall not be exposed to noise levels in excess of 50 dBA $L_{eq (hr)}$ during the day and 40 dBA $L_{eq (hr)}$ during the

nighttime. Commercial land uses shall not be exposed to noise levels in excess of 65 dBA $L_{eq (hr)}$ during the day and 55 dBA $L_{eq (hr)}$ during the nighttime.

2007 California Building Code. Multi-family housing in the State of California is subject to the environmental noise limits set forth in the 2007 California Building Code (Chapter 12, Appendix Section 1207.11.2). The noise limit is a maximum interior noise level of 45 dBA L_{dn} . Where exterior noise levels exceed 60 dBA L_{dn} , a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit.

Existing Noise Environment

The project site is located in unincorporated San Benito County north of Airline Highway and east of Fairview Road. Land uses in the vicinity include the Ridgemark Golf and Country Club to the south, the Cielo Vista Subdivision to the west, open grassland and residences to the east, and five-acre ranchettes to the north.

A noise monitoring survey was made from March 21, 2008 to March 26, 2008 to quantify the existing noise environment at the project site and in its vicinity. The noise monitoring survey included two 24-hour noise measurements (LT-1 and LT-2). Noise levels at the project site and at nearby sensitive land uses primarily result from traffic along Airline Highway and Fairview Road. Measurement locations and the site vicinity are shown in Figure 1.

Noise measurement site LT-1 was located approximately 33 feet from the centerline of Fairview Road, south of Cielo Vista Drive. Hourly average noise levels typically ranged from 68 to 70 dBA L_{eq} during the day, and from 54 to 68 dBA L_{eq} at night. The calculated day-night average at this location ranged from 70 to 72 dBA L_{dn} . Long-term noise measurement LT-2 documented existing ambient noise levels at a distance of approximately 90 feet from the centerline of Airline Highway, east of Fairview Road. Hourly average noise levels typically ranged from 57 to 61 dBA L_{eq} during the day, and from 41 to 59 dBA L_{eq} at night. The calculated day-night average at this location ranged from 60-61 dBA L_{dn} . The daily trend in noise levels at each of these sites is shown in Appendix 1.

Figure 1: Measurement Locations and Site Vicinity



IMPACTS AND MITIGATION MEASURES

Significance Criteria

- A significant impact would be identified if noise-sensitive receivers proposed by the project would be exposed to noise levels exceeding the County’s “normally acceptable” guidelines for noise and land use compatibility (65 dBA L_{dn} or less). Satisfactory interior noise levels are defined as 45 dBA L_{dn} or less.

According to CEQA, a significant noise impact would result if noise levels increase substantially over a permanent basis at existing noise-sensitive land uses (e.g., residences) as a result of the project. A “substantial increase” would be an increase of 3 dBA L_{dn} or greater at noise-sensitive land uses where noise levels already exceed 65 dBA L_{dn} , or 5 dBA L_{dn} or greater where the noise level would remain below 65 dBA L_{dn} .

- Significant noise impacts would result from construction if noise levels are sufficiently high to interfere with speech, sleep, or normal residential activities. Construction-related hourly average noise levels received at noise-sensitive land uses exceeding 60 dBA $L_{eq(hr)}$, and at least 5 dBA $L_{eq(hr)}$ above the ambient, would be considered significant if the construction activities substantially increased the noise environment for more than 12 months.

Impact: Exposure of Persons to Excessive Noise Levels.

The project would develop residential and educational uses in a noise environment exceeding the “normally acceptable” noise and land use compatibility guidelines. **This is a potentially significant impact.**

Exterior Noise Environment

Cumulative traffic conditions, based on the volumes presented in the traffic analysis for the Gavilan Campus and Fairview Corners Residential Project¹, were used to calculate future noise levels at the project site. Future traffic noise levels are calculated to be 65 dBA L_{dn} at a distance of 250 feet from the center of Fairview Road, and 65 dBA L_{dn} at a distance of 135 feet from the center of Airline Highway.

Noise-sensitive uses proposed within 250 feet of the center of Fairview Road would include the retail/on-campus housing building and the first row of residences located along the western boundary of the site. According to the concept site plan, no noise-sensitive uses are proposed within 135 feet of the center of Airline Highway. Available site plans do not indicate whether or not proposed on-campus housing or residential land uses would include outdoor use areas. One would assume that the backyards of the single-family houses could be located adjacent to Fairview Road. The project could also develop common outdoor use areas near the on-campus housing building located along Fairview Road. Noise levels in private or common outdoor use areas are required to be maintained at or below 65 dBA L_{dn} to be considered normally acceptable for residential and educational development. Proposed on-campus housing and single-family residential uses are proposed approximately 120 feet from the center of Fairview Road. The overall day-night average noise level in the outdoor use areas would be approximately 70 dBA L_{dn} and would not exceed the City’s exterior noise standards. This is a potentially significant impact.

Interior Noise Environment

The State of California Building Code requires that interior noise levels within multi-family residential units not exceed 45 dBA L_{dn} . Residential units proposed along Fairview Road would be exposed to exterior noise levels of about 70 dBA L_{dn} . In buildings of typical construction, with the windows partially open, interior noise levels are approximately 15 dBA lower than exterior noise levels. With the windows closed, standard residential construction typically provides 20 to 25 decibels of exterior to interior noise reduction. Interior noise levels within the nearest proposed residential land uses would exceed 45 dBA L_{dn} assuming standard construction methods. This represents a potentially significant impact.

Where exterior noise levels exceed 65 dBA L_{dn} , forced-air mechanical ventilation systems and sound-rated construction methods are normally required to reduce interior noise levels to 45 dBA L_{dn} or less. Such methods or materials may include a combination of smaller window and door sizes as a percentage of the total building façade facing the noise source, sound-rated windows and doors, sound-rated exterior wall assemblies, and mechanical ventilation so windows may be kept closed at the occupants discretion. Where exterior noise levels range from 60 to 65 dBA

¹ Fairview Corners/Gavilan College Master Plan Transportation Impact Analysis, Hexagon Transportation Consultants, Inc, March 7, 2008.

L_{dn} , the inclusion of adequate forced air mechanical ventilation is often the method selected to reduce interior noise levels to acceptable levels. In exterior noise environments of 60 dBA L_{dn} or less, standard residential construction methods are normally sufficient to reduce noise levels within residential units to 45 dBA L_{dn} or less.

Mitigation Measures:

The following mitigation measures would reduce the potentially significant impact to a less-than-significant level:

- Design and construct noise barriers to provide acoustical shielding at private or common exterior use areas. The design of these barriers shall limit exterior noise levels to 65 dBA L_{dn} or less. Preliminary calculations indicate that noise barriers ranging from six to eight-feet in height would be required.
- Retain a qualified Acoustical Specialist during project design to prepare a detailed acoustical analysis of interior noise reduction requirements and specifications for all noise-sensitive land uses proposed within 500 feet of the center of Fairview Road (approximate 60 dBA L_{dn} noise contour from Fairview Road). Results of the analysis, including the description of the necessary noise control treatments, shall be submitted to the County along with the building plans prior to issuance of a building permit.
- Building sound insulation requirements shall include forced air mechanical ventilation in noise environments exceeding 60 dBA L_{dn} .

Impact: Generation of Excessive Noise Levels.

Activities occurring at the College may increase noise levels at nearby sensitive receivers. **This is a potentially significant noise impact.**

Uses proposed at Gavilan College are those typical of many community colleges including classroom and administration buildings, gymnasium, athletic fields and parking. The noise from activities occurring at the College, if not designed and located correctly, could exceed the County's Noise Ordinance at adjacent property lines.

Athletic Facilities

Athletic fields and athletic facilities are proposed on approximately 18 acres on the southeastern most portion of the site. Planned athletic fields include a soccer field, softball and baseball diamonds, and a football field surrounded by a track and bleachers. The athletic fields would include lighting and would be expected to generate noise in the late evening hours. Actively used playfields could potentially be a significant source of community noise at receivers in the site vicinity. Noise would primarily result from players, spectators, and public address systems.

Noise levels resulting from the use from these athletic fields would be highest during highly attended football games. Most home football games are expected to occur on Saturday nights at

7:00 p.m. There would be five regularly scheduled home games and the possibility of an additional scrimmage game. The proposed bleachers would accommodate 2,000 to 5,000 spectators, however, average attendance is expected to range from 500 to 2,000 spectators.

A credible worst-case assessment of potential noise from sporting activities at the junior college campus was made using noise data from a high-school football game². High-school sporting events are generally attended by more spectators than junior college events. Worst-case average noise levels resulting from a football game would be approximately 61 to 63 dBA L_{eq} at a distance of 465 feet from the center of the field and would include noise sources such as the cheering of the crowd, referee's whistles, the public address system, horns, bands, and other amplified music. Maximum noise levels generated by these individual sources would typically range from 60 to 74 dBA L_{max} at a distance of 465 feet. Noise levels generated by baseball, softball, track and field, and swimming events would be lower than those generated by football events.

The nearest noise-sensitive receiver is located about 620 feet northeast of the center of the football field. Worst-case average noise levels generated by a football game with about 500 spectators would range from about 51 to 53 dBA L_{eq} at the nearest residences, and maximum noise levels would range from about 50 to 64 dBA L_{max} . Worst-case average noise levels generated by a football game with about 2,000 spectators would range from about 57 to 59 dBA L_{eq} at the nearest residences. Maximum noise levels would range from about 56 to 70 dBA L_{max} . Noise levels generated by football would exceed ambient noise levels by 10 to 20 dBA L_{eq} at nearby residential land uses. Noise levels generated by the use of the soccer field, softball and baseball diamonds, and track would be less given expected attendance at such events.

Although the proposed project would substantially increase ambient noise levels during well attended football games, these events would occur on 5 nights a year or less for about 3 hours a night. This would be considered a less than significant impact.

Parking Lot Activities

The location and size of future parking facilities is not know at this time. Noise associated with the use of the parking lot would include vehicular circulation, loud engines, door slams, and human voices. The maximum noise level (L_{max}) of a passing car at 15 mph typically ranges from 45 dBA to 55 dBA at a distance of 100 feet. The noise generated during an engine start is similar. Door slams create lower noise levels. The hourly average noise levels resulting from all of these noise-generating activities in a busy parking lot typically ranges from 40 dBA to 50 dBA L_{eq} at a distance of 100 feet from the parking area. Noise levels decrease at a rate of 6 dB per doubling of distance. Intervening terrain and structures would further reduce these noise levels at nearby noise sensitive uses. Noise levels associated with parking lot activities would typically be below ambient traffic noise levels generated along area roadways and be considered less than significant.

² Santa Teresa High School Football Stadium Lighting Project, Illingworth & Rodkin, Inc., October 9, 2002.

Roof Mechanical Equipment

It is anticipated that the buildings would be fully air-conditioned and that there would be rooftop heating, ventilating, and air conditioning units that could be located in unshielded areas. Noise generated by mechanical equipment would vary significantly depending on the selected equipment and design specifications including equipment location, type, size, capacity, and enclosure design. These details are typically not available until later phases of the project design and development review process. Noise from mechanical systems is potentially significant.

Mitigation Measure:

The following mitigation measures would reduce the potentially significant impact to a less-than-significant level:

- Mechanical equipment should be designed so as to minimize impacts on surrounding uses, particularly residences located north of the retail/on-campus housing building. This can be accomplished by locating noise-generating equipment away from noise-sensitive receivers, or by providing acoustical shielding. If rooftop-mounted mechanical equipment is used, it should be shielded from the adjacent residential development by rooftop screens or perimeter parapet walls, noise control baffles, sound attenuators, or enclosures. An acoustical specialist should review the mechanical equipment plans prior to construction to ensure that the County Noise Ordinance is met.

Impact: Off-Site Traffic Noise Increases.

Project traffic would substantially increase traffic noise levels along area roadways and would measurably contribute to significant cumulative traffic noise increases.

This is a potentially significant impact.

The traffic noise impact evaluation is based on information set forth in the Fairview Corners/Gavilan College Master Plan Transportation Impact Analysis.³ Existing plus project traffic volumes for both access alternatives were compared to existing traffic volumes to calculate project generated traffic noise impacts. Access Alternative 1 would extend Cielo Vista Drive into the project site from Fairview Road and would serve as the only access point for the site. Access Alternative 2 would continue to incorporate Access Alternative 1 and, in addition, extend Dan Drive into the project site from Airline Highway to create a second site entrance.

Project Generated Traffic Increases

Significant increases in traffic noise levels for project alternative 1 are expected along Fairview Road between Cielo Vista Drive and Airline Highway. There are single-family residences in the Cielo Vista Subdivision located within 100 feet from the roadway along the west side of Fairview Road. Traffic noise levels are estimated to increase 4 dBA L_{dn} as a result of project-generated

³ Fairview Corners/Gavilan College Master Plan Transportation Impact Analysis Draft, Hexagon Transportation Consultants, Inc., March 7, 2008.

traffic at these residential land uses, and the project would result in a significant noise impact at these dwellings.

Significant increases in traffic noise levels for project alternative 2 are expected along the road segments of Fairview Road between Cielo Vista Drive and Airline Highway, and Airline Highway between Fairview Road/Ridgemark Drive and Dan Drive. Traffic noise levels are estimated to increase 3 dBA L_{dn} as a result of project-generated traffic under alternative 2, and the project would result in a significant noise impact at these dwellings.

Traffic noise levels are estimated to increase 3 dBA as a result of project-generated traffic along the eastern segment of Airline Highway between Fairview Road/Ridgemark Drive and Dan Drive under Access Alternative 2. There are single-family residences in a small subdivision south of Dan Drive approximately 280 feet from the roadway. These residences would be subject to noise increases of 3 dBA, but due to increased distance from the roadway noise levels will continue to be compatible with residential land use standards.

Cumulative Traffic Noise Increases

The Project would result in a significant cumulative traffic noise impact if existing sensitive receivers would be exposed to cumulative traffic noise level increases greater than 3 dBA L_{dn} above existing traffic noise levels and if the Project would make a “cumulatively considerable” contribution to the overall traffic noise level increase. A “cumulatively considerable” contribution would be defined as an increase of 1 dBA L_{dn} or more attributable solely to the proposed project. Cumulative traffic noise levels are calculated to increase substantially along roadways serving the project site because of cumulative growth forecast in local General Plans. The cumulative noise impacts to sensitive receptors along the affected roadway segments under Access Alternatives 1 and 2 are described below.

Access Alternative 1

Cumulative traffic noise levels are anticipated to increase by 3 dBA L_{dn} as a result of cumulative plus project conditions along Fairview Road between Old Ranch Road and Cielo Vista Drive. 2 dB of the 3 dB increase can be attributed to the project. This would result in a significant cumulative impact at receivers west of Fairview Road between Old Ranch Road and Cielo Vista Drive.

Cumulative traffic noise levels are anticipated to increase overall by 5 dBA L_{dn} as a result of cumulative plus project conditions at the intersections of Fairview Road between Cielo Vista Drive and Airline Highway/Ridgemark Drive. 3 dB of the 5 dB increase can be attributed to the project. This would result in a significant cumulative impact at receivers west of Fairview Road between Cielo Vista Drive and Airline Highway/Ridgemark Drive.

Access Alternative 2

Cumulative traffic noise levels are anticipated to increase overall by 3 dBA L_{dn} as a result of cumulative plus project conditions at the intersection of Fairview Road between Old Ranch Road

and Cielo Vista Drive. 2 dB of the 3 dB increase can be attributed to the project. This would result in a significant cumulative impact at receivers west of Fairview Road between Old Ranch Road and Cielo Vista Drive.

Cumulative traffic noise levels are anticipated to increase overall by 4 dBA L_{dn} as a result of cumulative plus project conditions at the intersection of Fairview Road between Cielo Vista Drive and Airline Highway/Ridgemark Drive. 2 dB of the 4 dB increase can be attributed to the project. This would result in a significant cumulative impact at receivers west of Fairview Road south Cielo Vista Drive.

Cumulative traffic noise levels are anticipated to increase overall by 6 dBA L_{dn} as a result of cumulative plus project conditions at the intersection of Airline Highway east of Fairview Road/Ridgemark Drive and west of Dan Drive. 1 dB of the 6 dB increase can be attributed to the project. This would result in a significant cumulative impact at receivers south of Airline Highway.

Mitigation Measures:

Noise reduction methods include the following:

- New or larger noise barriers could reduce noise levels by 5 dBA L_{dn} . Final design of such barriers, including an assessment of their feasibility and reasonableness, should be completed during project level review.
- Sound insulation treatments to the buildings, such as sound rated windows and doors, could reduce noise levels in interior spaces.
- In addition, alternative noise reduction techniques should be considered in coordination with the County of San Benito. Such techniques could include: installation of traffic calming measures to slow traffic; coordination of routing and other traffic control measures; repaving the affected roadways with “quiet” pavement types such as Open-Grade Asphalt Concrete. Opportunities to lower noise levels through pavement surface treatments could only be identified after an assessment of the current roadway surface with respect to noise.

Mitigation Discussion:

A combination of mitigation measures such as the repaving of affected roadways, the replacement or construction of noise barriers, traffic calming, and sound insulation could be implemented to reduce the effects of cumulative plus project traffic noise at affected residential units in the vicinity of the project site.

Case studies have shown that the replacement of dense grade asphalt (standard type) with open-grade or rubberized asphalt can reduce traffic noise levels along residential-type streets by 2 to 3 dBA. A possible noise reduction of 2 dBA would be expected using conservative engineering assumptions.

Single-family residential receivers west of Fairview Road and north and south of Airline Highway near Enterprise could be provided with new or larger noise barriers to provide the additional necessary noise attenuation in private outdoor use areas. Typically, increasing the height of an existing barrier results in about 1 dBA of attenuation per 1 foot of additional barrier height. The design of such noise barriers would require additional analysis.

Traffic calming could also be implemented along affected roadways to reduce noise levels expected under the cumulative plus project traffic scenario. Each 5 mph reduction in average speed provides approximately 1 dBA of noise reduction on an average basis (L_{eq}/L_{dn}). Traffic calming measures that regulate speed improve the noise environment by smoothing out noise levels.

Affected residential receivers along affected roadways, could be provided sound insulation treatments if further study finds that interior noise levels within the affected residential units would exceed 45 dBA L_{dn} assuming cumulative plus project traffic conditions. Treatments to the home may include the replacement of existing windows and doors with sound-rated windows and doors and the provision of a suitable form of forced-air mechanical ventilation to allow the occupants the option of controlling noise to by closing the windows. The specific treatments for each affected residential unit would be identified on a case-by-case basis.

Significance After Mitigation:

Each of these mitigation measures involves other non-acoustical considerations. Other engineering issues may dictate continued use of dense grade asphalt. Noise barriers and sound insulation treatments must be done on private property necessitating agreements with each property owner. Therefore, it may not be reasonable or feasible to reduce project-generated traffic noise at all affected receivers. The impact would be considered significant and unavoidable.

Impact: Construction Noise.

The project site is bordered by existing residential land uses to the north, west, and east. Noise generated by construction on the site would substantially increase noise levels at residential land uses in the vicinity of the site. **This is a potentially significant impact.**

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive receptors. Construction noise impacts primarily occur when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction noise lasts over extended periods of time. Where noise from construction activities exceeds 60 dBA L_{eq} and exceeds the ambient noise environment by at least 5 dBA L_{eq} at noise-sensitive uses in the project vicinity for a duration of one year or more, the impact would be considered significant.

Construction activities generate considerable amounts of noise. Construction-related noise levels are normally highest during the construction of project infrastructure. The infrastructure phase of construction requires heavy equipment that generates the highest noise levels. Typical hourly average construction generated noise levels are about 81 dBA to 88 dBA measured at a distance of 50 feet from the center of the site during busy construction periods (e.g., earth moving equipment, impact tools, etc.). The highest maximum noise levels generated by project construction would typically range from about 90 to 98 dBA at a distance of 50 feet from the noise source. Construction-related noise levels are normally less during building framing, finishing, and landscaping phases. There would be variations in construction noise levels on a day-to-day basis depending on the specific activities occurring at the site. Construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance away from the source. Shielding by buildings or terrain often result in much lower construction noise levels at distant receptors.

Ambient daytime noise levels at the nearest receivers (approximately 100 feet west of the Fairview Road centerline) typically range from dBA 59 to 63 dBA L_{eq} during the day. Construction noise levels are anticipated to exceed 60 dBA L_{eq} and the ambient by 5 dBA or more when intense construction activities occur within about 710 feet of the nearest receivers to the north, west, and east. Construction activities occurring on the portions of the site nearest these receivers (retail/on-campus housing, residential housing, and the athletic field) may result in noise levels exceeding 60 dBA L_{eq} and the ambient by 5 dBA or more.

The College will be constructed in two phases. Phase I will include parking, modular buildings, and the main access roadway off of Fairview Road. The full campus buildout will would take 1 to 2 years to complete. The phasing for the residential portions will be developed over 10 years with 5 phases. Each phase will take 2 years with the first six months of each phase consisting of heavy construction. During each phase approximately 40 houses will be constructed. It is conceivable that a particular receiver or group of receivers would be subject to construction noise levels in excess of 60 dBA L_{eq} and the ambient by 5 dBA for durations exceeding one construction season.

To reduce noise levels generated by construction, the following standard construction noise control measures shall be included in the project:

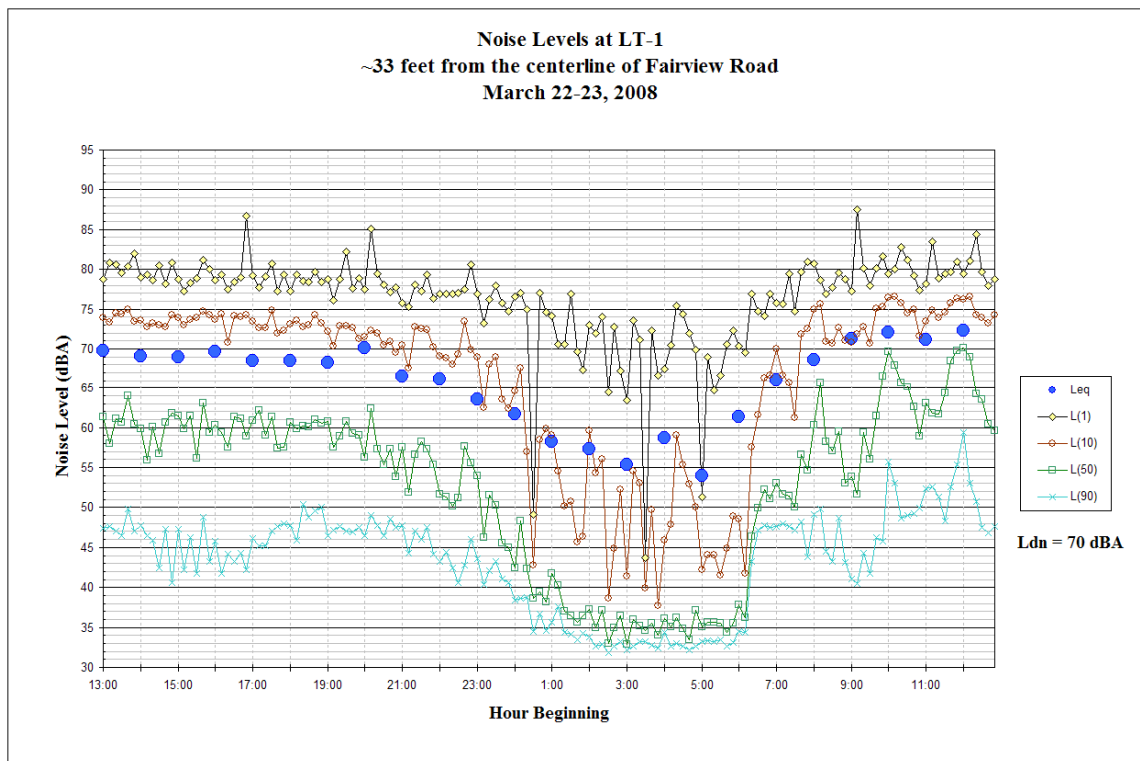
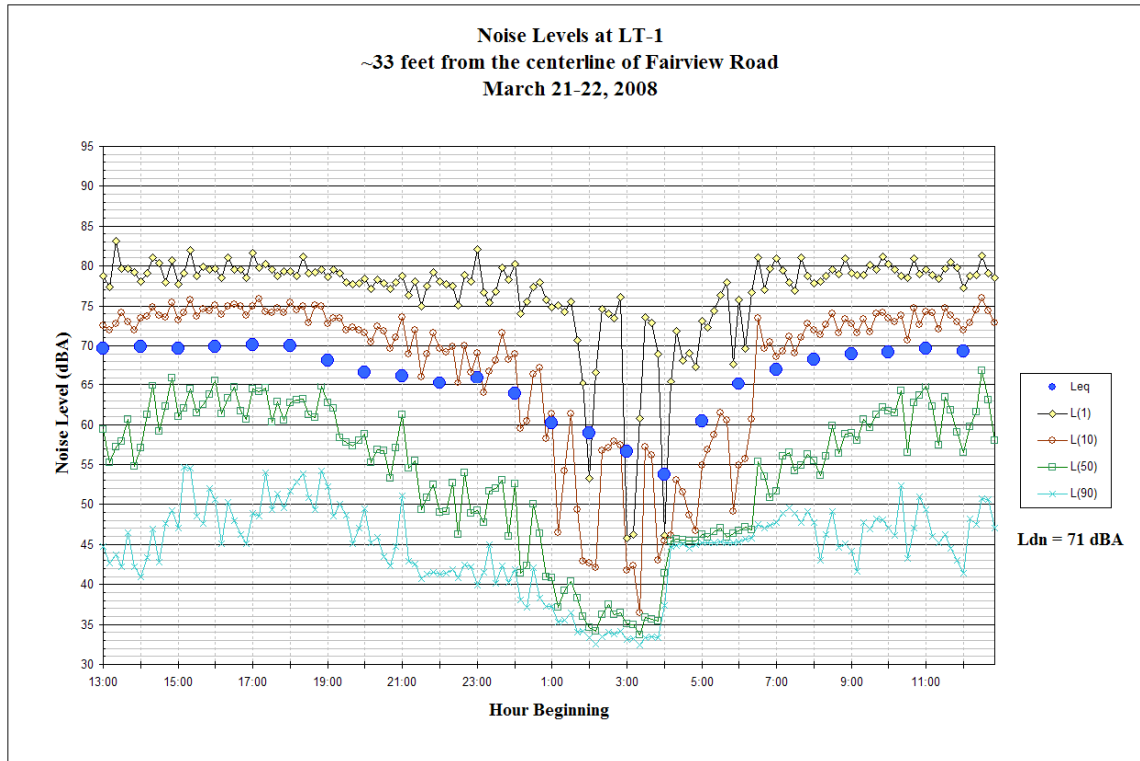
- Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours of 7:00 a.m. to 7:00 p.m. daily.
- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Unnecessary idling of internal combustion engines should be strictly prohibited.
- Locate stationary noise generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 5 dBA.

- Utilize "quiet" air compressors and other stationary noise sources where technology exists.
- Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction related heavy truck traffic in residential areas where feasible.
- Control noise from construction workers' radios to a point that they are not audible at existing residences bordering the project site.
- The contractor shall prepare and submit to the County for approval a detailed construction plan identifying the schedule for major noise-generating construction activities.
- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

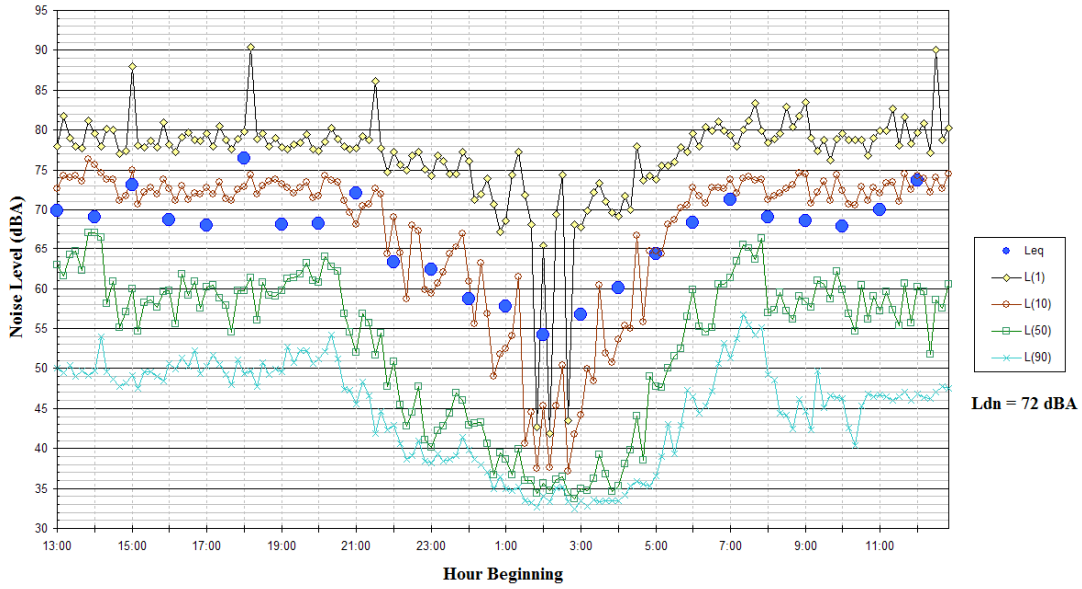
Significance After Mitigation:

Although the above measures would reduce noise generated by the construction of the project, the impact would remain significant and unavoidable as a result of the extended period of time that adjacent receivers would be exposed to construction noise.

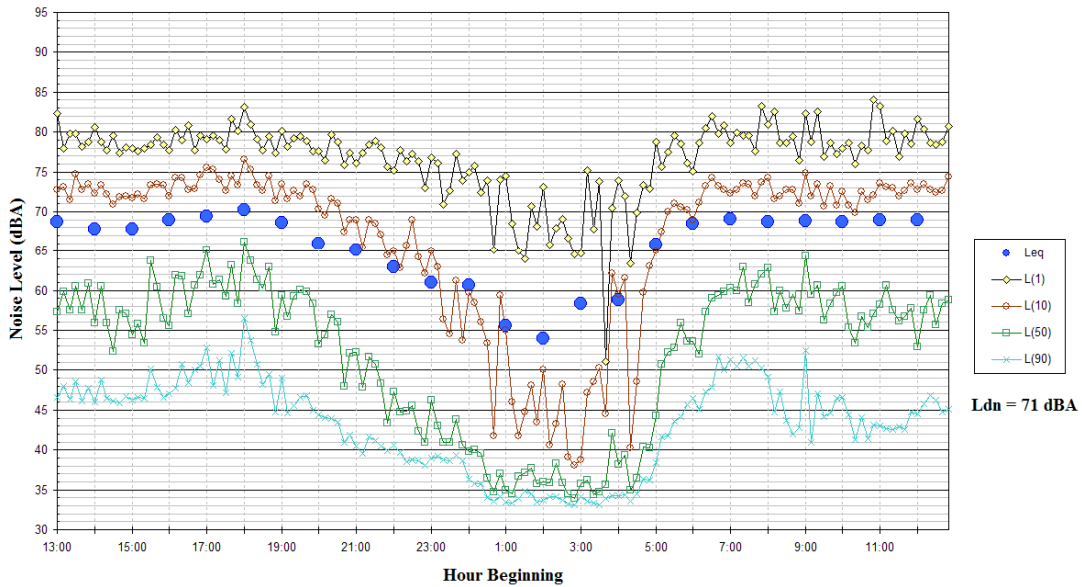
Appendix 1: Daily Trend in Noise Levels



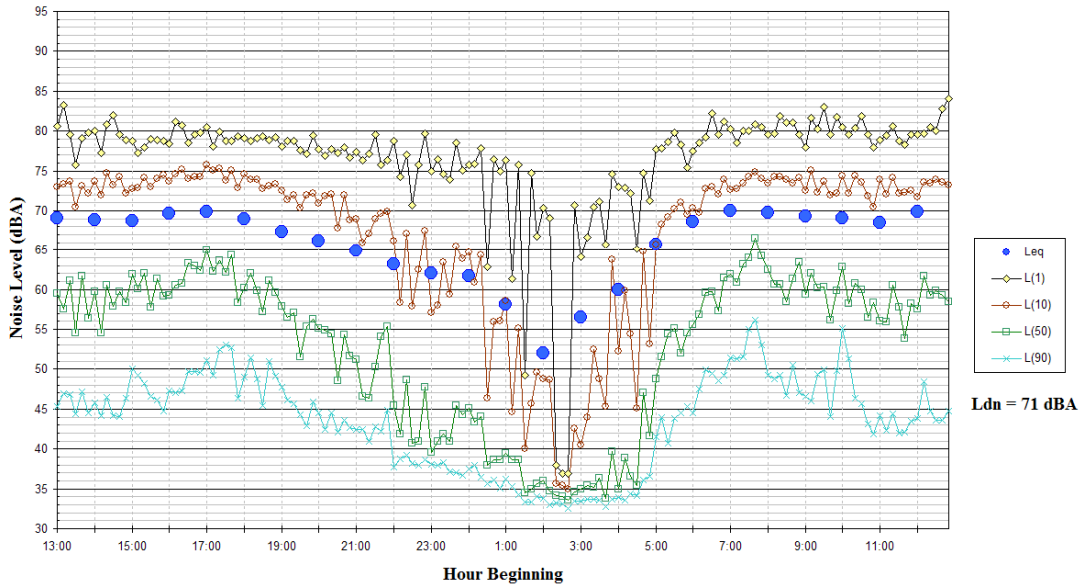
Noise Levels at LT-1
~33 feet from the centerline of Fairview Road
March 23-24, 2008



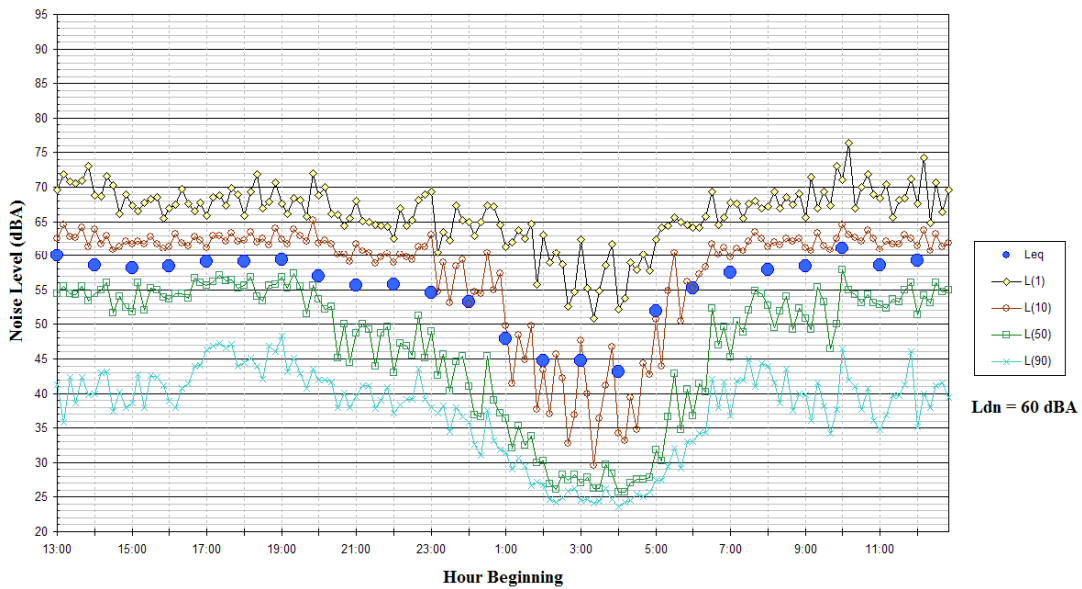
Noise Levels at LT-1
~33 feet from the centerline of Fairview Road
March 24-25, 2008



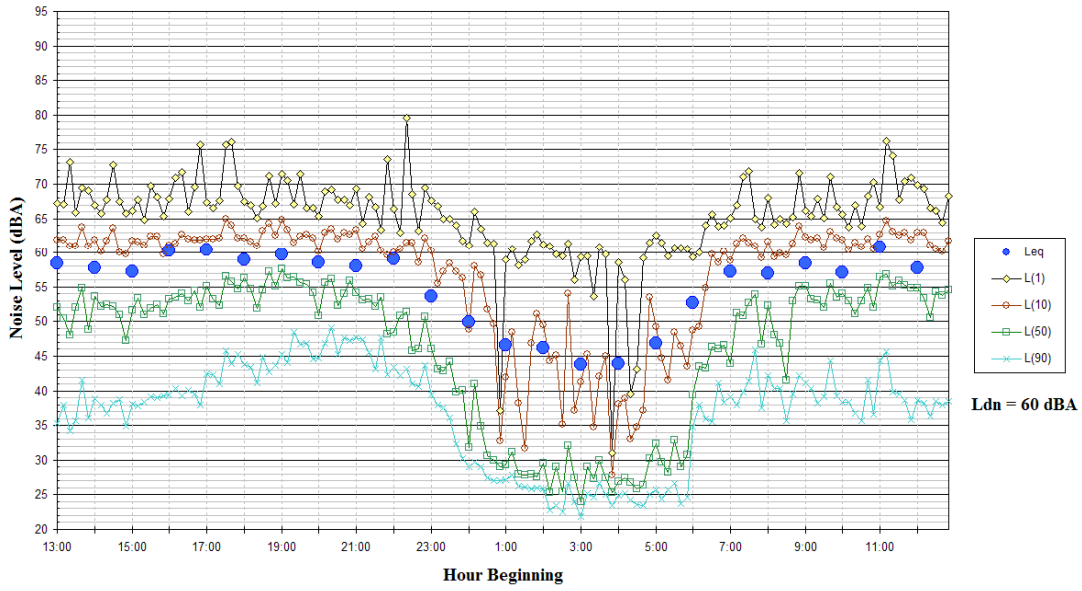
Noise Levels at LT-1
 ~33 feet from the centerline of Fairview Road
 March 25-26, 2008



Noise Levels at LT-2
 ~90 feet from the centerline of Airline Highway
 March 21-22, 2008



Noise Levels at LT-2
 ~90 feet from the centerline of Airline Highway
 March 22-23, 2008



Noise Levels at LT-2
 ~90 feet from the centerline of Airline Highway
 March 23-24, 2008

