SAN JOSE FLEA MARKET SITE ENVIRONMENTAL NOISE ASSESSMENT SAN JOSE, CALIFORNIA

March 27, 2006

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Prepared for:

Demetri Loukas
David J. Powers & Associates
1885 The Alameda, Suite 204
San Jose, CA 95126

Prepared by:

Richard B. Rodkin, P.E.
Michael S. Thill

ILLINGWORTH & RODKIN, INC.
Acoustics · Air Quality
505 Petaluma Boulevard South
Petaluma, CA 94952
(707) 766-7700

Job No.: 05-026

INTRODUCTION

This section presents the Environmental Noise Assessment conducted for the San Jose Flea Market site. The major issue evaluated in this Noise Assessment is the compatibility of the proposed site development with the noise environment at the site. The study addresses current noise sources including vehicular traffic on major roadways and operations at Granite Rock, and the potential effects of the proposed extension of BART to San Jose on the Silicon Valley Regional Transportation Corridor (UPRR railroad) which adjoins the eastern side of the site. The setting section of the report presents a discussion of the fundamentals of environmental acoustics, regulatory background information, and a discussion of existing and future baseline noise environments on and around the site. The impacts and mitigation measures section evaluates the noise and land use compatibility, long-term traffic noise impacts, and construction noise impacts of the development and presents mitigation measures for identified significant impacts.

SETTING

Fundamentals of Environmental Noise

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing. Decibels and other technical terms are defined in Table 1.

Most of the sounds which we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting that reflects the facts that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency mid-range. This is called "A" weighting, and the decibel level so measured is called the A-weighted sound level (dBA). In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Typical A-weighted levels measured in the environment and in industry are shown in Table 2 for different types of noise.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources which create a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_{01}, L_{10}, L_{50}, and L_{90}, are commonly used. They are the A-weighted noise levels equaled or exceeded during 1%, 10%, 50%, and 90% of a stated time period. A single number descriptor called the L_{eq} is also widely used. The L_{eq} is the average A-weighted noise level during a stated period of time.

In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes very noticeable. Further, most people sleep at

night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a descriptor, DNL (day/night average sound level), was developed. The DNL divides the 24-hour day into the daytime of 7:00 AM to 10:00 PM and the nighttime of 10:00 PM to 7:00 AM. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Community Noise Equivalent Level (CNEL) is another 24-hour average which includes both an evening and nighttime weighting.

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 $L_{eq[h]}$.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels in the night between 10:00 pm and 7:00 am.
Day/Night Noise Level, DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
L_{01}, 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	100 dBA	
		Night club with live music
	90 dBA	
Large truck pass by at 15 meters		
	80 dBA	Noisy restaurant
		Garbage disposal at 1 meter
Gas lawn mower at 30 meters	70 dBA	Vacuum cleaner at 3 meters
Commercial/Urban area daytime		Normal speech at 1 meter
Suburban expressway at 90 meters	60 dBA	
Suburban daytime		Active office environment
	50 dBA	
Urban area nighttime		Quiet office environment
	40 dBA	
Suburban nighttime		
Quiet rural areas	30 dBA	Library
		Quiet bedroom at night
Wilderness area	20 dBA	
Most quiet remote areas	10 dBA	Quiet recording studio
	0 dBA	

Regulatory Background

The State of California and the City of San Jose have established plans and policies which are designed to limit noise exposure at noise sensitive land uses. These plans and policies include: (1) the State CEQA Guidelines, Appendix G; and (2) the City of San Jose Noise Element of the General Plan. The following describes applicable regulatory criteria used to evaluate the significance of noise impacts:

State CEQA Guidelines. The California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. CEQA asks whether the proposed project would result in:

- 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?

- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

- 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, would the project expose people residing or working in the project area to excessive noise levels?

CEQA checklist questions regarding aircraft noise are not applicable in this assessment. The primary noise issues concerning this project are noise and land use compatibility and the potential for permanent or temporary noise level increases in the project vicinity that would occur with the project. CEQA does not define what noise level increase would be considered substantial. Typically, project-generated noise level increases of 3 dBA DNL or greater would be considered significant where exterior noise levels would exceed the normally acceptable noise level standard (60 DNL).

Section 1208 of the 2001 California Building Code. New multi-family housing in the State of California is subject to the environmental noise limits set forth in Appendix Chapter 1208A.8.4 of the California Building Code. The noise limit is a maximum interior noise level of 45 DNL /CNEL. Where exterior noise levels exceed 60 DNL, a report must be submitted to the Building Department with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit.

City of San Jose General Plan. The Noise Element of the City of San Jose's 2020 Plan identifies noise and land use compatibility standards for various land uses. The City's goal is to "minimize the impact of noise on people through noise reduction and suppression techniques, and through appropriate land use policies." The City's acceptable noise level objectives for

residential land uses are 55 DNL as the long-range exterior noise quality level and 60 DNL as the short-range exterior noise quality level. Policy 9 requires that construction operations should use available noise suppression devices and techniques. Policy 11 establishes an impact threshold of 55 DNL for non-residential projects proposed adjacent to residences.

City of San Jose's Zoning Ordinance. The City's Zoning Ordinance applies specific noise standards to Residential, Commercial and Industrial Zoning Districts which limits the sound pressure levels generated by any use or combination of uses shall not exceed the decibel level at any property line as shown in Table 3, below:

Table 3
City of San Jose Zoning Code Noise Standards

	Maximum Noise Level in Decibels at Property Line
Residential, open space, industrial or commercial uses adjacent to a property used or zoned for residential purposes	55
Open space, commercial, or industrial use adjacent to a property used or zoned for commercial purposes or other non-residential uses	60
Industrial use adjacent to a property used or zoned fro industrial or use other than commercial or residential purposes	70

Existing Noise Environment

Berryessa Road transects the site at its approximate midpoint. The portion of the site north of Berryessa Road is bounded by residential land uses along Chessington Drive to the north, industrial land uses to the east, and Coyote Creek and industrial land uses to the west. The portion of the project site south of Berryessa Road is bordered by the UPRR rail corridor on the east, Mabury Road to the south, and Coyote Creek and industrial land uses to the west.

The existing noise environment on the site results primarily from vehicular traffic along Berryessa Road. Mabury Road affects the southern portion of the site. Industrial activities west of Coyote Creek, as well as, existing activities on the site contribute to the existing noise environment. The UPPR railroad line is not currently a significant contributor to noise levels at the project site. This is the designated corridor for the extension of BART to San Jose.

Several noise surveys have been conducted at the project site since 2001. Hourly noise levels were measured during the daytime, evening, and nighttime at the seven locations designated LT-1 through LT-7 on Figure 1. The data are presented on Figures 2 - 8. The measurements show the statistical descriptors measured during each interval and the hourly L_{eq}. There are differences in the format of the various measurements because they were conducted during different years. The day/night average sound level (DNL) is calculated or estimated from each long-term measurement. The data clearly demonstrate that the major noise sources affecting the project site are vehicular traffic on Berryessa Road and Mabury Road where roadside noise levels are approximately 70 to 75 DNL. Away from these major roadways, the site is exposed to noise levels of 58 to 62 dBA DNL.

Short-term attended noise measurements were made on the Flea Market site opposite the Granite Rock industrial facility located west of Coyote Creek in 2001 and 2006. The 2001 survey identified bangs from truck unloading activity, the movement of freight cars and engines on the spur line along the creek, and truck movement and idling sounds at the west side of the creek. These activities produced instantaneous A-weighted sound levels of between 58 and 64 dBA on the edge of the flea market property. Activities reported by residential neighbors that were not observed or measured during the short-term survey include rail car unloading with vibratory shaking and "slack action", the noise produced when empty train cars are released on tracks and impact other rail cars. These sudden impacts typically generate noise levels of between 67 and 69 dBA at comparable distances.

The March 2006 survey specifically measured noise from the asphalt plant. The plant is on the parcel north of Berryessa Road and west of Coyote Creek. The plant generated a noise level of 63-64 dBA at a distance of about 530 feet east and 56 dBA at about 800 feet to the north east (nearest proposed residential).

BART Extension to San Jose

The UPRR railroad corridor adjoining the eastern side of the Flea Market site is the designated Silicone Valley Rapid Transit Corridor where the BART extension to San Jose is proposed. Noise and vibration impacts resulting from the proposed BART extension were assessed in the Silicon Valley Rapid Transit Corridor Final EIR.[1] The SVRTC study predicts wayside noise levels for BART operations adjacent to the Flea Market site. The predicted noise level is 60 DNL 144 feet from the near track, 63 DNL 88 feet from the near track, and 69 DNL 26 feet from the near track. The maximum passby noise levels are predicted for two locations, 76 dBA L_{max} at 88 feet and 82 dBA L_{max} at 26 feet from the near track.[2]

BART trains are also a source of ground borne vibration. Vibration velocity is used in the SVRTC FEIR as the metric to evaluate the effects of vibration. Vibration velocity level can be expressed in terms of decibels (VdB) relative to one micro-inch per second. The Federal Transit Agency (FTA) has developed criteria to assess the effects of ground borne vibration from rail transit systems. At residences and buildings where people normally sleep the threshold is 70 VdB for transit lines that include more than 70 vibration events per day. This would be the applicable criteria for transit oriented residential uses along the SVRTC. Predicted ground vibration levels without mitigation are presented for receiver points located on the west side of the corridor between Sierra Road and Berryessa Road. These are believed to be the best available data representative of the project site. The predicted vibration velocity levels are 81 VdB at about 40 feet and about 85 VdB at 26 feet from the near track.[3] The 72 VdB threshold is estimated to occur within approximately 100 feet of the near track without mitigation. Because the SVRTC FEIR identified impacts in this corridor, vibration mitigations were also evaluated. The analyses recommended that the impact area could be reduced to about 25 feet from the near track with the adoption of reasonable and feasible vibration mitigation measures as a part of the BART project.

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[1] *Silicon Valley Rapid Transit Corridor Final EIR,* prepared by Santa Clara Valley Transportation Authority, November 2004.

[2] SVRTC FEIR, pages 4.13-16 and 4.13-17.

3 SVRTC FEIR, Table 4.13-17, page 4.13-54.

IMPACTS AND MITIGATION MEASURES

Impact 1. Noise levels at residential uses proposed along Berryessa Road, Mabury Road, and the Silicon Valley Rapid Transit Corridor (UPRR) would exceed the City of San Jose and State Building Code noise thresholds. Intermittent noise from the Granite Rock facilities could exceed the City's Zoning Ordinance limits. This is a potentially significant impact.

Noise exposure contours are used to depict the various levels of noise on the project site for comparison with City and State guidelines. Figure 2 shows the combined future noise exposure contours for the Flea Market site, assuming that the BART extension to San Jose is located within the Silicon Valley Rapid Transit Corridor adjoining the east side of the project site. The contours have been shown on the General Development Plan and do not include contributions of vehicular traffic on the internal roadway network. Normally traffic on local roadways generates a day/night average noise level of less than 60 DNL and is compatible with the residential land uses, open space and other commercial and industrial uses within the project area. Residential land uses proposed along Berryessa Road, the BART alignment, and Mabury Road within the 60 DNL contour would be exposed to noise levels exceeding the City's short-term goal for noise in outdoor activity areas and the threshold for triggering further noise analysis during project design set forth in the State Building Code.

Residential lands located within approximately 900 feet of the industrial activity centers at Granite Rock would be exposed to noise levels exceeding the 55 dB noise limit set forth in the City's Zoning Ordinance. The City's 55 DNL policy for non-residential uses adjacent to residential uses may also be exceeded at residences located along the proposed open space buffer in the western portions of the Flea Market site. The proposed exposure of noise sensitive uses to noise levels exceeding City and State thresholds causes a potentially significant impact.

Mitigation Measure 1A. Implement General Plan Urban Design Policy 18 by utilizing site planning to minimize noise impacts to outdoor activity areas. Consider locating non-noise sensitive uses, such as parking (e.g. carports) adjacent to roadways and BART and using the residential buildings to provide shielding for common outdoor use areas including courtyards, rear yards, side yards, etc.

Mitigation Measure 1B. Multi-family housing proposed on the project site is subject to requirements of Appendix, Chapter 12 of the State Building Code. Because noise levels in portions of the site near Berryessa Road, Mabury Road and the future BART extension exceeded a DNL of 60 dB, an analysis detailing the treatments incorporating the building plans shall be prepared and submitted to the City Building Department prior to issuance of a Building Permit. The report shall demonstrate that the design incorporates those elements necessary to achieve an interior DNL of 45 dBA or less in all habitable residential rooms. Based on residential noise exposure levels, it is anticipated that sound-rated windows and doors may be required for housing adjacent to Berryessa Road, Mabury Road and the future BART extension to achieve the required 45 dBA DNL interior level. All residential uses on the project site shall be provided with forced-air mechanical ventilation satisfactory to the City of San Jose building official, so that residents may close their windows at their discretion to control environmental noise intrusion.

Mitigation Measure 1C. Transit oriented residential developments proposed adjacent to BART corridor south of Berryessa Road shall be designed to achieve a maximum single-event noise level from individual BART passbys of 50 dBA in bedrooms and 55 dBA in other rooms. Noise control treatments necessary to achieve the single-event noise limits which may include treatments identified in Mitigation Measure 1B shall be delineated and described in the report required under Mitigation 1B.

Mitigation Measure 1D. Construct sound walls where necessary to shield outdoor activity areas from Berryessa Road, Mabury Road and BART noise. The final locations and heights of barriers will be determined during development of the final site plan.

Mitigation Measure 1E. Residences located within 1,000 feet of the industrial activity centers at Granite Rock shall be provided with forced-air, mechanical ventilation so windows may be kept closed at the discretion of occupants to control intrusive intermittent noises. Six-foot high sound walls shall be constructed along the western boundaries of residential areas within 1,000 feet of these industrial adjacent neighbors. The final locations of barriers shall be determined during the development of the site plans for the proposed residential areas. Sound walls shall also be constructed along the eastern boundary of the Flea Market site where residential developments are proposed adjacent to the existing commercial/industrial area. The final height of the sound wall will be 6- to 8-feet above the residential rear yard elevations and will be confirmed when the final grading plans and site plans are developed for the project site.

Impact 2. Operation of BART trains could expose persons to groundborne vibration above Federal Transit Agency and BART thresholds. This is a potentially significant impact.

Transit oriented residential land uses are proposed adjacent to the BART tracks south of Berryessa Road. Information from the Silicon Valley Rapid Transit Corridor Final EIR discussed in the Setting Section, indicates that without vibration mitigation measures incorporated into the BART project, ground vibration levels would be expected to exceed the identified significance thresholds within approximately 100 feet of the BART tracks. With implementation of the reasonable and feasible vibration measures, the impact boundary could be reduced to approximately 25 feet from the near track. Residences proposed within 100 feet of the BART tracks could, therefore, experience a potentially significant ground vibration impact.

Mitigation Measure 2A. During development of design for the BART system, coordinate land use development plans and identified changed land uses with BART so that appropriate vibration mitigation measures can be incorporated adjacent to the Flea Market site.

Mitigation Measure 2B. If BART implements vibration mitigation measures, do not locate housing within 25 feet of the near BART track. If BART does not implement vibration mitigation measures, do not locate housing within 100 feet of the near BART track.

Impact 3. Project generated traffic would not result in a substantial increase in noise levels on the roadway network. This is a less-than-significant impact.

The development of the project would result in increased traffic on the street network. Traffic data prepared for this EIR was reviewed to determine whether or not there would be localized or area wide increases in vehicular traffic noise as a result of project generated trips. A comparison

of future traffic volumes with the project to traffic volumes that would occur under existing conditions indicates that traffic noise levels would increase by less than 1 dBA DNL for roadway segments potentially most affected by project generated traffic. This increase would not be considered substantial because it would be less than a 3 dBA change in the noise level. Noise impacts resulting from project generated vehicular traffic are, therefore, considered to be less-than-significant and no mitigation is required.

Impact 4. Construction noise impacts. With normal controls construction impacts would be less-than-significant.

Construction on the site will temporarily increase noise levels at nearby noise-sensitive receptors. Because of the sites large size, construction could be expected to occur in phases, with the entire build out of the sit taking several years. Construction activities would not typically be located adjacent to a particular receptor during the entire construction period. Therefore, noise generated by construction would create a temporary noise impact on adjacent noise sensitive receptors, but this would be considered a less-than-significant impact provided that standard construction noise control measures are implemented.

Construction Noise Mitigation Measures: The following mitigation measures are recommended to reduce noise generated by construction:

Mitigation Measure 4A. Construct temporary noise barriers around the perimeter of project phases before construction begins.
Mitigation Measure 4B. Limit noise-generating construction activities, including truck traffic coming to and from the site for any purpose, to daytime, weekday, non-holiday hours (7:00 am to 6:00 pm).
Mitigation Measure 4C. Properly muffle and maintain all construction equipment powered by internal combustion engines.
Mitigation Measure 4D. Prohibit unnecessary idling of internal combustion engines
Mitigation Measure 4E. Locate all stationary noise-generating construction equipment such as air compressors as far as practical from existing nearby residences and other noise-sensitive land uses. Acoustically shield such equipment.
Mitigation Measure 4F. Select quiet construction equipment, particularly air compressors, whenever possible. (Fit motorized equipment with proper mufflers in good working order.)
Mitigation Measure 4G. Designate a "noise disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and would 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. (The Agency should be responsible for designating a noise disturbance coordinator and the individual project sponsor should be responsible for posting the phone number and providing construction schedule notices.)

Impact 5. The proposed General Plan Amendment would place transit oriented residential uses adjacent to BART and Mabury Road at the southern end of the study area, rather than commercial/industrial uses. This change exposes more residential development to potential noise and vibration impacts from BART and noise impacts from Mabury Road.

The proposed General Plan Amendment would also place transit oriented residential uses closer to existing industrial development in the northwest corner of the site, rather than commercial/industrial uses. This increases the potential noise exposure to residential land uses from operations at Granite Rock.

There is an increase in potential residential noise and vibration exposure at the southern portion of the property, but the impacts and mitigation measures are the same as those for other transit oriented residential proposed adjacent to Berryessa Road and/or the BART/UPRR Corridor. Re-designating the commercial/industrial uses to residential uses in the northwest corner of the project site allows more residences to be constructed near the Granite Rock industrial facility located on the west side of Coyote Creek, however, the proposed rezoning would develop the northwest corner of the project site with a public park. The proposed public park in the northwest corner of the project site reduces the potential noise exposure to residential land uses from operations at Granite Rock. There were no changes in the vehicular traffic noise impacts as compared to previous land use designations. No additional impacts or mitigation measures are identified for the General Plan Amendment and rezoning proposal.

Impact 6. Cumulative Traffic Noise Level Increase.

As described in Impact 3, project-generated traffic noise level increases are calculated to be less than 1 dBA DNL along roadways in the project vicinity, and this increase would not be measurable or perceptible. The project's contribution to any potential cumulative traffic noise increase (3 dBA DNL or greater) would not be cumulatively considerable, and the potential cumulative impact is less-than-significant. No mitigation is required.

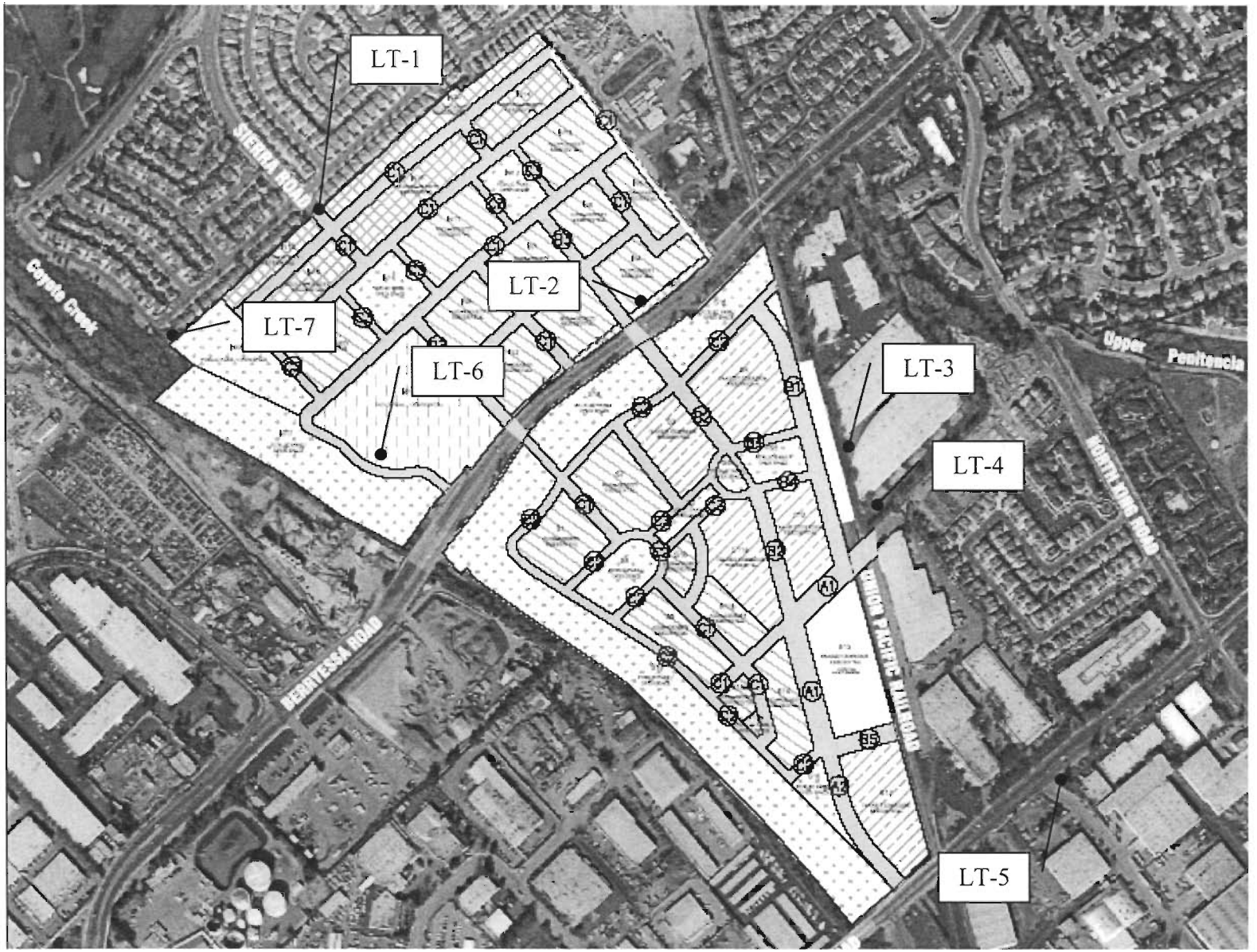
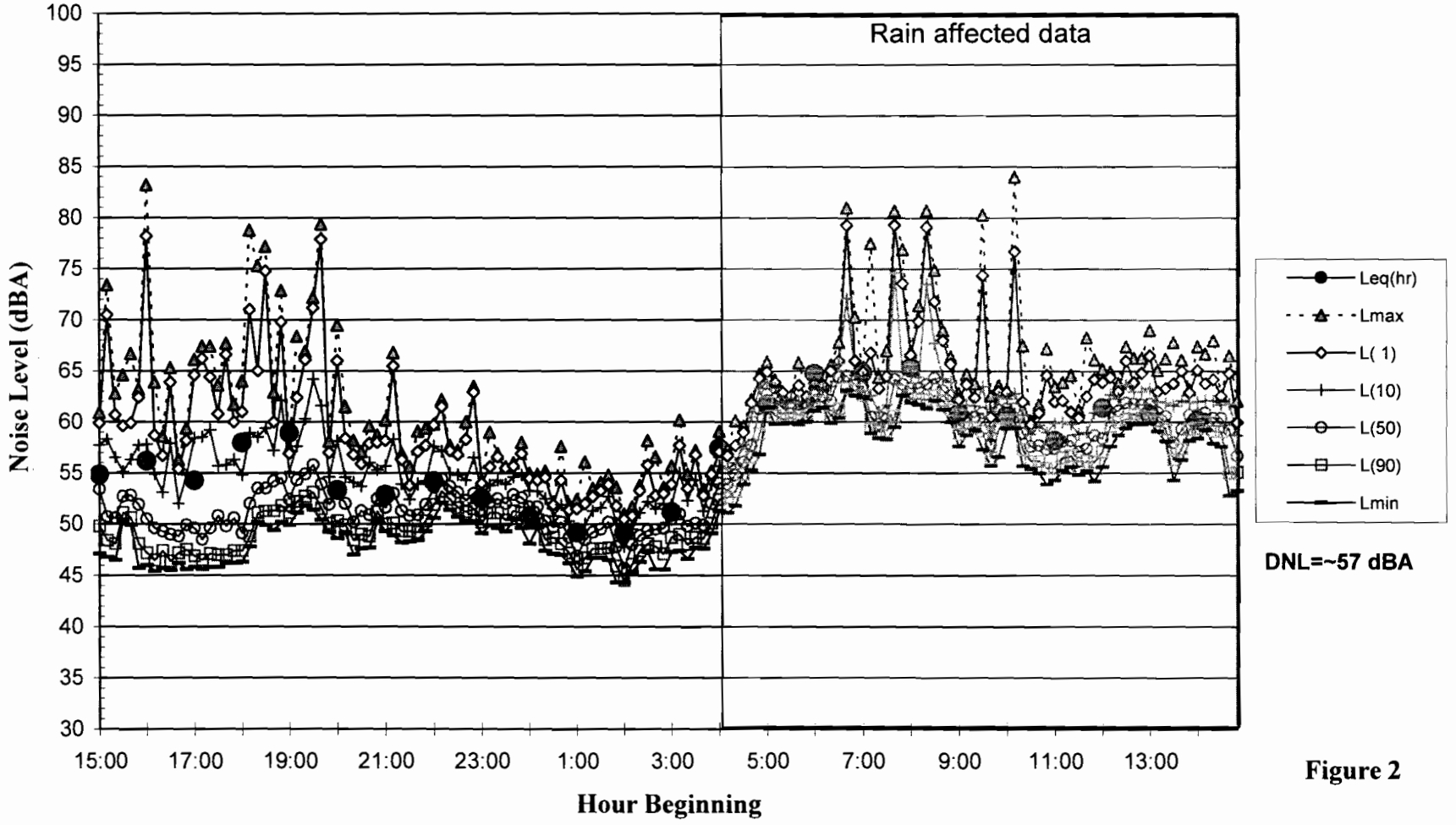


Figure 1 Noise Measurement Locations

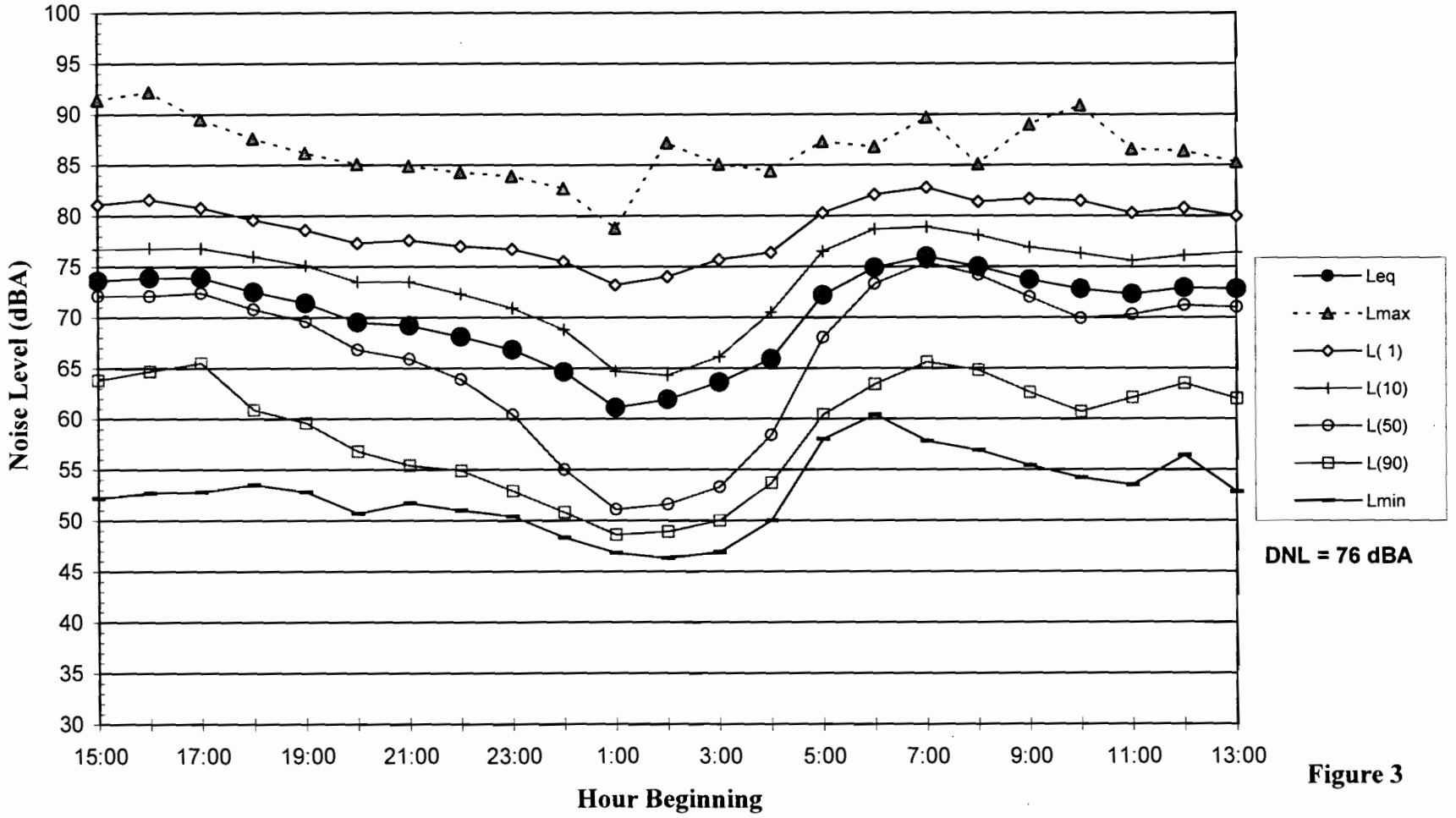
Noise Levels at LT-1
North End of Flea Market Site at End of Sierra Avenue
March 2-3, 2005



DNL=~57 dBA

Figure 2

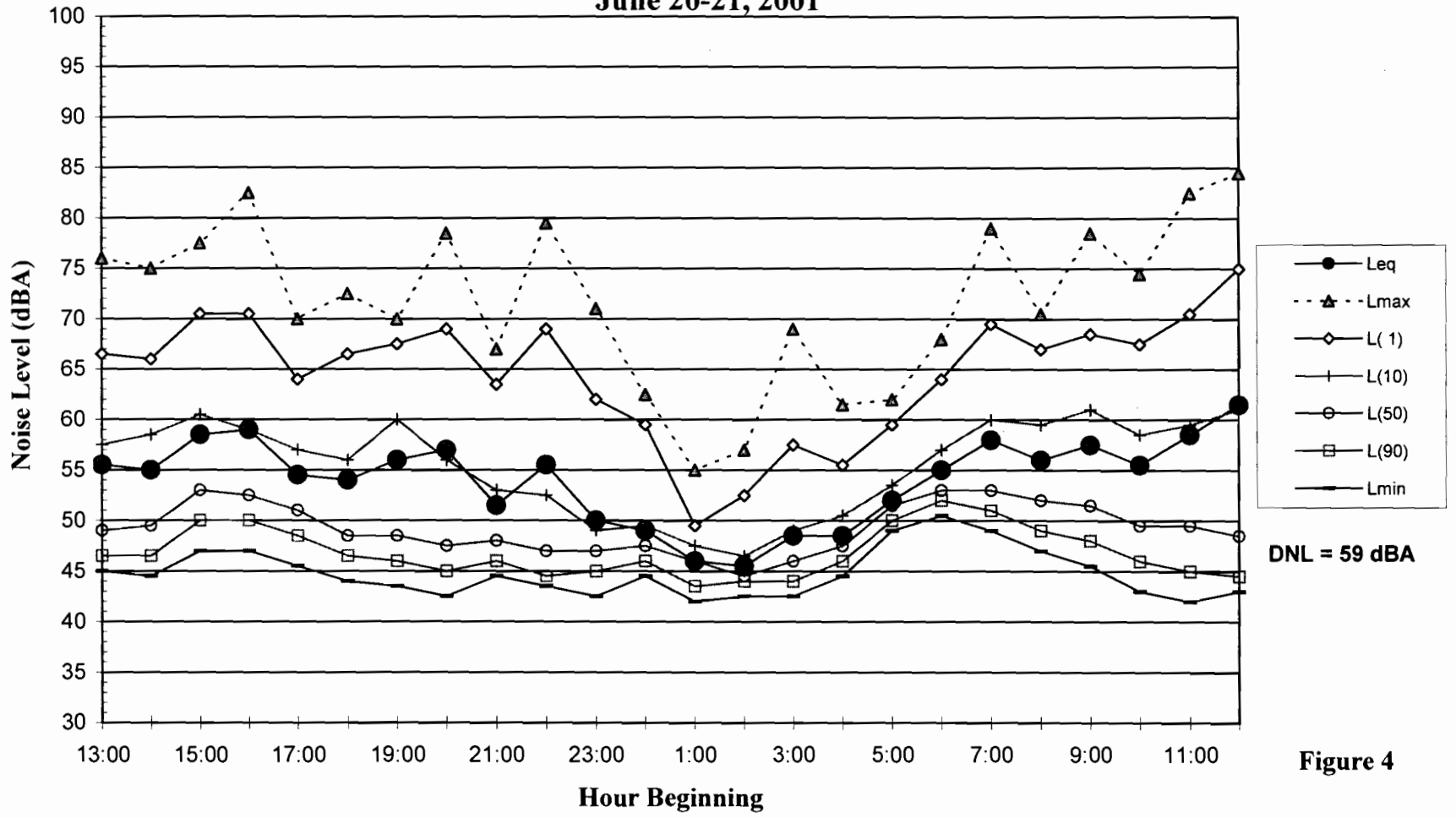
Noise Levels at LT-2
~ 25 feet from the Center of the Near Westbound Lane of Berryessa Road
March 2-3, 2005



DNL = 76 dBA

Figure 3

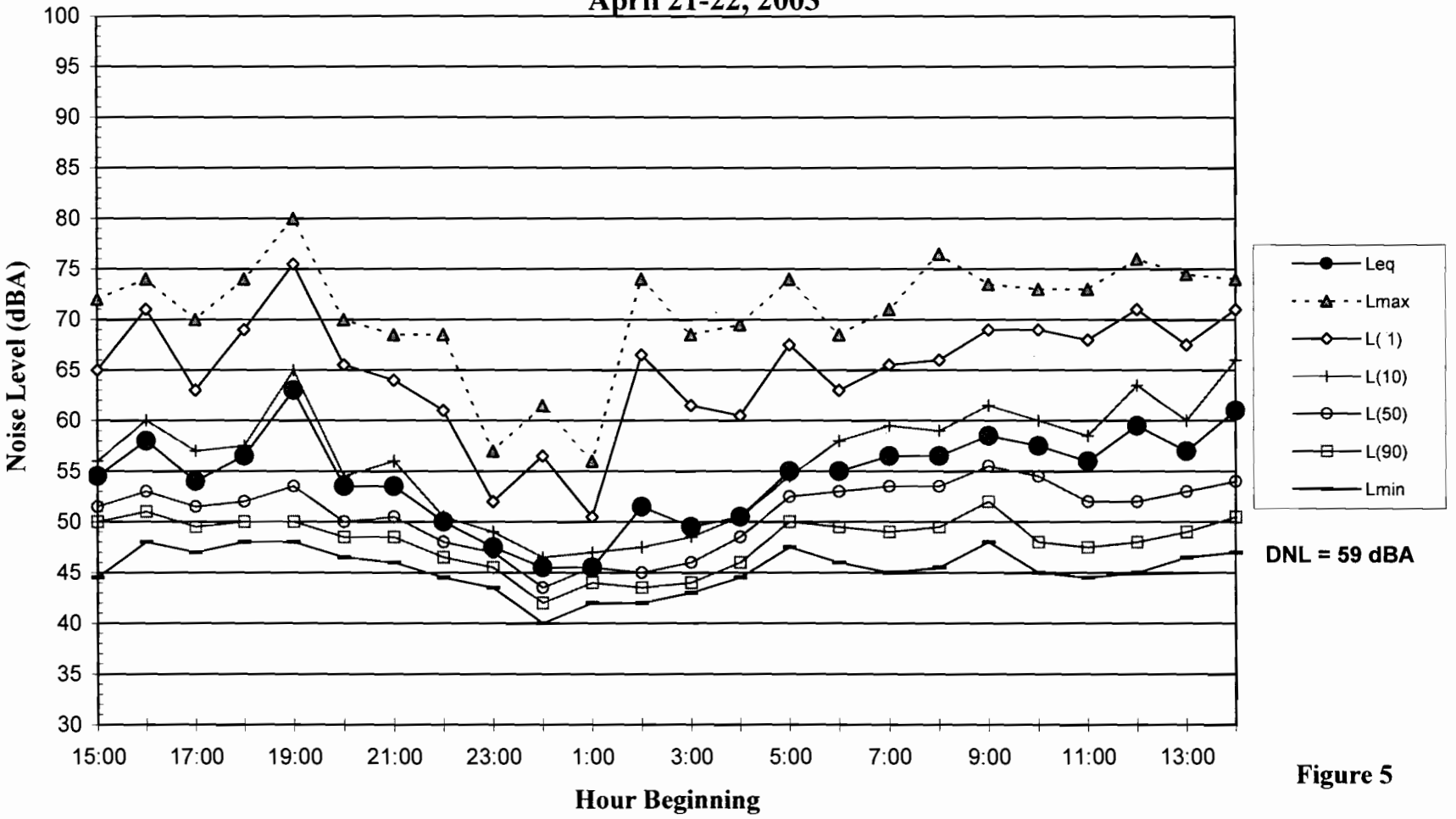
Noise Levels at LT-3
~ 30 feet from the Center of the Near Railroad Track
at the East Flea Market Site Property Line
June 20-21, 2001



DNL = 59 dBA

Figure 4

Noise Levels at LT-4
~ 200 feet from the Center of the Near Railroad Track
East of the Flea Market Site
April 21-22, 2003



DNL = 59 dBA

Figure 5

Noise Levels at LT-5
~ 65 feet from the Center of Mabury Road at Lenfest Avenue
June 20-21, 2001

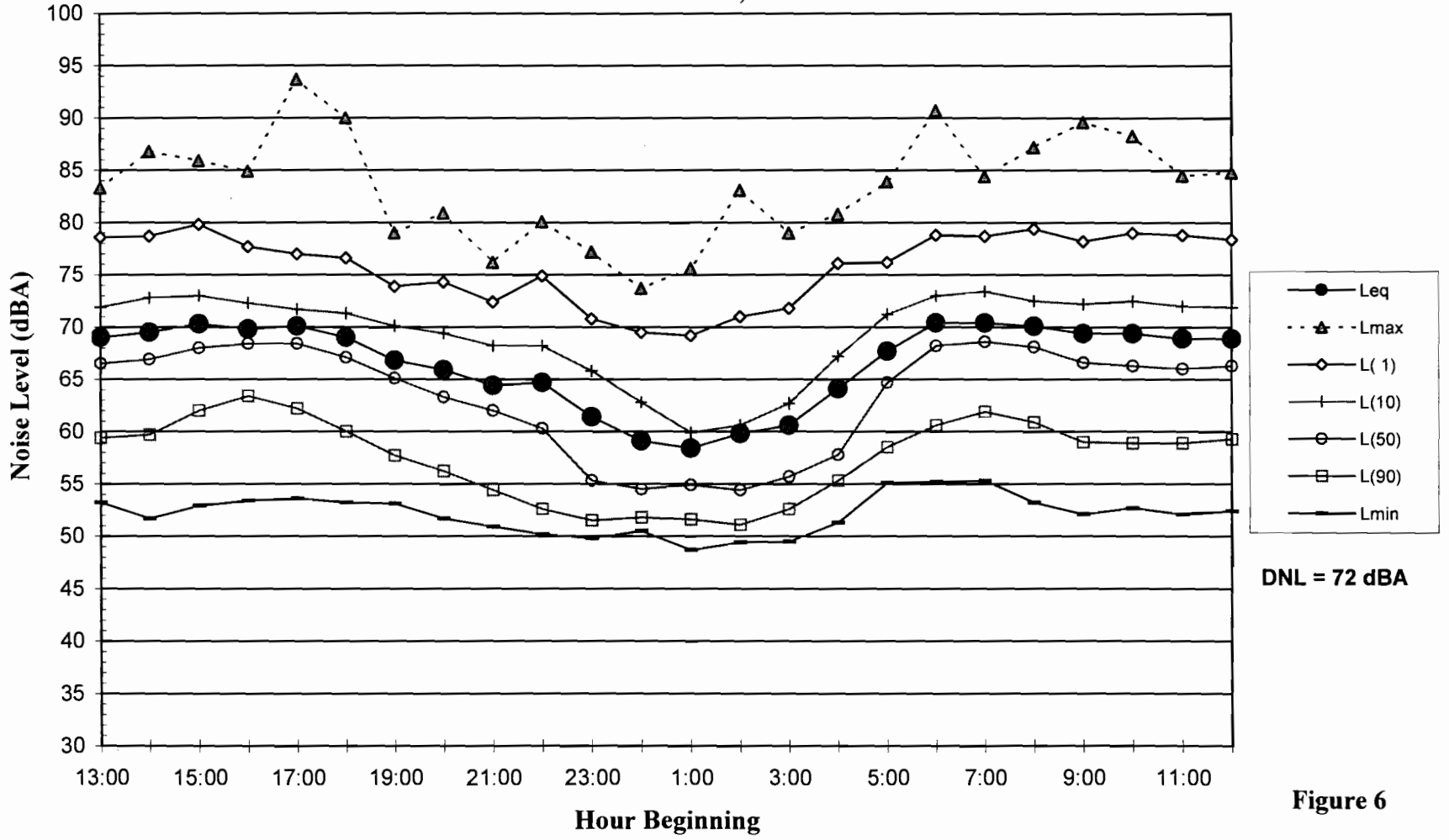
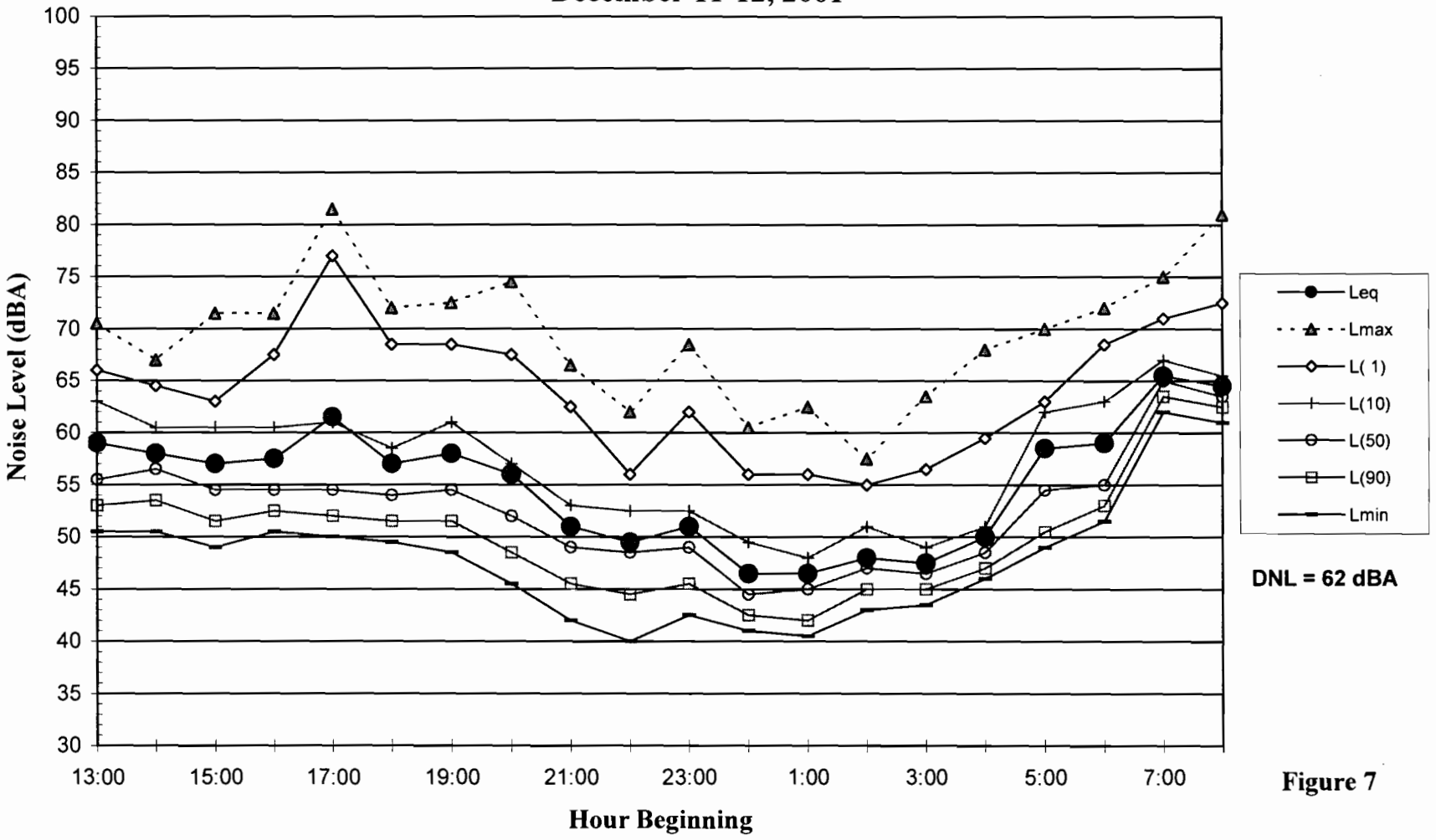


Figure 6

Noise Levels at LT-6
Flea Market Parking Lot (Pole K)
December 11-12, 2001



DNL = 62 dBA

Figure 7

Noise Levels at LT-7
Common Property Line of Flea Market Parking Lot
and Nearest Residential Use to Granite Rock
December 11-12, 2001

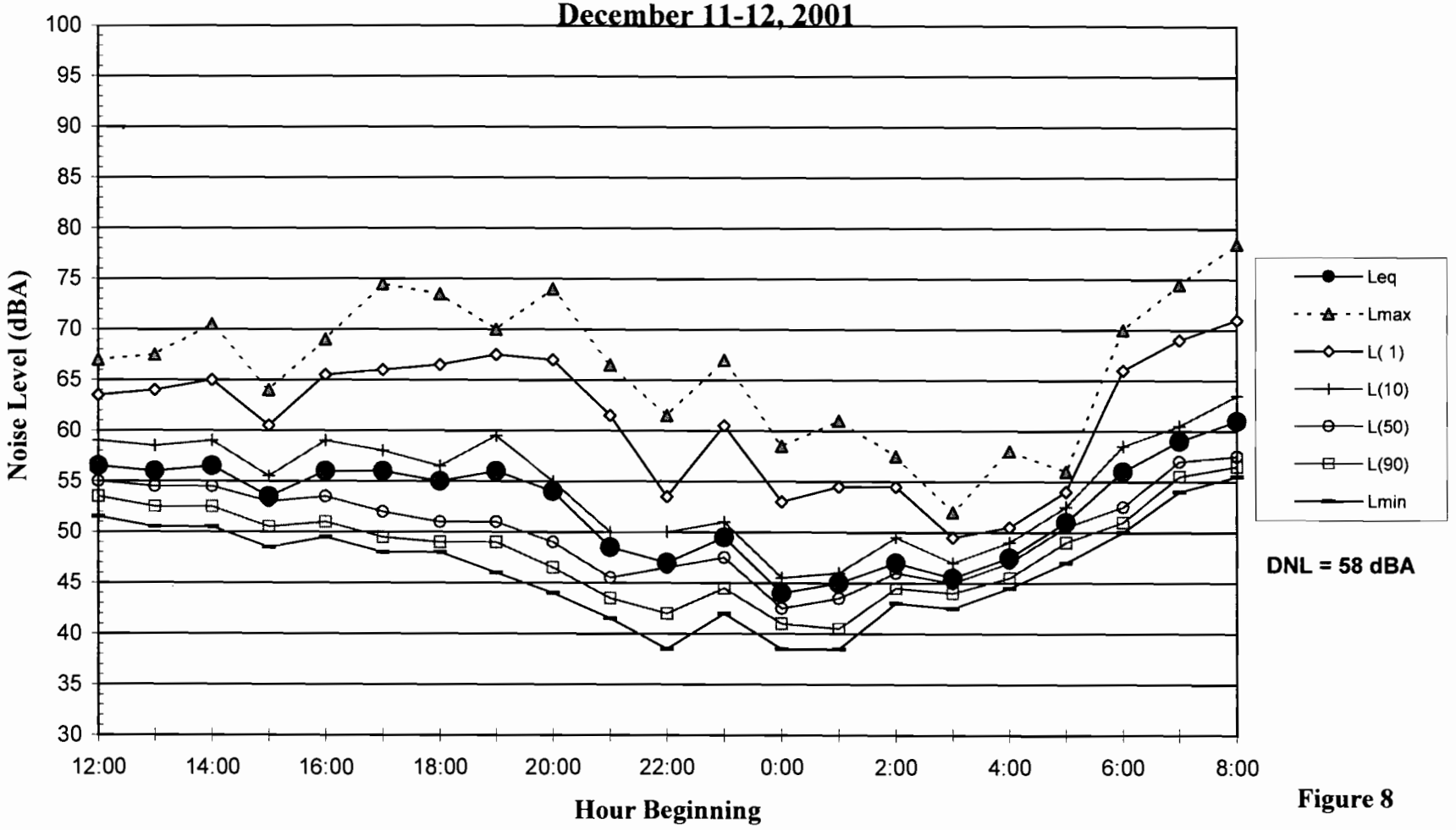


Figure 8

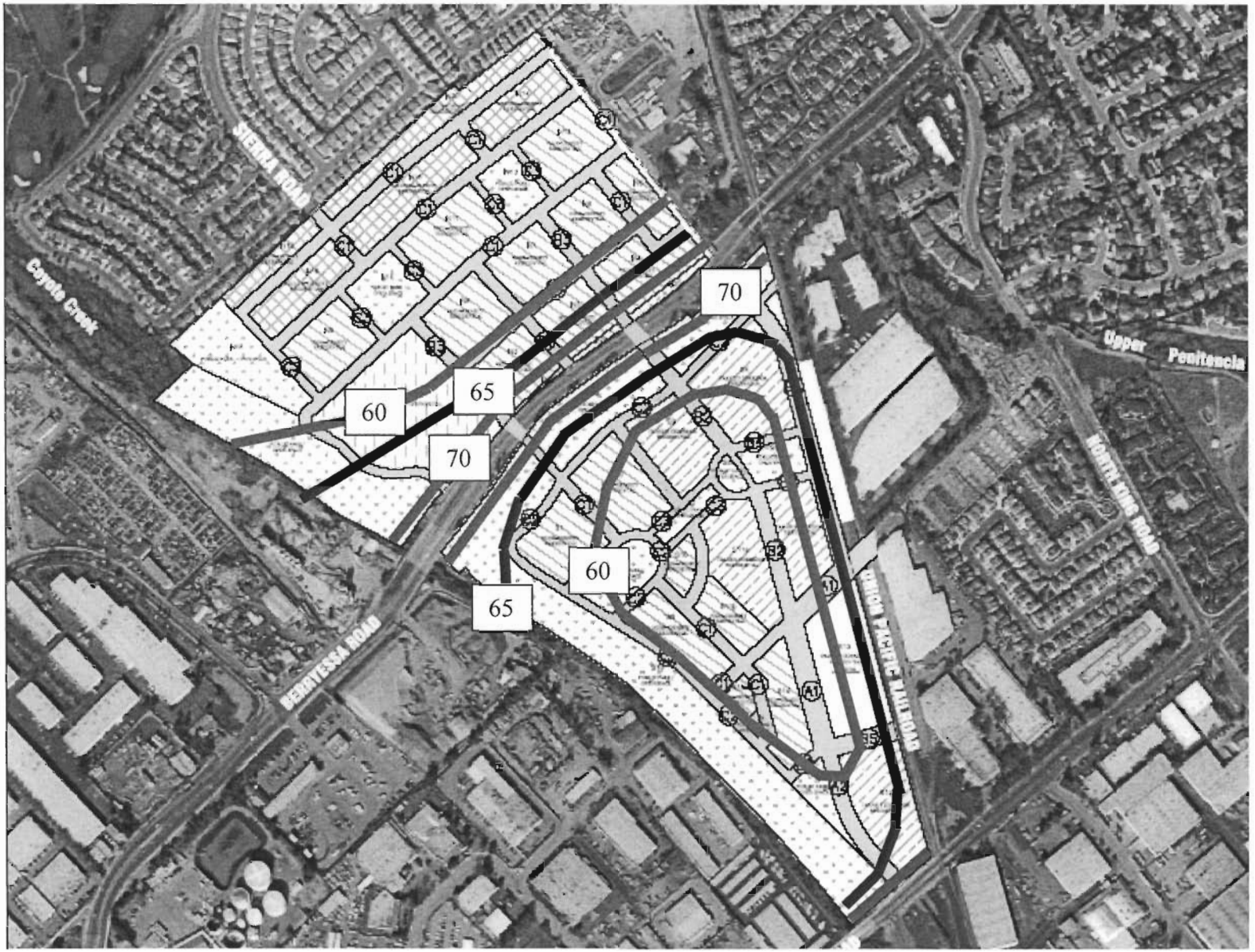


Figure 9 Future Noise Contours (dBA, DNL)

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
505 Petaluma Boulevard South
Petaluma, California 94952
Tel: 707-766-7700 *Fax: 707-766-7790*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

November 2, 2006

Demetri Loukas
David J. Powers and Associates, Inc.
1885 The Alameda, Suite 204
San Jose, CA 95126

VIA E-Mail: dloukas@davidjpowers.com

SUBJECT: **Flea Market Project, San Jose, CA --**
Evaluation of Noise Impacts resulting from
the Implementation of Traffic Mitigation Measures

Dear Demetri:

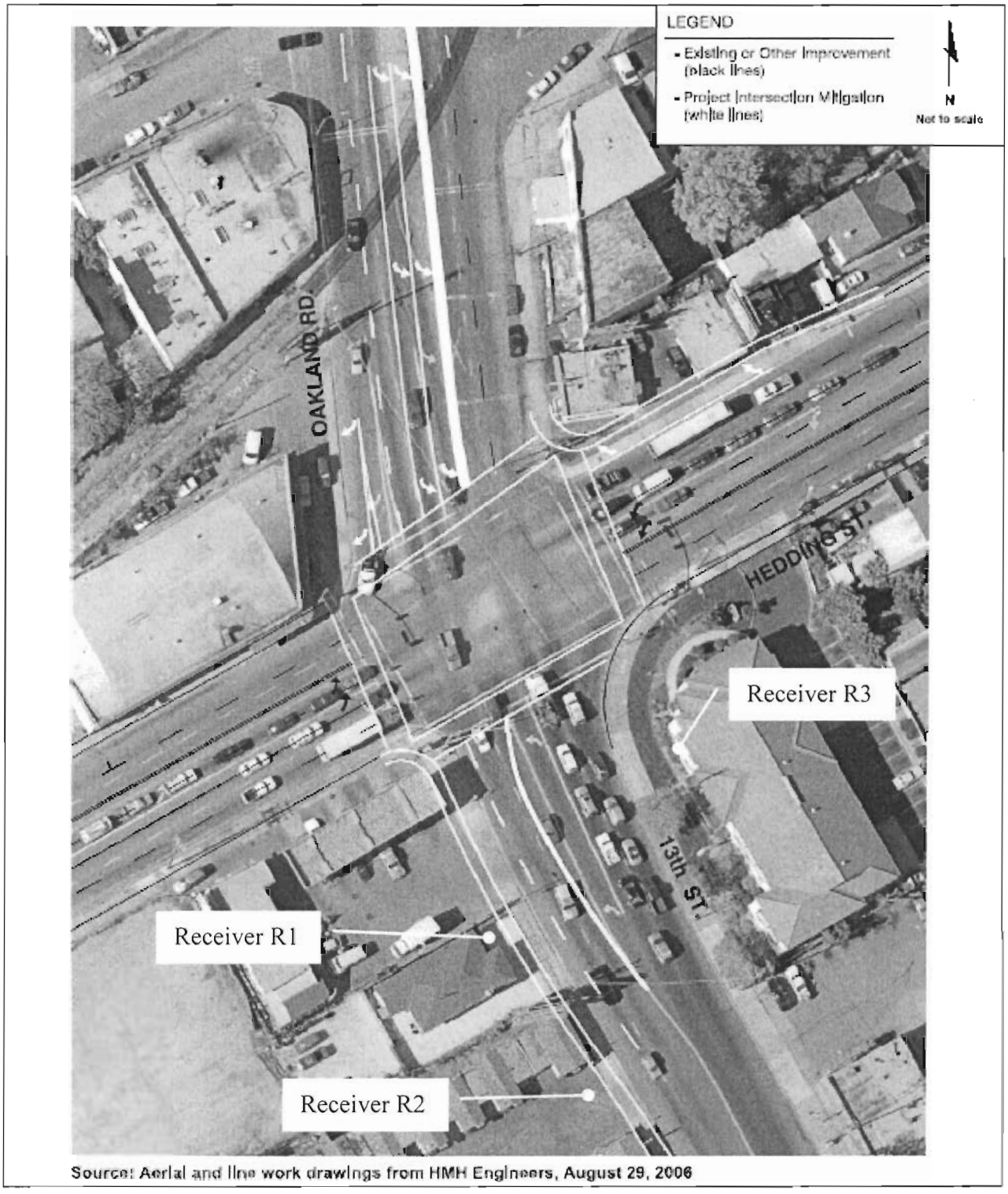
This letter summarizes the results of our noise impact assessment of the traffic mitigation measures required as part of the Flea Market Project that are proposed at the intersection of Oakland Road and East Hedding Street. In addition, noise impacts are assessed assuming that the traffic mitigation measures would not be implemented and the intersection would be "protected". Noise impacts resulting from the two scenarios are assessed and mitigation is recommended to reduce noise impacts to a less than significant level.

Noise-sensitive receiving land uses that would potentially be affected by the implementation of traffic mitigation measures or the protection of the intersection are located along Oakland Road south of East Hedding Street. These receiving land uses include a single-family residence (Receiver R1) and a hotel on the west side of Oakland Road (Receiver R2), and a hotel at 610 East Hedding Street (Receiver R3). Figure 1 shows the locations of receivers in the vicinity of the Oakland Road / East Hedding Street intersection that were evaluated in the noise impact assessment.

Traffic mitigation measures required as part of the Flea Market Project include the westward shift of the southbound Oakland Road travel lanes nearer to the single-family residence and the addition of left- and right-turn lanes. The addition of left- or right-turn lanes on the north and east legs of the intersection would not generate a measurable increase in traffic noise at sensitive

land uses along East Hedding Street and the analysis of traffic noise generated by these traffic mitigation measures is not carried forward further in this analysis.

Figure 1 Conceptual Project Mitigation and Receiver Locations



Source: Aerial and line work drawings from HMH Engineers, August 29, 2006

Traffic Noise Modeling

Traffic noise modeling was performed to calculate noise levels at noise-sensitive land uses in the vicinity of the intersection that would potentially be affected by the traffic mitigation or the protection of the intersection. The modeled traffic scenarios included existing, background, project, and near-term cumulative conditions. Separate modeling runs were completed to evaluate the noise impacts resulting from the implementation of the traffic mitigation measures and to evaluate noise impacts resulting from the protection of the intersection.

Traffic noise levels were calculated with the Federal Highway Administration's Traffic Noise Model (FHWA TNM v. 2.5). Roadway, barrier, and receiver locations were digitized and input into the traffic noise model. Geometrics were based on the aerial photo and conceptual mitigation plan presented above. PM peak hour traffic volumes, the estimated vehicle mix, and traffic speeds were also input into the model to calculate the expected noise level increase associated with the two intersection scenarios. Traffic volumes at the intersection would be equivalent regardless of the two intersection scenarios.

TNM calculates peak-hour traffic noise levels based on peak-hour traffic data input. Typically DNL noise levels and PM peak-hour traffic noise levels are within 0-1 decibels of one another on arterial roadways. Along Oakland Road, DNL noise levels are 1 dBA higher than PM peak-hour traffic noise levels[1]. The PM peak-hour traffic noise levels calculated by the traffic noise model were adjusted up one decibel to equal the day-night average noise level (DNL) at residential receivers in the project vicinity. The results of the traffic noise modeling efforts are presented below in Tables 1 and 2.

TABLE 1 Modeled Noise Levels With and Without Traffic Mitigation

	DNL Calculated for Varying Traffic Scenarios (dBA)					
Receiver	**Existing**	**Background**	**Project (Mitigated)**	**Project (Protected)**	**Near Term Cumulative (Mitigated)**	**Near Term Cumulative (Protected)**
R1	69.1	70.5	71.9	70.9	72.9	71.8
R2	68.5	70.0	70.2	70.2	71.2	71.2
R3	68.8	70.4	70.7	70.9	71.4	71.7

[1] Oakland Road Widening Project Initial Study Noise Section, Illingworth & Rodkin, Inc., June 26, 2003.

TABLE 2 Noise Level Increase over Existing With and Without Traffic Mitigation

Receiver		DNL Increase Over Existing Conditions for Varying Traffic Scenarios (dBA)				
		Background	Project (Mitigated)	Project (Protected)	Near Term Cumulative (Mitigated)	Near Term Cumulative (Protected)
R1		1.4	2.8	1.8	3.8	2.7
R2		1.5	1.7	1.7	2.7	2.7
R3		1.6	1.9	2.1	2.6	2.9

Impact Analysis

Noise levels generated by traffic along the unmitigated (protected intersection) and mitigated roadway alignments were compared to existing noise conditions to evaluate the potential for a substantial permanent noise level increase at receivers in the project vicinity. In noise environments where existing or future noise levels would exceed 60 dBA DNL, the City of San Jose's short-term noise goal for residential land uses, the impact would be considered significant if the project increases noise levels by 3 dBA DNL or more at sensitive outdoor use areas. An increase in interior noise levels of 3 dBA DNL or more where interior noise levels would exceed 45 dBA DNL would also result in a significant noise impact.

The results of the traffic noise modeling indicate that background traffic conditions resulting from approved projects in the vicinity would increase traffic noise levels by 1 dBA DNL at Receiver R1 and 2 dBA DNL at Receivers R2 and R3. These increases are the result of already approved projects in the vicinity and will occur regardless of the implementation of traffic mitigation measures or the protection of the intersection.

The protection of the intersection would not result in noise level increases of 3 dBA DNL or more at receivers within the project vicinity under project traffic conditions. Without the implementation of traffic mitigation, traffic noise levels are calculated to increase by 2 dBA DNL over existing conditions at receivers R1, R2, and R3. This is a less than significant project impact. Under the near-term cumulative traffic scenario, traffic noise levels would increase by about 3 dBA DNL over existing conditions assuming the protection of the intersection.

The implementation of traffic mitigation measures would move the southbound Oakland Road travel lanes nearer to residential receivers to the west. The shift in the lane geometry would increase traffic noise levels by approximately 1 dBA DNL at Receiver R1, but would not result in a measurable increase in noise at Receivers R2 or R3. Traffic noise levels are calculated to increase by 3 dBA DNL over existing conditions at R1, and 2 dBA DNL over existing conditions at R2 and R3 assuming the implementation of traffic mitigation measures, background traffic, and project traffic. The projected noise level increases resulting from the implementation of traffic mitigation measures would be less than significant, but mitigation measures proposed by the project would contribute to a significant cumulative impact at receiver R1. Receivers R2 and

R3 would experience future noise levels (near-term cumulative) approximately 3 dBA DNL higher than existing conditions whether or not mitigation is implemented at the intersection. The cumulative impact would be less than significant at Receivers R2 and R3.

Mitigation Measures

Exterior noise levels cannot be feasibly reduced at the single-family residence west of Oakland Road (Receiver R1) with a traditional noise barrier. The primary reason that a barrier would not be feasible is the need for access to the property. In addition, front yards are not usually the primary outdoor use areas.

Sound-insulation could be provided to reduce interior noise levels to 45 dBA DNL or less if further study finds that interior noise levels within the residential unit represented by R1 would exceed 45 dBA DNL assuming the implementation of the traffic mitigation measures and future 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 noise reduction required of the replacement windows and the need for mechanical ventilation would require special study, which is beyond the scope of this analysis. With the implementation of the above measures, interior noise levels could be maintained at acceptable levels and the noise impact resulting from the project would be less than significant.

This concludes our noise impact assessment of the traffic mitigation measures proposed at the intersection of Oakland Road and East Hedding Street as part of the Flea Market Project. If you have any questions or comments regarding this analysis, please do not hesitate to call.

Sincerely yours,

Michael S. Thill
Senior Consultant
ILLINGWORTH & RODKIN, INC.

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