

SECTION 7.1 INTRODUCTION

The Noise Element of the Rolling Hills Estates General Plan establishes guidelines for controlling noise in the City. The Noise Element examines the characteristics and effects of noise, describes state and federal guidelines relating to noise control, evaluates the existing noise environment, and discusses the future noise environment anticipated in the future. The Element also identifies sensitive land uses and noise sources with the intent of separating these uses.

As mandated by the *California Government Code Section 65302(f)*, the Noise Element follows the guidelines established by the *Office of Noise Control of the State Department of Health Services*. The Noise Element indicates noise levels from traffic along major roads and highways. Noise contours are used to illustrate noise levels in areas adjacent to major roadways. The noise contour maps identify existing noise levels in the City and noise levels anticipated from future traffic.

The noise mitigation program in the Element explores these options along with noise insulation standards and land use compatibility along major roadways which are the major sources of noise in the community.

THIS PAGE TO REMAIN BLANK

SECTION 7.2 GOALS AND POLICIES

The Noise Element establishes guidelines for controlling noise in the City. Excessive noise levels disturb and disrupt human activities and affect the health of individuals. The goals and policies of the Noise Element provide measures to minimize noise problems in the community to protect public health. With the majority of the planning area devoted to residential uses which are especially sensitive to noise it is important that noise be controlled at the source.

Issue: Acceptable Noise Levels

Excessive noise levels disrupt human activities and often results in health problems. To support ongoing activities and protect the residents of Rolling Hills Estates, levels of tolerance for noise should be established.

Goal 1: Implement acceptable noise levels guidelines included in the Noise Element for each land use category.

Policy 1.1 Adopt the acceptable noise levels for land uses established by the California Department of Health and as adopted by the City of Rolling Hills Estates in the Noise Element.

1.1.1 Implementation Measure: The City will review applicable ordinances to ensure that they reflect noise guidelines established as part of the Noise Element.

Timing: Immediate and ongoing
Agency: Planning Department
Funding: General fund

Policy 1.2 Limit the time and levels of noise from construction and maintenance equipment and activities, especially in residential areas.

1.2.1 Implementation Measure: The City will continue to implement the City's Noise Control Ordinance and other applicable ordinances so that specified hours can be set for construction and maintenance activities.

Timing: Immediate and ongoing
Agency: Planning Department
Funding: General fund

Policy 1.3 The City will continue to implement the City's Noise Control Ordinance.

1.3.1 Implementation Measure: The City will continue to implement the Noise Control Ordinance. The time limits designed to reduce construction noise impacts will be reviewed to ensure they are consistent with other regulations and ordinances.

Timing: Immediate and ongoing
Agency: Planning Department
Funding: General fund

Policy 1.4 Require all proposed or remodeled pool equipment to be enclosed in structures with sound dampening doors.

1.4.1 Implementation Measure: The zoning ordinance will be revised accordingly.

Timing: 1993
Agency: Planning Department
Funding: General fund

Policy 1.5 The City will respond to noise complaints associated with household equipment in a timely manner.

1.5.1 Implementation Measure: The City will continue to implement the Noise Control Ordinance.

Timing: Immediate and ongoing
Agency: Planning Department
Funding: General fund

Policy 1.6 Respond in a timely manner on noise complaints.

1.6.1 Implementation Measure: The Planning Department will monitor both complaints and enforcement of the noise control ordinance. City staff will review current agreements and contracts with the Los Angeles County Sheriffs Department to determine the responsible agency for enforcement of noise control ordinance.

Timing: Immediate and ongoing
Agency: Planning Department
Funding: General fund

Policy 1.7 Ensure that schools, medical facilities and other noise sensitive land uses are located in areas where noise levels are within acceptable ranges as defined by the City's Noise Element.

1.7.1 Implementation Measure: Noise sensitive land uses must not be located within areas subject to ambient outdoor noise levels in excess of 65 dBA unless effective mitigation can be identified. The acceptable noise level should not exceed 55 dBA where no mitigation is possible.

Timing: Immediate and ongoing
Agency: Planning Department
Funding: General fund

Policy 1.8 Continue to encourage good acoustical design in new construction.

1.8.1 Implementation Measure: City staff will implement the Noise Control Ordinance which establishes criteria and design guidelines for noise reduction.

Timing: Immediate and ongoing
Agency: Planning Department
Funding: General fund

Policy 1.9 Residential development adjacent to major arterial roads shall be designed to reduce noise impacts from traffic.

19.1 Implementation Measure: Future residential development will be subject to noise standards regulating exterior ambient noise levels as defined by the Noise Compatibility guidelines outlined in the Noise Element. The noise contour map included in the Noise Element will be referred to in identifying future development that would be subject to these regulations.

Timing: Immediate and ongoing
Agency: Planning Department
Funding: General fund

Issue: Noise Control

When noise sources cannot be prohibited without undue hardship, measures for minimizing potential adverse noise impacts on noise-sensitive land uses should be established.

Goal 2: Promote the control and reduction of traffic noise and stationary noise created on existing and proposed land uses.

Policy 2.1 Work with surrounding jurisdictions to limit excessive noise due to aircraft operations, review established flight corridors, and review new development proposals that will involve aircraft operations.

2.1.1 Implementation Measure: The City will designate a staff person to review cumulative projects which could result in significant increases to ambient noise levels due to helicopter operations, traffic, or machinery. The City will oppose any project that will result in a significant adverse impact on the environment unless the impact can be mitigated.

Timing: 1993
Agency: Planning Department
Funding: General fund

Policy 2.2 Control the movement of heavy construction vehicles through the City to minimize noise impacts and enforce the hours of operation.

2.2.1 Implementation Measure: The City will amend the Noise Control Ordinance, if necessary, to minimize noise impacts from heavy construction vehicles. In addition, staff will work with the Los Angeles County Sheriffs Department to enforce regulations related to speed and weight of vehicles on City roadways.

Timing: 1993
Agency: Planning Department
Funding: General fund

Policy 2.3 Preserve the natural ambient noise environment as much as possible.

2.3.1 Implementation Measure: All development proposals will be reviewed by staff as part of the environmental review process to determine the nature and extent of potential stationary and mobile noise impacts. CEQA review of all projects will be closely

monitored to ensure that noise impacts are identified and adequately monitored to minimize potential noise impacts.

Timing: Immediate and ongoing

Agency: Planning Department

Funding: General fund

THIS PAGE TO REMAIN BLANK.

SECTION 7.3 NOISE REDUCTION PLAN

INTRODUCTION

Residents in the City of Rolling Hills Estates are exposed to a wide range of noise levels that are common in a suburban environment. Major noise sources in the City include automobiles traveling on the major roadways that traverse the City. In addition, stationary noise sources within the City also generate noise affecting noise-sensitive uses located nearby. These stationary noise sources may include a wide range of recreational, commercial, and business activities.

A number of major issues related to noise in the City include the following:

- # The major mobile noise sources include vehicles operating on the major arterials that serve the City: Hawthorne Boulevard, Crenshaw Boulevard, Palos Verdes Drive North, Palos Verdes Drive East, Silver Spur Road, and Highridge Road.
- # Residential areas located near or adjacent to the major roadways are exposed to traffic noise that often exceeds 60 dBA in many areas.
- # The Peninsula Center Commercial District includes a concentration of retail commercial activities which generate substantial vehicular and pedestrian traffic along Silver Spur Road between Hawthorne and Crenshaw Boulevards.
- # Through traffic, traveling on major arterials, which often includes large trucks which are responsible for much of the noise in the community.

The traditional definition of noise is that it is unwanted sound. Sound becomes unwanted when it interferes with our normal everyday activities. Sound waves travel through air creating sound energy. This sound energy can be measured using a variety of measurement scales. Various methods are used to evaluate the loudness of a particular noise. The most commonly used units for measuring the level of noise are decibel (dB), Equivalent Noise Level (Leq), and the Community Noise Equivalent Level (CNEL).

A decibel is a unit used for measuring the intensity of sound. A scale of 0 to 140 is used in which zero represents the lowest sound that can be heard by humans and 140 is the rupture point of the eardrum. Exhibit 7-4 in the Noise Element Background Report provides an acoustical scale

illustrating the physical impact of various common noise generators. The Leq measure represents the average of the sound level energy for a 1-hour period and employs an A-weighted decibel correction which corresponds to the optimal frequency response of the human ear. The CNEL is based upon 24 1-hour Leq measurements. The average noise levels for the late evening and early morning hours (the period between 10 p.m. and 7 am.) are weighted 10 decibels to compensate for the fact that people are much more disturbed by noise at night than at any other time.

Another method of noise measurement commonly used is the day night average sound level system, symbolized mathematically as Ldn. The Ldn system is very similar to the CNEL method. The day night average sound level measures the 24-hour average sound level, expressed in decibels, obtained after the addition of a 10 decibel penalty for sound levels which occur at night between 10 p.m. and 7 am. Intermittent or occasional noise, such as noise associated with stationary noise sources, is not of sufficient volume to exceed community noise standards that are based on a time averaged scale such as the CNEL scale.

NOISE AND LAND USE COMPATIBILITY STANDARDS

The goal of the Noise Element is to protect the residents from excessive or irritating noise. The impacts from noise can be eliminated or reduced through regulatory noise controls and responsible land use planning.

Several federal and state agencies have developed guidelines relative to land use and noise. These agencies include the Environmental Protection Agency, Federal Highway Administration, Department of Housing and Urban Development, American National Standards Institute, and the State of California.

These agencies standards are based upon cumulative noise criteria, such as the Community Noise Equivalent Level (CNEL) and Day-Night Average (Ldn). These guidelines represent weighted averages of twenty-four 1-hour Leq measurements, with decibel weights assigned to the evening, night, and early morning hours.

In 1976, the California Department of Health established noise element guidelines that contained a recommended noise/land use compatibility matrix. The matrix, Exhibit 7-1, outlines acceptable levels of noise for different land uses. The matrix is a good guide for noise responsive land use planning. These standards displayed in the matrix for conditionally acceptable uses are relevant to Rolling Hills Estates. It should be noted that transportation noises on public roads are regulated by State and Federal authorities and therefore, local jurisdiction's ability to control these noise sources are severely limited.



NOTE:

This chart indicates the acceptable range of noise levels for the various types of land uses. Planners should strive to locate new development in areas exposed to noise levels in the acceptable noise range.

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE					
	L _{dn} OR CNEL, dB					
	55	60	65	70	75	80
RESIDENTIAL-LOW DENSITY SINGLE FAMILY, DUPLEX MOBILE HOMES						
RESIDENTIAL- MULTI FAMILY						
TRANSIENT LODGING- MOTELS, HOTELS						
SCHOOLS, LIBRARIES CHURCHES, HOSPITALS, NURSING HOMES						
AUDITORIUMS, CONCERT HALLS, AMPITHEATRES						
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS						
PLAYGROUNDS, NEIGHBORHOOD PARKS						
GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERIES						
OFFICE BUILDINGS, BUSINESS, COMMERCIAL AND PROFESSIONAL						
INDUSTRIAL, MANUFACTURING, UTILITIES, AGRICULTURE						

LEGEND



NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.



CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.



NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.



CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

Acceptable Noise Level

Acceptable noise levels (refer to Table 7-1) have been established for each of the land use districts provided for in the General Plan. The established levels are based on existing noise levels obtained through field monitoring, projected noise levels and community expectations to maintain an environment that is free from all unnecessary, excessive and annoying noise. Table 7-1 indicates the acceptable noise level when measured at the property line for each category of land use.

Table 7-1 ACCEPTABLE NOISE LEVELS		
Residential	55 dBA (day)	45 dBA (night)
Non-Residential	65 dBA (day)	55 dBA (night)
Industrial-Research*	65 dBA (day)	45 dBA (night)
Industrial Quarry*	75 dBA (day)	45 dBA (night)
* These land use categories are being eliminated		

Noise and Land Use Compatibility Standards

Noise/land use guidelines have been produced by a number of State and Federal agencies including the Federal Highway Administration, the Environmental Protection Agency, the Department of Housing and Urban Development, the American National Standards Institute, and the State of California. These guidelines, presented in the following paragraphs, are all based upon cumulative noise criteria such as Leq, Ldn, or CNEL.

- # ***Environmental Protection Agency (EPA)***. In March 1974, the EPA published "Information on Levels of Environmental Noise Required to Protect Public Health and Welfare with an Adequate Margin of Safety" (EPA 550/9-74-004). According to this publication, 55 Ldn is described as the required noise level to provide an adequate margin of safety for areas with outdoor uses including residences and recreational areas. The EPA report does not establish standards, specifications or regulations, but identifies safe levels of environmental noise exposure without consideration for economic cost to achieve these levels.

- # ***Federal Highway Administration (FHWA).*** The FHWA has adopted and published noise abatement criteria for highway construction projects. The FHWA noise abatement criteria, basically, establishes an exterior noise goal of 67 Leq for residential land uses and an interior goal of 52 Leq for residences. The noise abatement criteria applies to private yard areas and assumes that typical wood frame homes with open windows can achieve a 10 dB noise reduction when windows are closed.

- # ***State of California.*** The state requires every city and county to adopt noise elements as part of their general plans. Noise elements must contain a Noise/Land Use compatibility matrix. A recommended (but not mandatory) matrix is presented in the "Guidelines for the Preparation and Content of Noise Elements and the General Plan", (Office of Noise Control, California Department of Health, February 1976). This matrix is reproduced here in Exhibit 7-1.

A number of federal agencies have adopted standards and recommended noise criteria to protect people in both the working and home environments. In 1969 and 1970, the Department of Labor established occupational noise regulations through the Walsh Healey Public Contracts Act and set standards for noise exposure for all businesses engaged in interstate commerce through the Occupational Safety and Health Act (OSHA).

The Federal Highway Administration (FHWA) has set design standards for various land uses. These standards are used in the planning and design of federally funded highway projects. The Department of Housing and Urban Development has environmental criteria for determining project acceptability of HUD assisted housing and financial assistance programs. It includes noise standards of 65 dB Ldn for residential noise levels. The State of California has adopted noise standards for areas not regulated by the federal government. State standards cover noise from motor vehicles, freeway noise affecting classrooms, noise insulation, occupational noise and airport noise. The California Motor Vehicle Code sets noise limits for vehicles according to type of vehicle and date of manufacture.

California Streets and Highways Code Division 1, Chapter 1, Article 6 requires State funded noise abatement programs for freeway construction or use which will result in noise levels exceeding 55 dBA L 10 or 52 dBA Leq at existing classrooms, libraries, multi-purpose rooms, and pupil personnel services of public and private elementary and secondary schools. The noise

abatement program may include acoustical treatment, elimination of windows, air conditioning, sound buffer structures and other mitigation measures.

Sound Transmission Control Standards in the California Administrative Code, Title 24, Building Standards, Chapter 2.5 outline noise insulation performance standards for new hotels, motels, apartment houses, and dwellings other than detached single-family units. It requires an interior noise level of 45 dB CNEL or less for residential projects. For projects near noise sources (airport, major roads, and industrial areas), an acoustical analysis must be made to show compliance with the standards.

The California Office of Noise Control has prepared guidelines for the preparation and content of General Plan Noise Elements. The guidelines include a chart to describe the compatibility of noise sensitive land uses in areas subject to noise levels of 55 to 80 dB CNEL or Ldn (refer again to Table 7-1).

Implementation of the Land Use Plan

As discussed, the primary sources of noise in the City comes from traffic on major arterial roadways. These noise sources impact the land uses located along these transportation routes. Residential development will contain noise sensitive uses that include senior housing. This type of use will not be a great contributor to greater noise but will be sensitive due to the type of users, as well as potential locations along the roadways.

The proposed land use policy for the City of Rolling Hills Estates will not result in any significant increases in traffic generated locally. The ultimate reuse of Chandler Quarry and redevelopment of the Northrop site will involve residential development which will generate substantially fewer trips compared to the current uses. Localized increases in traffic could result from the Commercial/Recreation provided for the Palos Verdes Landfill.

Increased traffic anticipated for the major roadways will result from growth outside the City, which in turn, will result in increased noise levels along key roadways. This projected increase in noise is not expected to be discernible by residents in the area however. Table 7-2 indicates the distance from the roadway centerline to the noise level contours depicted in Exhibit 7-2. New development located in areas subject to high noise levels should implement mitigation measures to reduce interior noise to acceptable levels.

**TABLE 7-2
FUTURE ROADWAY NOISE (CNEL)**

Roadway	From/To	Distance (in feet) from Roadway Centerline to CNEL (dB)				
		65 CNEL	60 CNEL	55 CNEL	CNEL @ 50 Feet	Change in CNEL
Highridge Rd	Hawthorne/Crestridge	0	149.3	457.4	62.56	1.16
	Crestridge/Crest	0	141.6	443.9	63.10	1.20
Silver Spur Rd	Crenshaw/Hawthorne	103.6	308.9	970.6	65.93	1.23
	Hawthorne/Willow Wood	63.7	191.1	600.8	64.46	1.16
	Willow Wood/Palos Verdes Drive N	115.6	364.0	1150.5	67.83	1.13
Hawthorne Blvd	Silver Spur/Palos Verdes Drive N	195.0	609.7	1925.8	69.14	1.14
	Palos Verdes Drive N/City Limit	239.1	749.1	2368.5	69.95	1.95
Rolling Hills Rd	Palos Verdes Drive N/City Limit	67.3	210.4	664.4	65.44	1.14
Crenshaw Blvd	Crestridge/Silver Spur	115.9	357.0	1125.8	66.90	1.20
	Silver Spur/Palos Verdes Drive N	215.0	674.0	2129.3	69.61	1.21
	Palos Verdes Drive N/City Limit	118.0	358.8	1129.7	66.67	1.17
Palos Verdes Drive North	City Limit/Silver Spur	96.3	302.8	956.8	67.03	1.13
	Silver Spur/Hawthorne	104.1	327.3	1034.6	67.37	1.17
	Hawthorne/Crenshaw	78.5	246.1	777.6	66.13	1.13
	Crenshaw/Rolling Hills	154.0	485.8	1535.6	69.07	1.17
	Rolling Hills/Palos Verdes Drive E	196.8	614.6	1941.0	69.09	1.19
	Palos Verdes Drive E/City Limit	197.5	614.5	1940.0	68.92	1.12
Palos Verdes Drive East	North City Limit/Palos Verdes Drive N	53.7	165.9	523.3	64.35	1.15
	Palos Verdes Drive N/South City Limit	79.4	225.9	705.7	64.53	1.13

* Changes in CNEL compared noise levels from existing traffic to projected traffic 50 feet from the roadway centerline. Table 7-4 describes existing noise levels

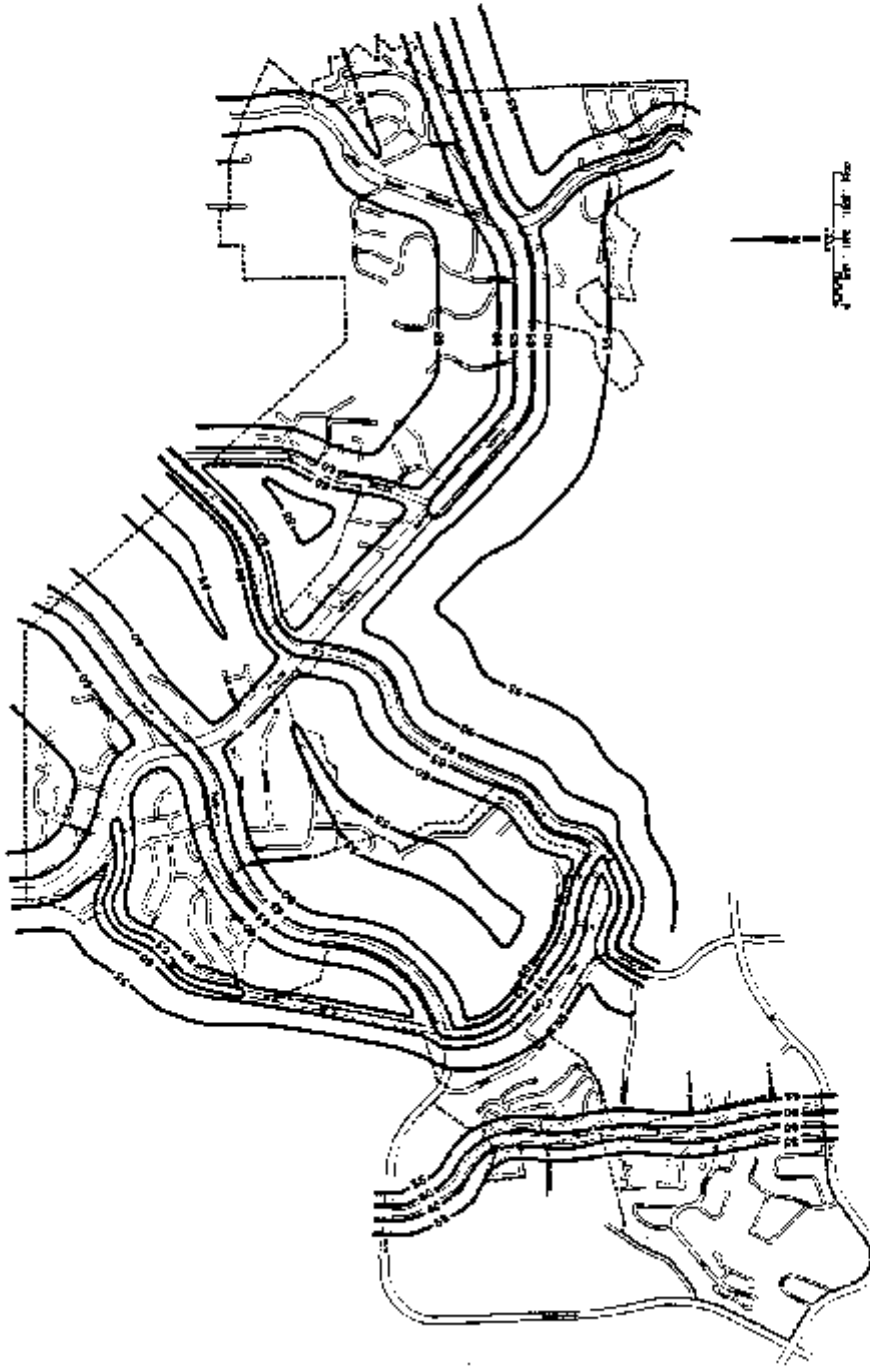
The implementation of the land use policy is not likely to result in any significant changes in the ambient noise levels of the community. The implementation land use plan will result in changes in land use for a number of properties (refer to Exhibit 7-3) though the changes in land use are likely to be noise sensitive in nature.

City of
Rolling Hills Estates



GENERAL PLAN

CONTOURS REPRESENT NOISE
LEVELS IN DECIBELS

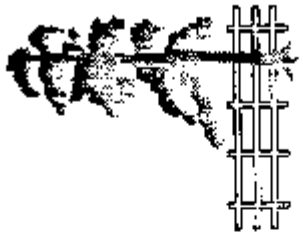


BE&K Earth Noise and Associates, Inc.

FUTURE NOISE CONTOURS

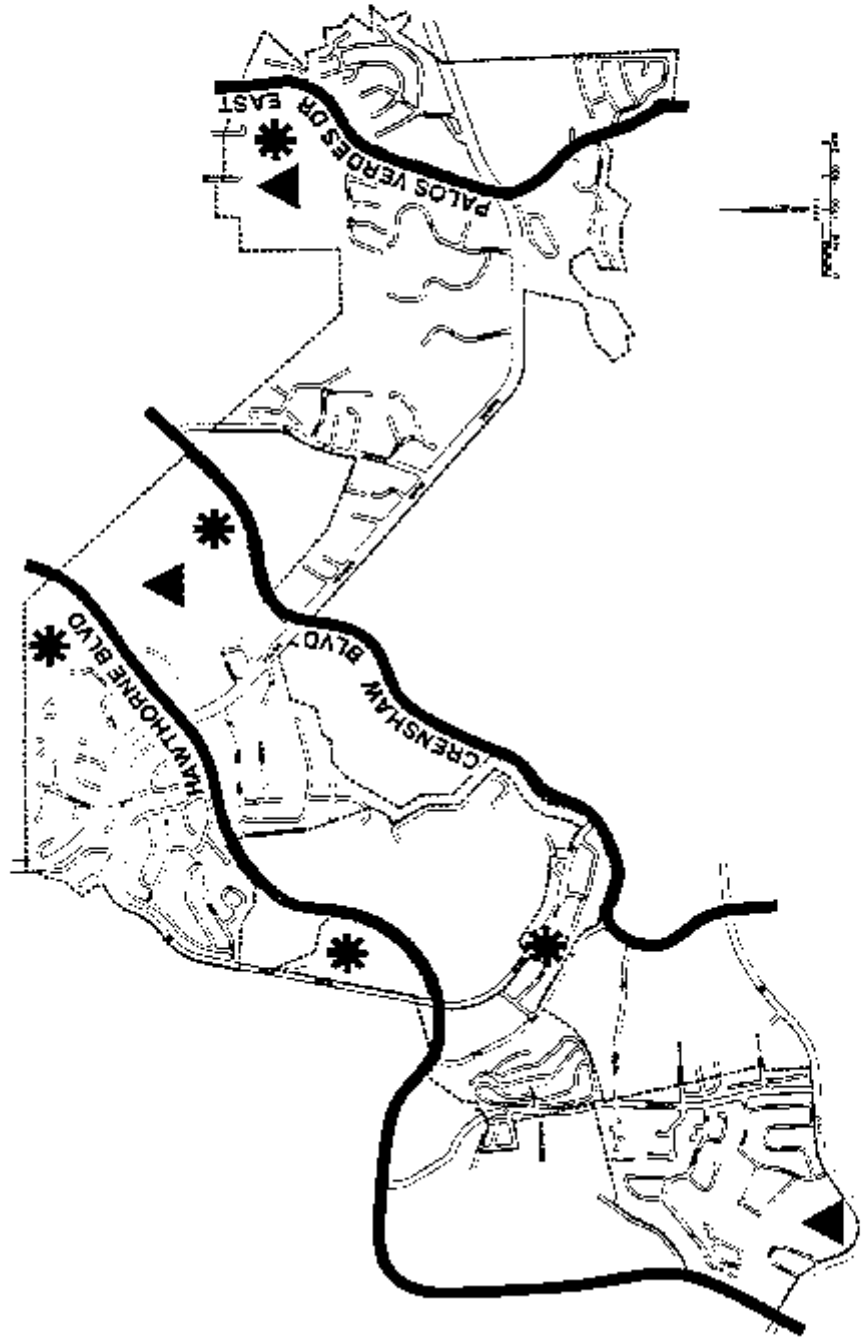
Exhibit 7-2

City of
Rolling Hills Estates



GENERAL PLAN

- Traffic Noise
- Areas Where Land Use May Change
- Significant Noise Generators



EG&A David Evans and Associates, Inc.

NOISE IMPACT AREAS

Major noise considerations for future planning involve cumulative noise impacts from traffic generated by development located elsewhere in the Peninsula. Major transportation corridors where increases in cumulative or through traffic is possible include Palos Verdes Drive East, Hawthorne Boulevard, and Crenshaw Boulevard (also shown in Exhibit 7-3).

THIS PAGE TO REMAIN BLANK

SECTION 7.4 BACKGROUND REPORT

CHARACTERISTICS OF NOISE

The Noise Element Background Report discusses the characteristics of noise, the existing noise environment in the Rolling Hills Estates, stationary and mobile sources of noise and projected noise levels at buildout of the land use plan. It also provides state and federal guidelines for the control of noise levels and summarizes the City's existing noise ordinance.

The traditional definition of noise is that it is unwanted sound. Sound becomes unwanted when it interferes with our normal everyday activities. Sound waves travel through air creating sound energy. This sound energy can be measured using a variety of measurement scales. Before the existing noise environment can be described, a number of terms need to be explained. In addition, various methods are used to evaluate the loudness of a particular noise. The most commonly used units for measuring the level of noise are decibel (dB), Equivalent Noise Level (Leq), and the Community Noise Equivalent Level (CNEL).

A decibel is a unit used for measuring the intensity of sound. A scale of 0 to 140 is used in which zero represents the lowest sound that can be heard by humans and 140 is the rupture point of the eardrum.. Exhibit 7-4 provides an acoustical scale illustrating the physical impact of various common noise generators. The Leq measure represents the average of the sound level energy for a 1-hour period and employs an A-weighted decibel correction which corresponds to the optimal frequency response of the human ear. The CNEL is based upon 24 1-hour Leq measurements. The average noise levels for the late evening and early morning hours (the period between 10 p.m. and 7 am.) are weighted 10 decibels to compensate for the fact that people are much more disturbed by noise at night than at any other time.

Another method of noise measurement commonly used is the day night average sound level system, abbreviated as DNL and symbolized mathematically as Ldn. The DNL system is very similar to the CNEL method. The day night average sound level measures the 24-hour average sound level, expressed in decibels, obtained after the addition of a 10 decibel penalty for sound levels which occur at night between 10 p.m. and 7 a.m. Intermittent or occasional noise, such as noise associated with stationary noise sources, is not of sufficient volume to exceed community noise standards that are based on a time averaged scale such as the CNEL scale. The Percent-Noise Level (L percent) method is used in order to characterize and evaluate intermittent noise. This method gauges the percentage of time that intermittent noise exceeds the average decibel level during the measurement period.

Traffic noise in a community is often illustrated using *noise contours*. Noise contours represent lines of equal noise exposure, just as the lines on a weather map indicate equal temperature or

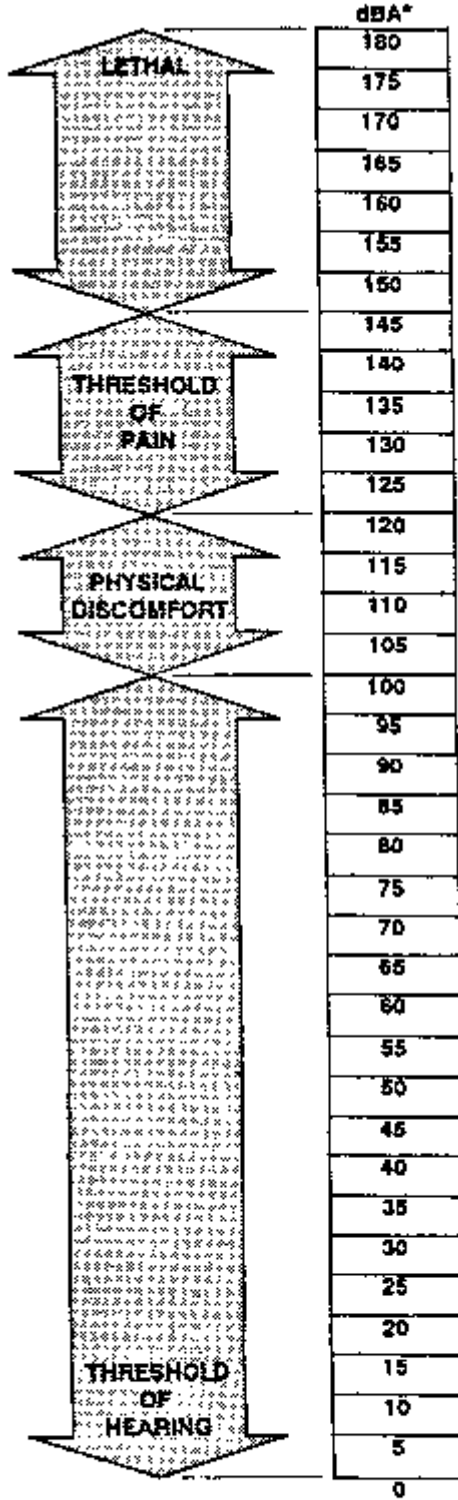
atmospheric pressure. The contours provide visual estimates of sound levels. The City's topography will have an effect on noise transmission from automobiles. In addition, noise in the canyons will be altered due to echoing effects. Generally, barriers (whether manmade or natural topography) located between a source and receiver absorb or reflect noise resulting in a quieter environment. Where barriers or landforms do not interrupt the noise transmission path, the contours are good estimates of average noise levels. However, areas where barriers interrupt the transmission, noise contours overestimate the extent to which noise intrudes into the community as it is virtually impossible to estimate each roadway segment for barrier noise attenuation, when specific projects are proposed, a site specific acoustical analysis will evaluate noise reduction provided by any barriers to the noise path. Noise contour maps are used in this report to describe existing noise levels along key roadways in the City.

Existing Noise Environment

A noise survey was conducted on February 20 and 21, 1991 at seven locations around the City. The noise measurement locations are shown in Exhibit 7-5 and the measurements are summarized in Table 7-3. The background noise levels ranged from 60 dB to 63 dB. This indicates that the city has noise levels typical of urban residential communities. Traffic along major roadways is the major source of noise. They include Palos Verdes Drive North, Palos Verdes Drive East, Crenshaw Boulevard, Hawthorne Boulevard and Silver Spur Road. Nonetheless, the City had relatively quiet residential areas. Occasionally, small planes and motorcycles created high frequency noises throughout the City.

The noise measurements at the Rolling Hills Country Day School reflected noise levels for the intersection of Palos Verdes Drive North and Crenshaw Boulevard. Readings ranged from 72 dB to 86 dB. These were mostly due to the roar of traffic on the intersection, motorcycles, running buses, and student noises from the school. The site location was surrounded by trees and was located 60 feet from the road, 4 feet higher than the road elevation. The distance from the surrounding roadway and the surrounding vegetation may have buffered the noise levels coming from the road.

The intersection of Palos Verdes Drive North and Hawthorne Boulevard has noise levels ranging from 64 dB to 80 dB. The measurement site was Rock Bluff Park on the southwest corner of the intersection. It was an open area 50 feet from the street and 1½ feet lower in elevation than the road. Noise on site was generated solely by road traffic.



Sonic Boom

Jet Takeoff at 200'

Discotheque

Motorcycle at 20'

Power Mower

Newspaper Press and Freight Train at 50'

Food Blender and Propeller Plane Fly-over at 1,000'

Electric Mixer

Freeway Traffic at 50'; Washing Machine; Alarm Clock; Garbage Disposal; Electric Can Opener
Office with Tabulating Machines

Vacuum Cleaner; Portable Fan, and Average Traffic at 100'

Electric Typewriter at 10'

Dishwasher Rinse at 10'; Air Conditioning Unit

Normal Conversation at 12'

Refrigerator and Light Traffic at 100'

Library

Motion Picture Studio

Leaves Rustling

*The unit of sound is the decibel (dB). The loudness of sound is typically measured using a sound meter, the A-Scale of which corresponds closely to the way the human ear perceives sound. Thus the sound level for noise evaluations is frequently expressed in dBA.

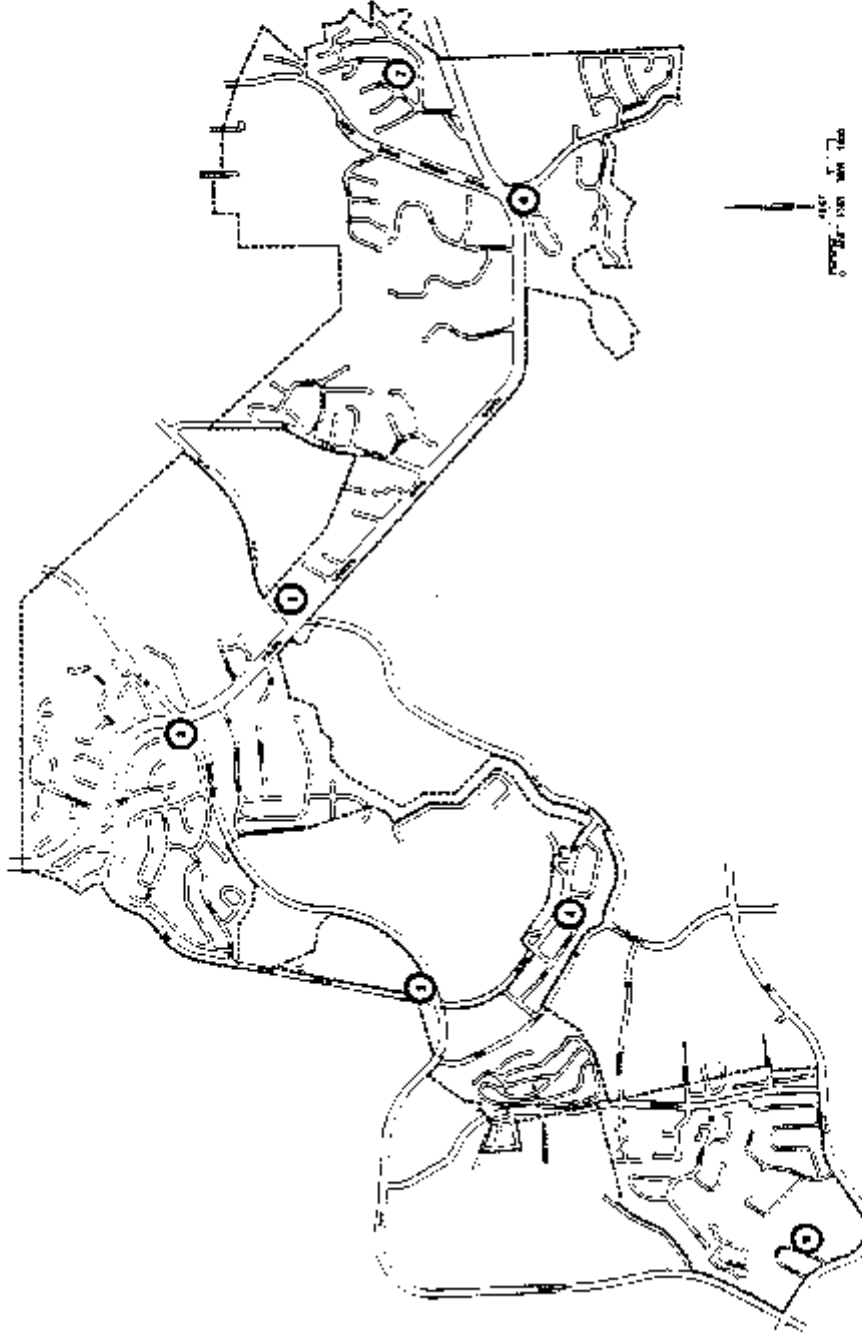
DAVID EVANS AND ASSOCIATES, INC.

ACOUSTICAL SCALE

City of
Rolling Hills Estates



GENERAL PLAN



1. ROLLING HILLS COUNTRY DAY SCHOOL
2. ROCK BLUFF PARK
3. ROLLING HILLS HIGH SCHOOL
4. PERKINS CENTER - THE WILLIAM
5. CRESTA VERDE
6. RENAissance
7. AURORA STREET

Table 7-3 EXISTING NOISE MEASUREMENTS						
Site	Location	L _{max}	L ₁₀	L ₃₃	L ₅₀	L ₉₀
1	Rolling Hills Country Day School	86.0	81.4	77.8	76.5	72.8
2	Rock Bluff Park	80.0	76.3	73.8	72.2	66.8
3	Rolling Hills High School	78.0	72.0	70.0	68.3	66.0
4	Peninsula Center - The Village (commercial)	86.0	80.0	76.1	74.5	71.0
5	Cresta Verde (residential)	76.0	68.5	62.5	62.9	61.6
6	Remax Realty	88.0	83.0	79.2	77.9	74.3
7	Aurora Street (residential)	80.0	69.9	64.0	64.6	62.6
L _{max} - the maximum sound level recorded during the noise measurement period. L ₁₉ - the sound level exceeded 10 percent of the noise measurement period. L ₃₃ - the sound level exceeded 33 percent of the noise measurement period. L ₅₀ - the sound level exceeded 50 percent of the noise measurement period. L ₉₀ - the sound level exceeded 90 percent of the noise measurement period; Also considered as the background noise level						
Source: David Evans and Associates, 1991						

Noise levels at the Rolling Hills High School were dominated by traffic on Hawthorne Boulevard and Silver Spur Road. Student noise was minimal. Vehicle horns and motorcycles generated high pitched noises intermittently. Noise levels ranged from 64 dB to 78 dB at a location 90 feet from Hawthorne Boulevard at approximately the same elevation as the roadway. The site was on a walkway leading to the school buildings and was separated from the roadway by a surface parking lot with a 4-foot wall and a landscaped yard with trees.

The Peninsula Center is the commercial node of the City. Noise readings along Silver Spur Road by The Village showed a noise range of 65 dB to 86 dB. Commercial activities provided the background noise with road traffic dominating the noise levels. The site location was 20 feet from the roadway and approximately 10 feet above the road elevation. The wind speed at this site was observed to be greater than at other sites, registering as an additional noise sour.

A residential street, Cresta Verde, was relatively quiet with noise ranging from 60 dB to 76 dB. Noise sources included small airplanes flying overhead, cars passing or climbing a steep driveway

Residential activities which caused minor noise included garden watering, garage opening, piano playing, doors closing, birds singing, peacocks and other animals, horses, barnyard animals, and human conversation.

The intersection of Palos Verdes Drive East and Palos Verdes Drive North experienced the highest percentage of high level noises. They ranged from 72 dB to 88 dB attributed primarily to traffic noise and car stereo noise. The site was 35 feet from Palos Verdes Drive North and 2 feet higher in elevation than the roadway with no trees or walls to separate the site from the roadway. The higher percentage of loud noises at this site may be due to the time of the survey period which was nearer peak hour traffic than the survey periods for other intersections.

Aurora Street is a residential street in the northeastern section of the City. Noise levels, here, ranged from 61 dB to 80 dB. The site was relatively quiet except for the hum of traffic on nearby streets, probably Palos Verdes Drive North. The high levels recorded were due to dogs, small airplanes overhead, and occasional cars. Like the noise environment on Cresta Verde, the area was dominated by noise from residential activities and birds.

Calculated Traffic Noise Levels

Residents of Rolling Hills Estates are exposed to a wide range of noise levels. Major noise sources include automobiles, trucks and the sand and gravel quarry operations. Transportation noise comes from major arterials - Hawthorne Boulevard, Crenshaw Boulevard, Palos Verdes Drives North and East.

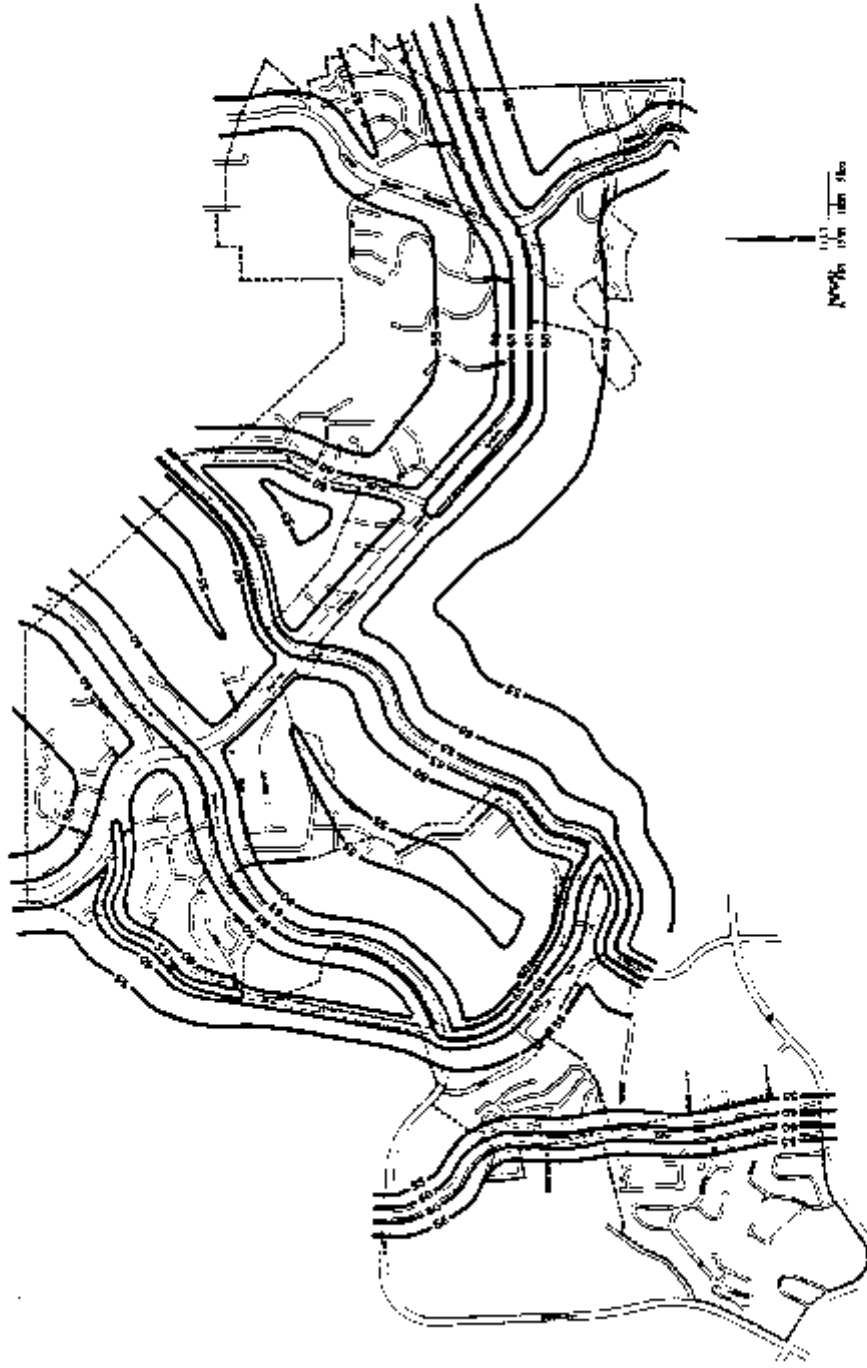
The predominantly residential development of the city makes it noise sensitive for the most part. Other uses which may be disturbed by noise include schools, churches, and hospitals.

Existing traffic noise along major roadways was calculated using the Federal Highway Administration's Highway Traffic Noise Prediction Model (FHWA - RD-77-108), December 1978. The distances from existing roadway centerlines to the 55, 60, 65 and 70 dB CNEL contour lines are provided in Table 7-4 with the contours plotted in Exhibit 7-6.

City of
Rolling Hills Estates



GENERAL PLAN



CONTOURS REPRESENT NOISE
LEVELS IN DECIBELS

DEWB Darrin Evans and Associates, Inc.

EXISTING NOISE CONTOURS
(Based on 1983 Traffic)

Exhibit 7-6

**TABLE 7-4
EXISTING ROADWAY NOISE LEVELS (CNEL)**

Roadway	From/To	Distance (in feet) from Roadway Centerline to CNEL (dB)			
		65 CNEL	60 CNEL	SS CNEL	At 50 Feet
Highridge Rd	Hawthorne / Crestridge	0	117	351	61.4
	Crestridge/Crest	0	109	430	61.9
Silver Spur Rd	Crenshaw/Hawthorne	83	237	742	64.7
	Hawthorne/Willow Wood	0	147	460	63.3
	Willow Wood/Palos Verdes Drive North	89	278	880	66.7
Hawthorne Blvd	Silver Spur/Palos Verdes Drive North	150	466	1472	68.0
	Palos Verdes Drive North/City Limit	184	574	1811	68.0
Rolling Hills Rd	Palos Verdes Drive North/City Limit	52	161	508	64.3
Crenshaw Blvd	Crestridge/Silver Spur	90	274	861	65.7
	Silver Spur/Palos Verdes Drive North	165	516	1628	68.4
	Palos Verdes Drive North/City limit	93	275	864	65.5
Palos Verdes Drive North	City Limit/Silver Spur	74	232	731	65.9
	Silver Spur/Hawthorne	80	250	791	66.2
	Hawthorne/Crenshaw	60	188	594	65.0
	Crenshaw/Rolling Hills	118	371	1174	67.9
	Rolling Hills/Palos Verdes Drive East	152	470	1484	67.9
	Palos Verdes Drive East/City Limit	153	470	1483	67.8
Palos Verdes Drive East	North City Limit/Palos Verdes Drive N	0	127	400	63.2
	Palos Verdes Drive N/South City Limit	65	174	540	63.4