

# Circulation Element



June 25, 1990

# CIRCULATION ELEMENT

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## CIRCULATION ELEMENT

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# CIRCULATION ELEMENT

## INTRODUCTION

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The circulation system is the infrastructure by which people and commodities move within and through the City. It is a network of routes which serve the circulation needs of the area. The goal of this element is to develop a plan for an overall circulation network that will meet current and future transportation needs of all those who live in or travel through the City of Rolling Hills.

### **Purpose of the Element**

The Circulation Element is designed to:

- Identify and analyze circulation needs and issues;
- Present a planned circulation system to satisfy travel demand based upon projected land use;
- Establish standards and criteria for the location, design, operation and levels of service of various circulation facilities; and
- Set forth goals and policies to ensure the circulation needs of the community are adequately met.

### **Relationship to Other Elements**

The Circulation Element is related to several other elements of the General Plan and perhaps most closely related to the Land Use Element. Circulation facilities are designed around the Land Use Plan's pattern of land use. The type and design of the circulation system are determined by the type and density of surrounding land uses as well as inter-city access patterns and loads.

The Circulation Element is also related to the Noise, Conservation and Safety Elements. As described in the Noise Element, the circulation system is one of the major components of urban noise. The circulation network has a direct impact on natural resources, particularly air quality. Factors of safety and seismic safety affect the location and design of circulation facilities, and dictate the need for evacuation and emergency routes.

## EXISTING CIRCULATION SYSTEM

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### Local Street System

The City of Rolling Hills has a unique street system which consists entirely of private roadways, the easements which are owned by the Community Association. The "collector" streets are in general winding roads, with rolling to steep grades throughout their length and are lined with significant landscaping. Driveways from individual residences provide direct access to these collectors which are all two lane, undivided roadways.

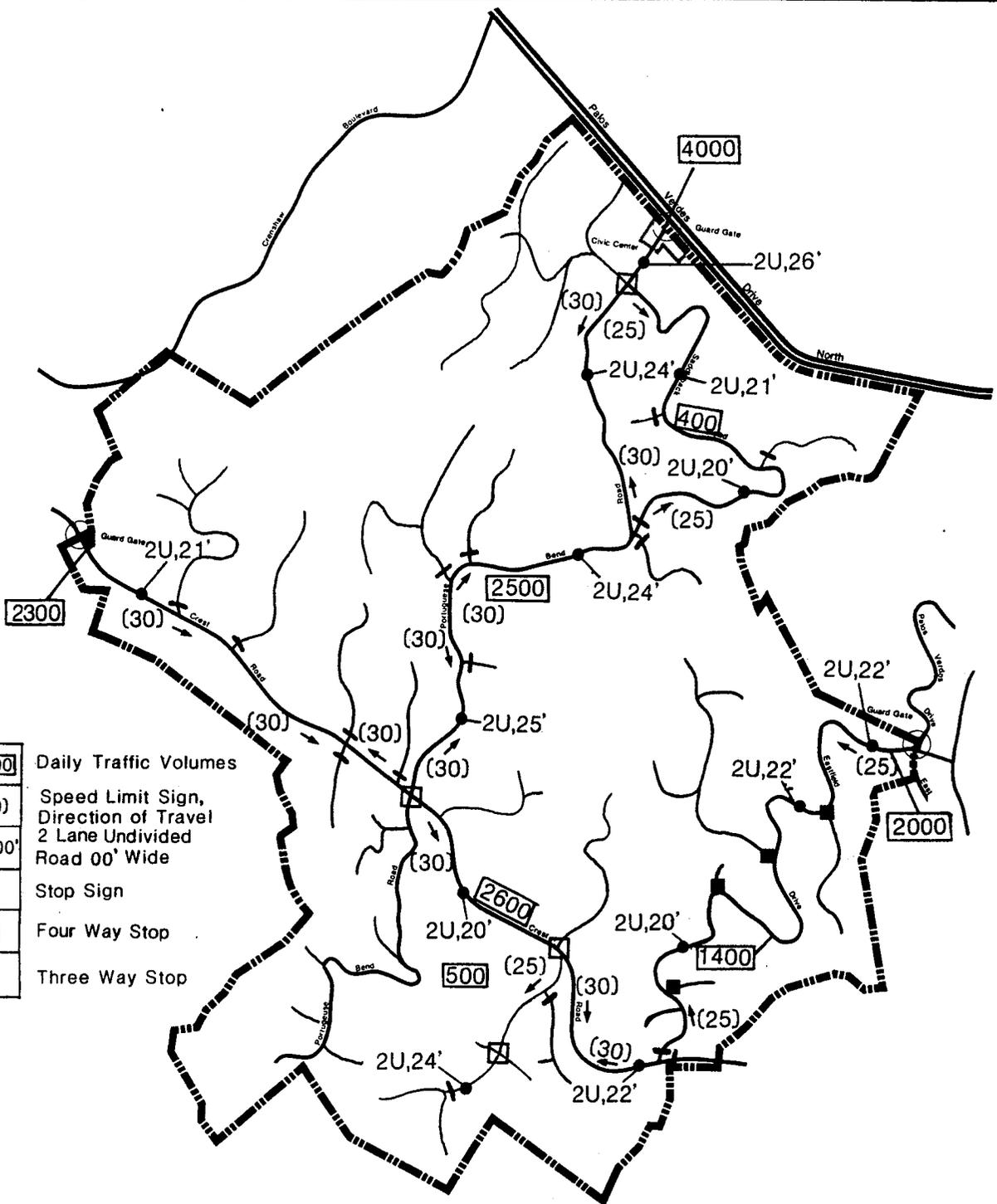
The streets have been constructed with rolled curbs and intermittent roadway shoulders. The streets serve a mixture of vehicles, bicycles, horses and pedestrians. The following section identifies the traffic and design characteristics of the City's five major collector streets: Portuguese Bend Road, Crest Road, Eastfield Drive, Southfield Drive and Saddleback Road. Traffic data has been obtained from field studies, discussions with the City's traffic consultant, and from a traffic study conducted by Willdan Associates in 1987.(a) Figure C-1 illustrates the City's street system and summarizes the observed existing conditions.

### Portuguese Bend Road

Field surveys were conducted of the portion of Portuguese Bend Road between Crest Road and the Main Gate. This two lane undivided road, which ranges in width from 24 to 26 feet, carries 2,500 vehicles per day (VPD) north of Upper Blackwater Canyon Road. At the Main Gate, a volume of 4,000 VPD was counted. These volumes are well below the approximate 12,000 VPD capacity of a two lane road and are described as "light traffic" for a residential neighborhood by the Institute of Transportation Engineers (ITE).(b)

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- (a) "Engineering and Traffic Survey for the City of Rolling Hills, Final Report"; Wildan Associates; October, 1987.
  - (b) Residential Street Design and Traffic Control; Institute of Transportation Engineers (ITE); 1989.

- 0000 Daily Traffic Volumes
- (00) Speed Limit Sign, Direction of Travel
- 0U,00' 2 Lane Undivided Road 00' Wide
- Stop Sign
- Four Way Stop
- Three Way Stop



SOURCE: "Engineering and Traffic Survey for the City of Rolling Hills, Final Report," Willdan Associates 10/87 and Weston Pringle & Associates Field Studies

**cba** ↑ North

0 2000' scale in feet



Figure C-1  
Existing Circulation Map

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The Willdan traffic study(a) indicated accident rates (1.0 and 1.5 accidents per million vehicle miles) for Portuguese Bend Road north and south of Poppy Trail, respectively, which are comparable to the County average (1.4 accidents/MVM). A speed limit of 30 miles per hour is posted. As shown in Figure 1, STOP signs are provided on Portuguese at Saddleback, Lower Blackwater Canyon and Crest Road.

#### Crest Road

This two lane undivided roadway carries 2,300 VPD near the Crenshaw Gate and 2,600 VPD west of Southfield Drive. As described above, this range of volumes is described as light traffic for a residential neighborhood. The roadway width is between 20 and 22 feet with STOP signs on Crest at Portuguese Bend and Southfield-Caballeros. A 30 mile per hour speed limit is posted.

Crest Road from the Crenshaw Gate to Portuguese Bend has a rate of 2.3 accidents/MVM, while east of Portuguese Bend the rate drops to 0.3 accidents/MVM. The 2.3 accidents/MVM rate is higher than the County average of 1.4 accidents/MVM. However, the predominant accident type is "drunk driving" which would not necessarily be correctable by traffic mitigation measures.

#### Eastfield Drive

Eastfield Drive has daily volumes of 1,400 and 2,000 vehicles south of Chuckwagon Road and at the Eastfield Gate, respectively. These are acceptable volumes for a two lane residential roadway.

Accident rates of 1.9 and 2.8 accidents/MVM were calculated for the sections of Eastfield southwest and northeast of Hackamore Road, respectively. The predominant causes of accidents on Eastfield Drive are loss of control and bad brakes, reflective of the unique characteristics of this roadway, which is more winding, has steeper grades, and more limited sight distance than Portuguese Bend or Crest. While a speed limit of 25 miles per hour is posted, past speed surveys indicate a majority of vehicles exceed this limit. Advisory speeds are lower at some of Eastfield's horizontal roadway curves, but further signage of these speeds should be posted in both directions of travel. STOP signs are posted on the 20 to 22 foot wide Eastfield Drive at Crest, Open Brand, Hackamore, Chuckwagon, and Outrider.

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(a) "Engineering and Traffic Survey..."; op.cit.

### **Southfield Drive**

This two lane undivided roadway carries 500 vehicles daily south of Crest Road. The accident rate was determined to be 4.8 accidents/MVM, well above the 1.4 accidents/MVM County rate. It should be noted, however, that only one accident was recorded but due to the low volumes on this street, the resulting rate was high. The one accident was due to speeding. In the speed survey it was shown that many drivers exceed the 25 miles per hour speed limit. STOP signs are located at Packsaddle, Ringbit, and Crest.

### **Saddleback Road**

Saddleback Road is a two lane undivided roadway with a daily traffic volume of 400 vehicles south of Hillside Lane. A high rate of 7.2 accidents/MVM was calculated with the predominate cause being loss of control. Although a 25 miles per hour speed limit is posted, a speed survey showed a majority of drivers travel over 30 miles per hour. At some of the horizontal curves on Saddleback, advisory speeds (which are lower than 30 miles per hour) are posted, although it is recommended signage of these speeds be posted in both directions of travel. This 20 to 21 foot wide street has STOP signs at its north and south ends at Portuguese Bend Road.

## **Circulation System**

### **Public Transit**

Direct transit service is not provided for the City of Rolling Hills since all of its roadways are private. Transit service is provided along the south perimeter of the City by RTD line 225 which runs along Palos Verdes Drive North. The RTD planning section was contacted and we were informed there are no current plans for expanded transit service in the immediate vicinity of Rolling Hills.

### **Equestrian/Hiking Trail System**

Approximately 25 miles of equestrian/hiking trails are provided within the community of Rolling Hills. These trails are provided on private property easements and are primarily located in the canyon areas. Equestrians, walkers and joggers utilize the trail network; motorized vehicles and bicycles are prohibited. The trail system accesses the surrounding communities at the Eastfield and Main Gates. These trails can also be utilized by non-Rolling Hills

residents by obtaining a city-issued permit. This trail system will continue to be accommodated under the Circulation Plan.

### **Pedestrian Walkways**

Pedestrians can use the Rolling Hills trail system, as described above. Consistent with the City's rural setting, sidewalks are not provided along the existing collector roads. For some sections, shoulders are provided adjacent to the collectors while in other areas, pedestrians are required to walk on the roadway edge due to landscaping in the shoulder area. If the landscaping is removed from these shoulder areas, then pedestrians can be separated from the traffic lanes.

### **Parking**

Off-street parking is provided in conjunction with City residences. Parking can presently occur in the shoulder area along some portions of the collectors where landscaping is not prohibitive. In the future as these roadway easements are cleared, parking will be accommodated. Parking along the roadway shoulder may however reduce sight distances and could potentially conflict with pedestrian, bicycle, and equestrian movements.

## SUMMARY OF CIRCULATION ISSUES AND OPPORTUNITIES

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The City's existing street system has adequate capacity to accommodate existing daily traffic volumes. In general, the volumes on the collector roads are considered light for a residential street. The highest accident rates are found on Eastfield Road and Saddleback Road (the rate on Southfield Drive was, however, based on a single accident), which were in part due to the numerous horizontal curves, steep grades, and limited sight distances. While roadway operations appear to be adequate in Rolling Hills, the following recommendations would be appropriate:

1. Providing more clearly visible speed signs in both directions of approach.
2. Continue the City's existing policy of reviewing the siting of residential driveways.
3. Encourage the Rolling Hills Community Association to develop shoulder areas along the collector roadways.

## OVERVIEW OF CIRCULATION PLAN

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### **Future Traffic Demand**

The future traffic demand in the City of Rolling Hills is directly related to the potential for additional residential units. As Rolling Hills is a gated community, potential increases in traffic in surrounding communities will not affect the Rolling Hills street system. The City's Land Use Element accommodates a net increase in 59 single-family dwelling units.

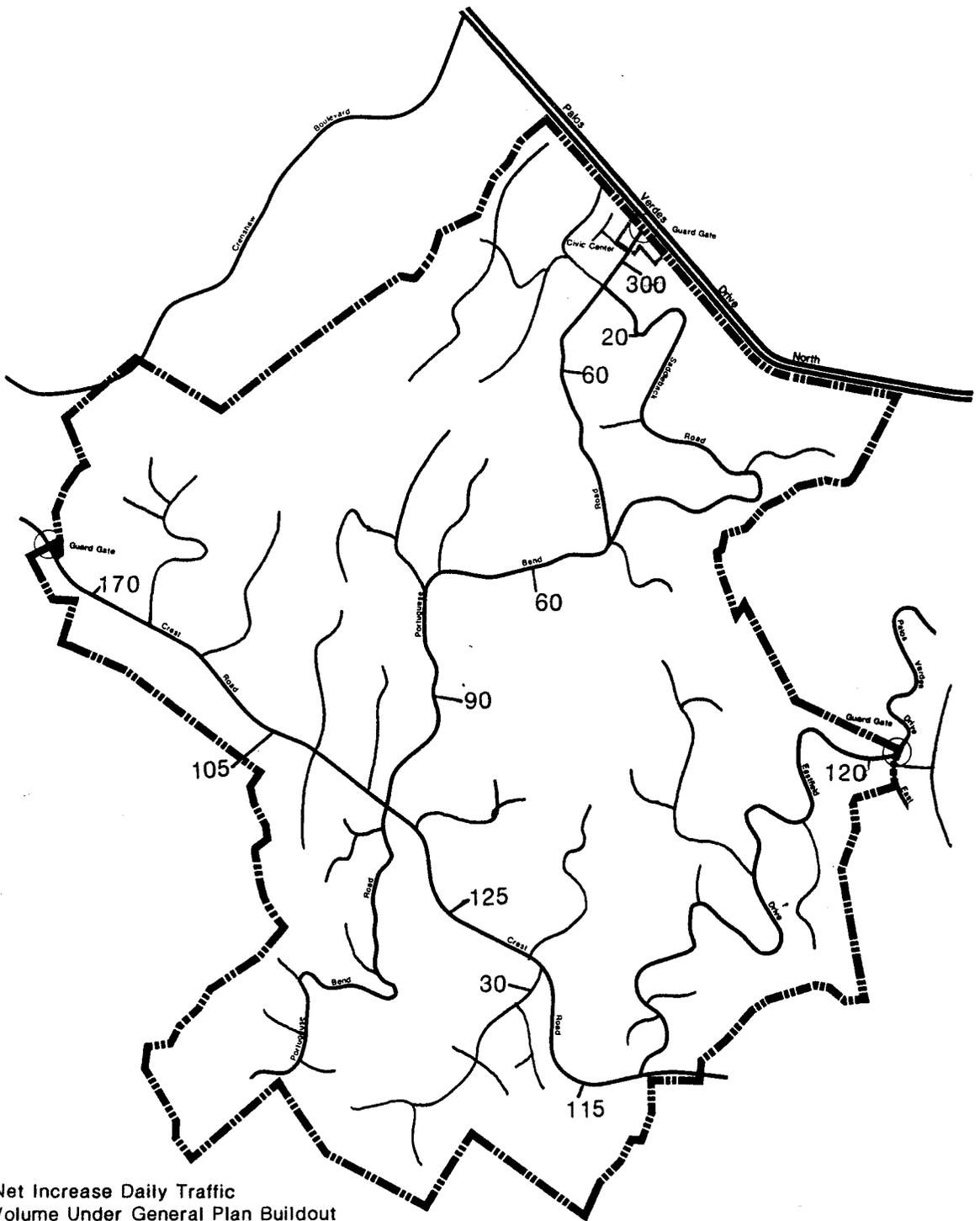
The Institute of Transportation Engineers (ITE), published Trip Generation, 4th Edition which contains trip generation rates for various uses including single-family homes. It was observed that an average of ten trip ends daily, are generated by each single-family dwelling unit. Therefore, the potential 59 dwelling units increase translates to a total of 590 daily trip ends to be distributed throughout the Rolling Hills street system.

Figure C-2 illustrates the projected increase in traffic daily volumes on the City's collector roadways. These volumes do not represent a significant impact to the City's street system. The projected future volumes are still expected to operate well within the roadway capacity.

### **Street Classification System**

The unique characteristics of Rolling Hills' roadway system - the private status of its roadways, gated community operations, limited future traffic volume increases - eliminate the need for a specific street classification system. What have been referred to as collector roads actually operate similar to local or residential roads in most cities.

A typical cross-section has been developed for the Rolling Hills collectors to provide guidance in the development of a safe and efficient circulation system. Figure C-3 illustrates the recommended typical cross section. This cross section can be used as a guideline for future development.



000 Net Increase Daily Traffic Volume Under General Plan Buildout

0 2000 scale in feet

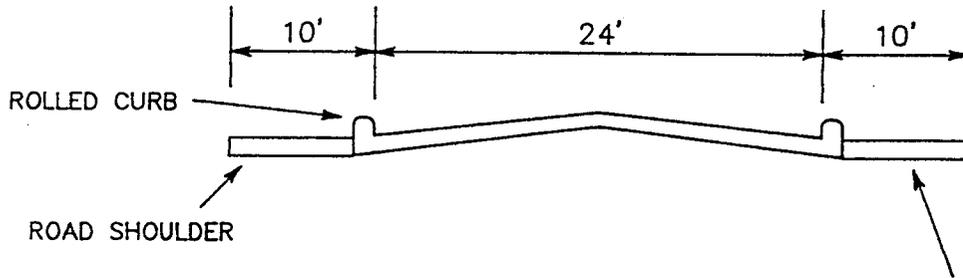
North

SOURCE: Weston Pringle & Associates



Figure C-2  
Potential Net Increase in  
Daily Traffic Volumes

JUNE 25, 1990



ROAD SHOULDER: TO PROVIDE AN AREA UTILIZED BY PEDESTRIAN, EQUESTRIAN USES AND POSSIBLY PARKED VEHICLES. THIS AREA SHOULD BE FREE OF LANDSCAPING.

NOTE: ACTUAL ROADWAY EASEMENTS ARE WIDER THAN THE ABOVE CROSS SECTION. CREST RD. HAS A 100' EASEMENT, PORTUGUESE BEND RD. IS 60', WHILE SOUTHFIELD DR., EASTFIELD RD. AND SADDLEBACK RD. ALL HAVE 50' EASEMENTS.



SOURCE: Weston Pringle & Associates



Figure C-3  
Typical Road Cross Section

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## **Traffic Control Devices**

The installation of traffic control devices in the City should be based upon established warrants and professional analyses. A reference for implementation is the California Department of Transportation, "Traffic Manual". The installation of traffic control devices in conformance with standards provides a safe road system and reduces potential liability on the part of the City.

These references provide guides or warrants for the installation of many traffic controls such as STOP signs, traffic signals and speed limits. In the case of speed limits, the guidelines are required to be followed by the California Vehicle Code. While these guides or warrants are not absolute, they will assist in providing uniformity, which is a safety benefit.

## GOALS AND POLICIES

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The following goals and policies were developed as part of the General Plan Update, and are designed to ensure the maintenance of an efficient circulation system for Rolling Hills.

**GOAL 1: Maintain a safe and effective roadway system providing for the movement of people, goods and services to serve the existing and future needs of Rolling Hills.**

**Policy 1.1:** Provide a street system and controls which conform with sound engineering practices.

**Policy 1.2:** Require new development to conform to the circulation standards and criteria of the City.

**Policy 1.3:** Continue to accommodate the various forms of transportation in Rolling Hills including vehicles, pedestrian, bicycles and equestrian.

**Policy 1.4:** In accord with the standard set forth in Figure C-3, require roadway easements to be clear of irrigation systems, landscaping and other obstructions.

**GOAL 2: Provide a circulation system that contributes to residents' quality of life and minimizes impacts on the environment.**

**Policy 2.1:** Encourage use of alternative modes of transportation to minimize environmental impacts.

**Policy 2.2:** Support street and traffic control systems to minimize traffic noise and air quality impacts.

**Policy 2.3:** Establish guidelines to deal with non-automobile usage of Crest Road (e.g. bikes, joggers, etc.).

**Policy 2.4:** Ensure that new roadways or improvements to existing roadways are sensitive to geologic instabilities.

**GOAL 3: Maintain the rural character of Rolling Hills' road system.**

**Policy 3.1: Maintain the private status of the streets within the City boundaries.**

**Policy 3.2: Prohibit the development of highways in the City.**

**Policy 3.3: Require the construction of new roadways or improvements to existing roadways to maintain compatibility with existing topography and minimize grading or cut and fill.**