

## **SECTION 3.1 INTRODUCTION**

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The Transportation Element of the *Rolling Hills Estates General Plan* evaluates the existing roadway system and identifies measures so that the system will be able to accommodate existing and future traffic in the City. The Transportation Element contains goals and policies that emphasize the need for providing an efficient circulation system and a plan for improving the existing roadway network to handle traffic increases due to both regional and local growth.

*California Government Code Section 65302(b)* requires that the Transportation Element identify the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other public utilities and facilities. The Element includes a circulation plan which provides for a comprehensive circulation system designed to accommodate the projected transportation needs of the City at build-out of the land use plan.

Other circulation issues involving equestrian trails, bikeways, and multi-use trails are addressed in the Open Space and Recreation Element.

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**SECTION 3.2**  
**TRANSPORTATION ELEMENT GOALS AND POLICIES**

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The Transportation Element focuses on the future circulation and transportation needs of the community. The element contains goals and policies relating to the provision of an efficient circulation system. A number of other transportation related issues are also addressed including equestrian trails, bikeways, public transportation systems, pedestrian circulation, parking, and scenic roadways.

**Issue: Safe Driving Conditions**

The value of safe driving conditions to the pedestrian and the driver cannot be underestimated. The prevention of accidents and the threat to life and property is a major concern in the City.

**Goal 1: Provide for safe driving conditions on all City streets.**

**Policy 1.1** Provide comprehensive and ongoing evaluation of potentially dangerous streets and intersections within the City.

**1.1.1 Implementation Measure:** The City will continue to cooperate with the efforts of the Sheriff's Department in collecting all accident-related data. Information will be included in an annual report prepared for the City Council and Traffic and Safety Committee for review.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General Fund

**Policy 1.2** Encourage the involvement of the Traffic and Safety Committee in assessing traffic safety concerns. Encourage the involvement and interaction of Homeowners Associations with the Traffic Safety Committee in an effort to augment its information base as it relates to traffic safety concerns.

**1.2.1 Implementation Measure:** The Traffic and Safety Committee will review all roadway improvement plans.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General Fund

**Policy 1.3** Discuss trends in traffic safety on an ongoing basis with the City's Traffic and Safety Committee and the City Council. Support the efforts of the Sheriff's Department in collecting all accident-related data

**1.3.1 Implementation Measure:** The Public Works Department will incorporate trends in traffic safety in the update and an annual review of the Capital Improvement Program.

Timing: Annual review  
Agency: Public Works Department  
Funding: General Fund

**Policy 1.4** The widening of streets, installation of additional traffic signals, removal of trees, and other roadway improvements should be compatible with the rural character of the City.

**1.4.1 Implementation Measure:** The Planning Department should be involved in the review of roadway improvement projects.

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

**Policy 1.5** Evaluate and if appropriate, pursue the realignment (as shown on the Master Plan of Streets) of Palos Verdes Drive East at the Chandler Quarry.

**1.5.1 Implementation Measure:** If appropriate the City will identify this realignment project for funding for the next Capital Improvement Program (5 year budget) allocation and prepare a schedule for project implementation.

Timing: Fiscal Year 1994  
Agency: Public Works Department  
Funding: None required for CIP

**Policy 1.6** Discourage additional access points on arterial streets such as Palos Verdes Drive North, Hawthorne Boulevard, and Palos Verde Drive

East and reduce secondary access points on residential properties, where appropriate.

**1.6.1 Implementation Measure:** The Planning and Public Works Departments will consider Policy 1.6 when reviewing future development proposals in areas adjacent to the above roadways.

Timing: Immediate and ongoing

Agency: Public Works Department, Planning Department

Funding: General fund

**Policy 1.7** Restrict the access and travel of large trucks on Crenshaw Boulevard, Palos Verdes Drive North and other weight-restricted roadways.

**1.7.1 Implementation Measure:** The Public Works Department will work with the Sheriff's Department to post appropriate signage, develop appropriate ordinances, and undertake enforcement.

Timing: Immediate and ongoing

Agency: Planning and Public Works Department

Funding: General Fund

**Policy 1.8** Maintain and improve when feasible, the arrestor beds to current design standards (subsurface roadway foundation) on Hawthorne Boulevard to meet the current accepted traffic engineering standards and encourage Los Angeles County to install arrestor beds on Crenshaw Boulevard.

**1.8.1 Implementation Measure:** The City will review Capital Improvement Programs for the next five years and identify this project's priority on the CIP.

Timing: Immediate and ongoing

Agency: Public Works Department

Funding: None required for CIP

**Policy 1.9** The City will review and where appropriate, designate those roadways where larger trucks (6,000 pounds) are prohibited.

**1.9.1 Implementation Measure:** The City will review Capital Improvement Programs for the next five years and identify this project as a priority. The Public Works and

Planning Departments will prepare a study indicating roads where trucks will be prohibited, signage, enforcement, and appropriate ordinances required for implementation.

Timing: Fiscal Year 1994

Agency: Public Works and Planning Department

Funding: None required for CIP

**Policy 1.10** Cooperate and participate with Los Angeles County and adjacent jurisdictions in their efforts to reduce unsafe driving conditions and to enforce traffic-related laws.

**1.10.1 Implementation Measure:** The Public Works Department will meet with the Los Angeles County Sheriffs Department periodically to review problems in the City.

Timing: Immediate and ongoing

Agency: Public Works Department

Funding: General fund

**Policy 1.11** Prohibit large trucks on collector and local streets in the City unless deliveries are being made to specific locations on those streets.

**1.11.1 Implementation Measure:** The City Department of Public Works will review, and if necessary, prepare an appropriate ordinance for review by City Council and Traffic Safety Committee.

Timing: Immediate and ongoing

Agency: Public Works Department

Funding: General fund

**Policy 1.12** Provide for additional safety mechanisms on the northbound (downhill) side of Hawthorne Boulevard, to handle out-of-control vehicles, especially trucks.

**1.12.1 Implementation Measure:** The Public Works Department will review Capital Improvement Programs for the next five years and identify this project as a priority.

Timing: Fiscal Year 1994

Agency: Public Works Department

Funding. General Fund

**Policy 1.13** Provide landscaping and widen the concrete sidewalk on the Rolling Hills Estates side (southeast) of Silver Spur Road between Willow Wood Road and Marloma Drive.

**1.13.1 Implementation Measure:** The Public Works Department will review the City's Capital Improvement Program for the next five years and identify this project as a priority.

Timing: Fiscal Year 1993  
Agency: Public Works Department  
Funding: General fund

**Policy 1.14** Encourage the continuation of a Peninsula-wide traffic committee to address regional traffic and safety issues.

**1.14.1 Implementation Measure:** The Public Works Department will initiate dialogue with surrounding jurisdictions concerning the feasibility of establishing a Peninsula-wide traffic committee.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding. General Fund

**Issue: Efficient Traffic Flow**

The main purpose of the circulation system is to provide the most efficient way for individuals to travel between points of activity. In support of the community's needs, the City is determined to keep traffic flows in the area efficient and non-disruptive.

**Goal 2: Promote efficient traffic flow on City streets without compromising the lower density character of Rolling Hills Estates.**

**Policy 2.1** Restrict the construction of additional travel lanes within the City so as not to adversely affect the established rural residential character of the area.

:2.1.1 Implementation Measure: The City will implement Land Use and Circulation Plan included in the Land Use Element and Transportation Element respectively.

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

**Policy 2.2** Discourage primary and secondary access on arterial streets for properties without frontage along these roadways.

**2.2.1 Implementation Measure:** Public Works and Planning will continue to review all development proposals.

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

**Policy 2.3** Discourage secondary access on major arterials for properties having frontage on these streets, except where alternatives are not available.

**2.3.1 Implementation Measure:** The Public Works and Planning will continue to review all development proposals.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General fund

**Policy 2.4** Strive to maintain a level of service of "D" or better at all commercial intersections (refer to Table 3-3 in Section 33).

**2.4.1 Implementation Measure:** The Planning and Public Works Department will monitor Levels of Service using the Intersection Capacity Utilization (ICU) method on all major roadways. All new commercial developments will be required to prepare a traffic study indicating the level of impact.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General fund

**Policy 2.5** Discourage the installation of additional traffic signals except where it is determined that such improvements are required for public safety needs or to mitigate serious congestion or roadway hazards.



**2.5.1 Implementation Measure:** The Public Works Department will require installation of traffic signals where traffic signal warrants are indicated in traffic studies.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General fund

**Policy 2.6** Evaluate the use of crossing guards at appropriate school crossing locations to promote pedestrian safety and efficient traffic flow.

**2.6.1 Implementation Measure:** The City will meet with the School Districts on an as needed basis to discuss issues related to pedestrian safety.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General fund

**Policy 2.7** Review major development in other Palos Verdes Peninsula cities, evaluate the potential traffic impacts, and encourage appropriate mitigation measures.

**2.7.1 Implementation Measure:** The Planning Department will notify neighboring special districts, agencies, and cities that Rolling Hills Estates should be placed on a review list to receive notices concerning negative declarations and environmental impact reports. A staff person will be designated to undertake and to comment on the review.

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

**Policy 2.8** Discourage use of Palos Verdes Drive North as alternate route for Pacific Coast Highway by out-of-town traffic.

**2.8.1 Implementation Measure:** The Public Works Department will work with the Sheriffs Department to review appropriate procedures to follow in discouraging use of this roadway as a through-street

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General Fund

**Policy 2.9** Require new developments within the City and on the Palos Verdes Peninsula which degrade traffic flow at an intersection below a bevel of Service of C or D to mitigate the adverse traffic impacts associated with their developments in accordance with City approval with mitigation measures.

**2.9.1 Implementation Measure:** New projects will be evaluated through the environmental review process and mitigation measures other than roadway widenings and major capital improvement projects will be emphasized.

Timing. Immediate and Ongoing  
Agency: Public Works Department  
Funding. General fund

**Policy 2.10** Growth should be limited to that which can be accommodated by existing roadways.

**2.10.1 Implementation Measure:** The City will implement the General Plan Land Use Policy.

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

**Policy 2.11** Restrict the expansion of roadway pavements into open space, roadway buffer zones, and bicycle, pedestrian, equestrian trails.

**2.11.1 Implementation Measure:** The City will implement the General Plan Land Use Policy.

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

**Policy 2.1.2** Optimize street and intersection design to facilitate traffic flow while ensuring such improvements are consistent with the rural character of the City.

**2.12.1 Implementation Measure:** The City will implement the General Plan Land Use Policy and Master Plan of Streets. The City will also evaluate mitigation measures from adjacent cities and promote those that do not involve the widening of roadways.

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

**Policy 2.13** Encourage commuter (rush hour) traffic to utilize Hawthorne and Crenshaw Boulevards to Pacific Coast Highway or Sepulveda Boulevard instead of Palos Verdes Drive North.

**2.13.1 Implementation Measure:** The Public Works Department will work with the Sheriffs Department to review appropriate procedures to follow in discouraging use of this roadway as a through-street.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General fund

**Policy 2.14** Maintain institutional and recreational uses along major roadways to reduce potential through traffic impacts in adjacent areas. At the same time, promote the retention of neighborhood schools to reduce both the number and length of vehicle trips.

**2.14.1 Implementation Measure:** The City will implement General Plan Land Use Policy. Work with the local school district to promote retention of existing neighborhood schools.

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

## **Issue: Multi-Use Recreational Trails**

Alternative ways of travel in the City are provided by equestrian trails, bicycle paths and pedestrian walks. To reduce the dependence on vehicular travel, these means should be promoted and made accessible.

**Goal 3: Provide safe and comprehensive trail systems for equestrian, bicycle, and pedestrian use and promote the development of connections between existing trail systems where feasible.**

**Policy 3.1** Any new development will be encouraged to provide connections between trails, where appropriate.

**3.1.1 Implementation Measure:** The Community Services and Planning Departments will review future development proposals to identify potential connections to the trail system.

Timing: Immediate and ongoing

Agency: Community Services Department and Planning Department

Funding: General Fund

**Policy 3.2** Encourage development of a Peninsula-wide loop trail as shown in the 1957 Los Angeles County Regional Recreational Plan.

**3.2.1 Implementation Measure:** The Community Services Department will initiate dialogue with neighboring jurisdictions to discuss feasibility of implementing a regional trails system.

Timing: Begin in 1994

Agency: Community Services Department

Funding: None required

**Policy 3.3** Minimize the interface of bridle trails and City streets where feasible.

**3.3.1 Implementation Measure:** The Community Services and Planning Departments will review future development proposals to identify potential connections to the trail system.

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

**Policy 3.4** Restrict motorized vehicles/bicycles from using designated equestrian trails except in case of emergency, trail maintenance, or to service the property.

**3.4.1 Implementation Measure:** The Community Services Department will ensure that appropriate signage is posted and work with the Sheriffs Department for enforcement.

Timing: Immediate and ongoing  
Agency: Community Services Department  
Funding: General fund

**Policy 3.5** Establish a program designed to educate residents in how to safely and courteously use the trail network.

**3.5.1 Implementation Measure:** The Community Services Department will prepare a brochure that will be distributed Citywide informing residents about trail safety.

Timing: 1993  
Agency: Community Services Department and City Manager  
Funding: General fund

**Policy 3.6** Encourage new trails to be constructed with an irrevocable offer to dedicate to the City and ensure that all trails are available for public access.

**3.6.1 Implementation Measure:** The Community Services Department will initiate dialogue with neighboring jurisdictions to discuss feasibility of implementing a regional trails system.

Timing: Begin in 1994  
Agency: Community Services Department  
Funding: General fund

**Policy 3.7** Encourage cooperation among Peninsula jurisdictions to establish comprehensive multi-use trail network for equestrian, bicycle, and pedestrian use and encourage development of additional on-street bike paths to enable the development of a Peninsula-wide loop system.

**3.7.1 Implementation Measure:** The Community Services Department will initiate dialogue with neighboring jurisdictions to discuss feasibility of implementing a regional trails system.

Timing: Begin in 1994

Agency: Community Services Department

Funding: General fund

**Policy 3.8** Encourage the expansion of pedestrian paths in residential and commercial areas and incorporate pedestrian activity on all off-street bike paths.

**3.8.1 Implementation Measure:** The Community Services and Planning Departments will review future development proposals to identify potential connections to the trail system.

Timing. Immediate and ongoing

Agency: Community Services and Planning Department

Funding. General fund

**Policy 3.9** Evaluate the use of the equestrian trail network as an alternative transportation system for use in the event of an emergency.

**3.9.1 Implementation Measure:** The Public Works Department, County of Los Angeles Fire Department, and City Manager will review the feasibility of using selected trails to provide emergency access.

Timing Immediate and ongoing

Agency: Public Works Department

Funding: General fund

**Policy 3.10** Continue to investigate possible funding sources for acquisition, development and maintenance of trails and bicycle paths.

**3.10.1 Implementation Measure:** The Community Services Department will investigate potential funding sources.

Timing.- Immediate and ongoing  
Agency: Community Services Department  
Funding: General fund

**Issue: Transit and Transportation Demand Management (TDM)**

Public transportation and TDM reduce traffic congestion and provide better utilization of City streets. With increasing energy costs, congestion and pollution, it is prudent to reconsider the expansion of public transportation in the area.

**Goal 4: Promote greater use of public transit as an alternative means of transportation.**

**Policy 4.1** Encourage and promote greater use of public transportation including car pools, van pools, and bus services.

**4.1.1 Implementation Measure:** The City Manager will initiate a program publicizing regional and local planning efforts to promote use of public transit through the City's newsletter.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General fund

**Policy 4.2** Encourage large employment centers to provide increased van pool service to Peninsula residents.

**4.2.1 Implementation Measure:** The Planning Department will cooperate with the South Coast Air Quality Management District to ensure that the City will adhere to Regulation XV.

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

**Policy 4.3** Pursue additional park and ride locations through cooperation with other Peninsula communities and major employment centers.

**4.3.1 Implementation Measure:** The Public Works Department will initiate a program publicizing regional and local planning efforts to promote use of public transit.

Timing: Immediate and ongoing

Agency: Public Works Department and City Manager

Funding: General fund

**Policy 4.4** Promote the development of a comprehensive bus service system, including fixed-route programs to various points of interest such as commercial centers, schools, and recreation areas.

**4.4.1 Implementation Measure:** The Public Works Department will initiate a program publicizing regional and local planning efforts to promote use of public transit.

Timing: Immediate and ongoing

Agency: Public Works Department and City Manager

Funding: General fund

**Policy 4.5** Participate in and encourage Peninsula-wide cooperation among the various jurisdictions to provide comprehensive programs to address the public transportation needs of the region.

**4.5.1 Implementation Measure:** The Public Works Department will initiate a program publicizing regional and local planning efforts to promote use of public transit.

Timing: Immediate and ongoing

Agency: Public Works Department

Funding: General Fund

**Policy 4.6** Encourage the use of school buses for students attending schools within the City and encourage parents to have their children utilize alternate means of transportation to get to school.

**4.6.1 Implementation Measure:** The Public Works Department will initiate a program publicizing regional and local planning efforts to promote use of public transit.



Timing: Immediate and ongoing  
Agency: Public Works Department and City Manager  
Funding: General fund

**Issue: Parking Areas**

The provision of adequate parking areas facilitate the onset and completion of vehicular travel Inadequate parking often leads to congestion and additional traffic delays.

**Goal 5: Promote efficient, safe and convenient parking facilities within the commercial areas of the City.**

**Policy 5.1** Require compliance with minimum standards for parking lot designs as specified by the Municipal Code.

**5.1.1 Implementation Measure:** The Planning Department will continue to review all parking lot designs to ensure they are in compliance with City standards.

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

**Policy 5.2** Require parking lot designs to provide easy access to nearby retail areas.

**5.2.1 Implementation Measure:** The Planning Department will continue to review all parking lot designs to ensure they are in compliance with City standards.

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

**Policy 5.3** Eliminate on-street parking spaces to improve circulation along commercial streets where appropriate.

**5.3.1 Implementation Measure:** The Public Works Department will identify those roadways serving commercial areas where on-street parking is still permitted and establish a timetable to eliminate on-street parking where off-street parking is appropriate.

Timing: 1993  
Agency: Public Works Department  
Funding: General fund

**Policy 5.4** Require existing retail and commercial uses with substandard circulation or parking conditions to upgrade their facilities to established design standards.

**5.4.1 Implementation Measure:** The Public Works Department will identify those roadways serving commercial areas where on-street parking is still permitted and establish a timetable to eliminate on-street parking where off-street parking is appropriate.

Timing: 1993  
Agency: Public Works Department  
Funding: General fund

**Policy 5.5** Require adequate off-street parking for remodeled and future developments.

**5.5.1 Implementation Measure:** The Planning Department will continue to review all parking lot designs to ensure they are in compliance with City standards.

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

**Policy 5.6** Regulate overnight street parking and parking of recreational vehicles on public streets.

**5.6.1 Implementation Measure:** The Sheriffs Department will continue to enforce on-street parking requirements in the City.

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

**Policy 5.7** Maintain institutional facilities along major roads and in areas where they are readily accessible.

**5.7.1 Implementation Measure:** The City will implement the General Plan Land Use Policy.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding: General fund

**Policy 5.8.** Maintain schools and school sites within residential areas to promote short trips, less traffic, and student safety.

**5.8.1 Implementation Measure:** The City will implement the General Plan Land Use Policy.

Timing: Immediate and ongoing  
Agency: Public Works Department  
Funding. General fund

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## SECTION 3.3 TRANSPORTATION PLAN

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### ROADWAY CLASSIFICATION

This section of the Transportation Element establishes roadway classifications and standards for the City. The roadway classification system for the Rolling Hills Estates General Plan consist of four roadway categories: major arterials, secondary arterials, collector streets, and local streets. Appropriate standards for each category are described below. Exhibit 3-1 illustrates the circulation system for the City of Rolling Hills Estates as provided in this Transportation Element. Conceptual cross-sections of each roadway category are provided in Exhibit 3-2.

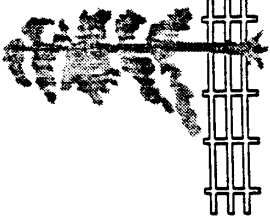
#### *Arterial Roadways*

Arterial Roadways comprise the backbone transportation network for the City. They are the important streets which connect major traffic generators (such as shopping centers, employment activities, etc.) in addition to providing direct connections to freeways and other major roadways. The traffic function of arterials is that of moving vehicles - particularly regional traffic on long trips between distant points. Property access is a secondary function. For this reason, driveways and intersections should be restricted and controlled. Access to property abutting an arterial should be provided, if at all possible, by some other route. Arterials are designated "Major" and "Secondary", according to their relative importance.

The City's general polity has been to minimize the number of access points on arterial streets. Additional points of access along these arterials not only pose potential safety hazards for vehicles making various turning movements, but also affects the flow of traffic on those streets most heavily traveled. By consolidating the points of ingress and egress along these streets, traffic flow is improved while minimizing potential points of conflict with residential access and major arterials.

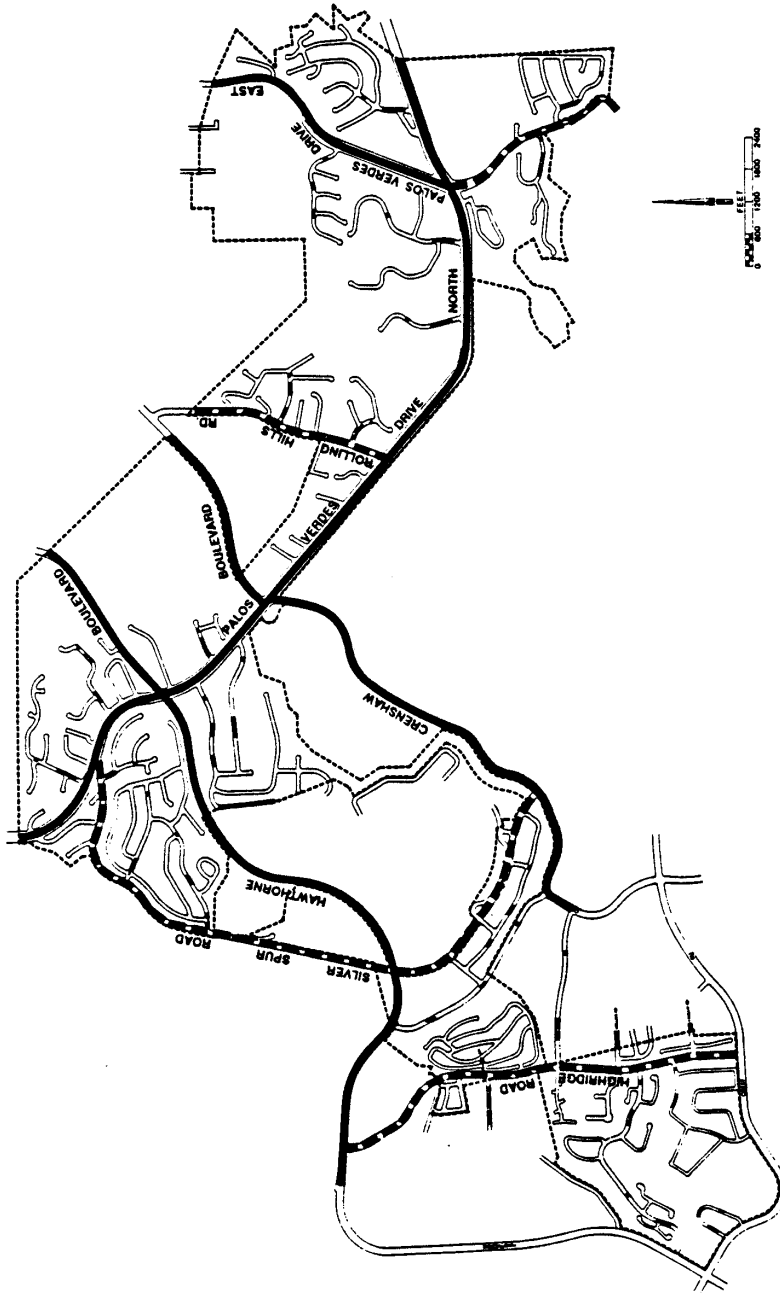
- # *Major Arterial* streets are the most important roadways in this category and are designed to carry through traffic on four or more moving lanes of traffic, with controlled access to any area of development.
  
- # *Secondary Arterial* streets are of less importance, but still designed to carry through traffic. Their function is to transfer traffic from local streets to the Major Arterials from local traffic generators, such as schools and shopping centers. Streets in this category will generally be designed for two or four moving lanes of traffic.

City of  
Rolling Hills Estates



# GENERAL PLAN

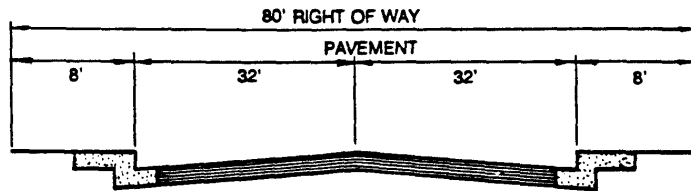
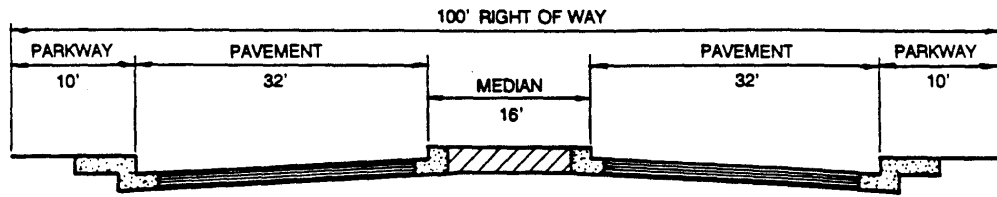
**STREET CLASSIFICATION**  
ARTERIAL  
SECONDARY COLLECTOR  
LOCAL



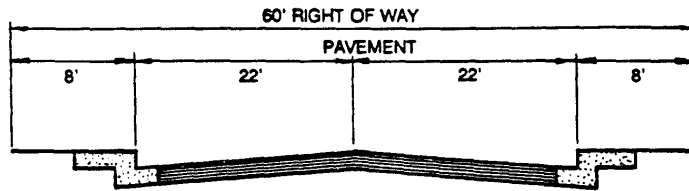
EG&A DAVID EVANS AND ASSOCIATES, INC.

MASTER PLAN OF ROADS

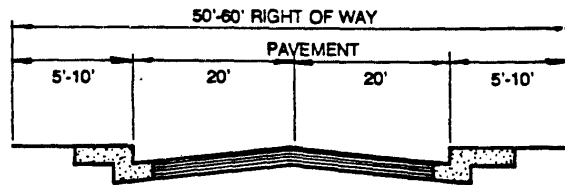
Exhibit 3-1



**Arterial Roadways**



**Local Collector**



**Local Streets**

**DEA** DAVID EVANS AND ASSOCIATES, INC.

**CONCEPTUAL ROADWAY CROSS-SECTIONS  
(MINIMUM STANDARDS)**

**Exhibit 3-2**

Major Arterial Streets include the following roadways:

- # Hawthorne Boulevard
- # Crenshaw Boulevard

Secondary Arterial Streets include the following roadways:

- # Palos Verdes Drive North
- # Silver Spur Road
- # Palos Verdes Drive East
- # Indian Peak Road
- # Rolling Hills Road
- # Crest Road, between Hawthorne and Crenshaw Boulevards
- # Silver Spur from Monte Malaga to Palos Verdes Drive North

### ***Collector Streets***

Collector Streets terminate at an Arterial Street so that traffic generated on the local streets can have easy access to the primary street system consisting of the arterial roadways. This Plan indicates those roadways classified as Collectors. Certain additional safety measures should also be taken, such as signing all local streets that intersect with the Collector with either "Yield" or "Stop" Signs to permit the Collector to better perform its job in the total street system.

Collector Streets include the following roadways:

- # Whitley Collies Road
- # Willow Wood Road
- # Kingspine Road



## Local Streets

Local Streets are designed to carry traffic to individual parcels and should be designed to discourage through traffic. Their primary function is to provide access to the property which abuts the street. They also act as open space and firebreaks. All of the remaining roadways in the City are classified as Collector Streets.

## TRANSPORTATION PLAN MAP

The Transportation Plan Map is provided in Exhibit 3-1. The Map shows all of the existing streets that should be designated as Arterials, both major and secondary; the collector roads, local roads, and suggested routes of proposed extensions or new streets in these categories. It should be noted that where new streets are proposed, the map line does not indicate a precise location, but rather a generalized location subject to either a proposed subdivision of the area, or precise alignment by the adoption of a "Plan Line".

Table 3-1 summarizes the roadway classifications and the applicable standards.

<b>TABLE 3-1 ROADWAY CLASSIFICATION STANDARDS</b>		
<b>Roadway Classification</b>	<b>Standards</b>	<b>Facilities</b>
Arterial (Major and Secondary)	2 to 4 travel lane Divided roadway Left-turn lands/pockets 60-80 feet road width 80 to 100 feet right-of-way	Palos Verdes Dr. North Hawthorne Blvd. Crenshaw Blvd. Palos Verdes Dr. East Silver Spur Road Indian Peak Road Rolling Hills Road Crest Road Highridge Road
Collector Streets	2 to 4 travel lanes Undivided road 32-to 52-foot road width 60-foot right-of-way width	Willow Wood Road Whitney Collins Road Kingspine Road
Local Streets	Two travel lanes 36- to 40-foot road width 50- to 60-foot right-of-way width	All remaining streets in Rolling Hills Estates not otherwise classified as collector or arterial roadways.
Source: City of Rolling Hills Estates, 1991.		

## LAND USE PLAN

To assess the effect of the General Plan Land Use Policy on traffic, it was first necessary to obtain the background traffic projects for each major area of the City. This information is documented in the background section of this element. The next step was to determine the projected traffic from the areas where the land use is proposed to be changed or modified. Where areas are either vacant or underutilized, the traffic projections indicate the more intense use. This approach is the most conservative approach from a traffic analysis point of view.

Table 3-2 indicates the traffic generating factors used in projecting the traffic impacts resulting from the implementation of land use policy. The generation factors should also be used in evaluating traffic impacts from future development in the City.

TABLE 3-2 TRIP GENERATION		
Land Use	Trip Rate	Per
Single-Family Housing	10.0	Unit
Condominium	5.9	Unit
Apartment	6.1	Unit
Regional Shopping Center	48.3	1,000 SF
Community Shopping Center	74.3	1,000 SF
Neighborhood Shopping Center	40.7	1,000 SF
Commercial Office	22.7	1,000 SF
Government Office	68.9	1,000 SF

Source: ITE, 4th Edition.

The following changes to traffic patterns are anticipated with the implementation of the land use policy:

- # New residential traffic from the Northrop and Chandler sites will follow current traffic distribution and the volumes are substantially less than that generated by the existing use.
- # The majority of new traffic on arterials will be generated by development outside the City.

- # The implementation of the land use plan will result in a stabilization of trip generation in most areas of the City and there will be a reduction in the number of trucks with the eventual termination of Chandler Quarry activities.

In summary, the land use plan will involve a long-term transition of land uses in some areas of the City. This future development will not result in significant trip generation.

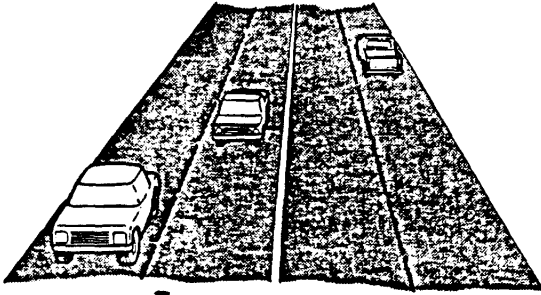
### LEVELS OF SERVICE

A roadway's ability to handle current traffic loads can be described in terms of level of service (LOS). The LOS is the ratio of a road's desirable service volume to the existing traffic volumes. For example, a road with a design capacity of 24,000 vehicles per day (vpd) carrying 20,000 vpd has an LOS ratio of 0.83. Ratio ranges can be used to describe actual traffic operating conditions as outlined in Table 3-3 and is shown in Exhibit 3-3. For example, a ratio of 0.83 corresponds to LOS D, which is characterized by unstable traffic flows compared to a ratio of 0.70 which corresponds to an LOS B which represents a condition of free flowing traffic.

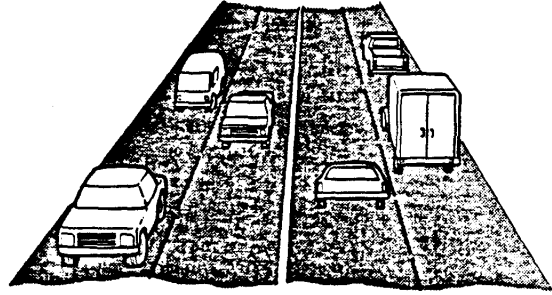
The LOS can be calculated if the design capacity for average daily traffic (ADT) and the existing traffic volumes (in ADT) are known. City standards call for a LOS of D on local roadways.

TABLE 3-3 INTERSECTION LEVEL OF SERVICE DEFINITIONS <sup>a</sup>		
LOS	Interpretation	V/C Ratio <sup>b</sup>
A, B	Uncongested operations; all vehicles clear in a single signal cycle	0.00 - 0.70
C	Light congestion; occasional backups on critical approaches	0.71 - 0.80
D	Congestion on critical approaches, but intersection function. Vehicles required to wait through more than one cycle during short peaks. No long-standing lines formed.	0.81 - 0.90
E	Severe congestion with some long-standing lines on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movement.	0.91 - 1.00
F	Severe congestion approaching gridlock.	1.01+

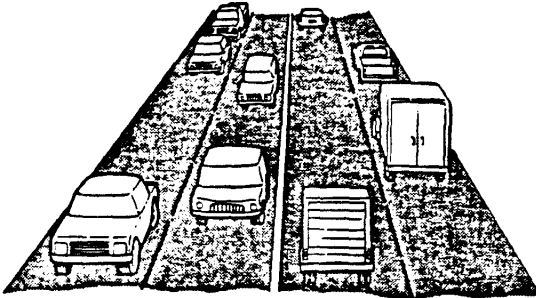
<sup>a</sup>Source: Highway Capacity Manual, 1965.  
<sup>b</sup>Volume/level of service E capacity.



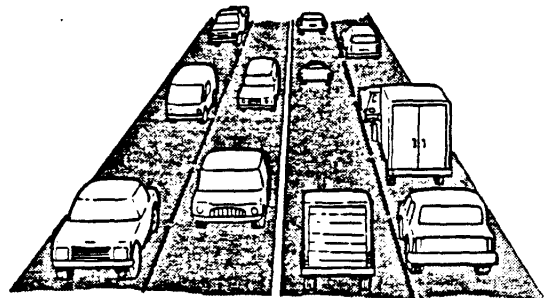
**Level of Service A**  
Free flow in which there is little or no restriction on speed or maneuverability.



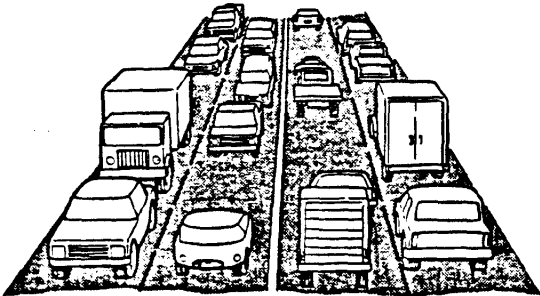
**Level of Service B**  
Stable flow though operating speed is beginning to be restricted by other traffic.



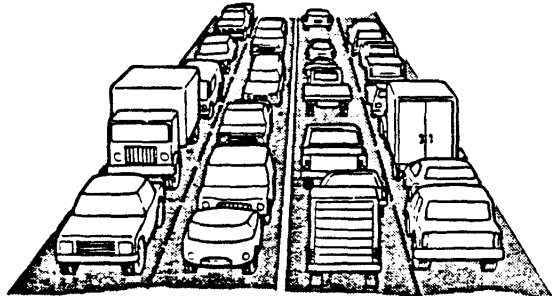
**Level of Service C**  
Stable flow though drivers are becoming restricted in their freedom to select speed, change lanes or pass.



**Level of Service D**  
Tolerable average operating speeds are maintained but are subject to considerable sudden variation.



**Level of Service E**  
Speeds and flow rates fluctuate and there is little independence on speed selection or ability to maneuver.



**Level of Service F**  
Speeds and flow rates are below those attained in Level of Service E and may, for short time periods, drop to zero.

DEA DAVID EVANS AND ASSOCIATES, INC.

## LEVELS OF SERVICE

Exhibit 3-3

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## SECTION 3.4 BACKGROUND REPORT

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### EXISTING CIRCULATION SYSTEM

The Transportation Element Background Report provides a detailed analysis of transportation and traffic-related issues in the City. This report discusses the existing roadways and other transportation-related improvements, existing roadway levels of service, and public transit.

Regional access to the City is provided by the Harbor Freeway (State Highway 110) and the San Diego Freeway (I-405). The former is located approximately 2-1/2 miles to the east while the latter is located approximately 4 miles to the north of the City.

A limited number of roadways serve as the backbone transportation system in the City. Major east/west movement is provided by Palos Verdes Drive North, an arterial roadway, which serves as the primary roadway in the City. A number of other arterial roadways, including Hawthorne Boulevard, Crenshaw Boulevard, and Palos Verdes Drive East, carry large volumes of through-traffic to other communities in the Peninsula. Four roadways, Highridge Road, Silver Spur Road, Rolling Hills Road, and a portion of Palos Verdes Drive East, are designated as secondary collectors and primarily serve communities and commercial districts located within the City. The existing circulation system is shown in Exhibit 3-4.

#### *Existing Traffic Conditions*

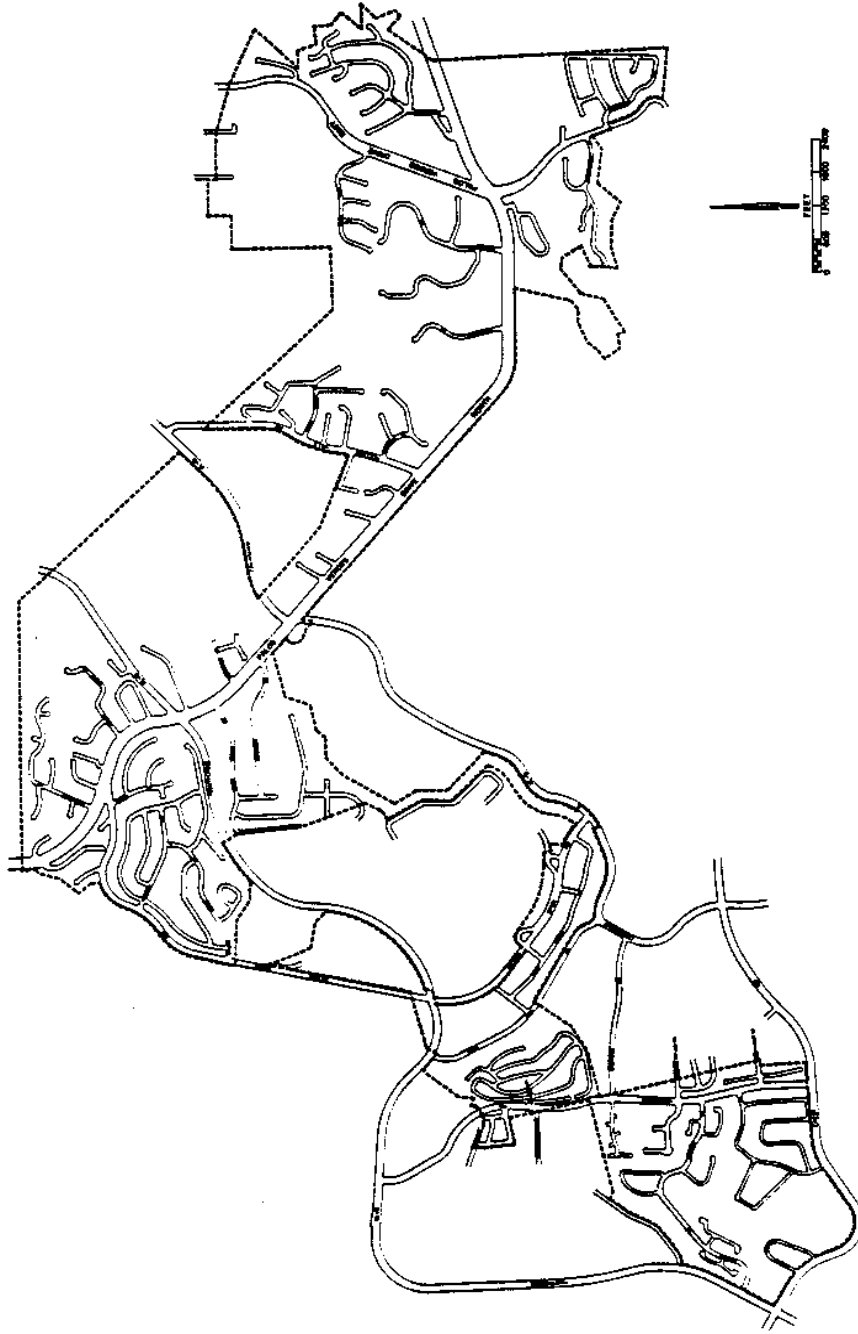
This section of the Transportation Element Background Report evaluates the efficiency of traffic flow on the City's street system. While most of the streets in the City are residential cul-de-sacs, with no through-traffic impacts, a substantial increase in traffic has been experienced on the major arterials of the City, most notably Palos Verdes Drive North. Because major arterials such as Palos Verdes Drive North, Hawthorne Boulevard, and Rolling Hills Road are primary commute routes for much of the South Bay area, the increase in traffic congestion that has occurred in recent years has been the result of regional growth. Future development in the Peninsula/South Bay region will result in additional traffic congestion as these commute routes become even more significant.

To assist in the evaluation of traffic congestion issues, daily traffic volumes were provided in a 1983 report prepared by Greer & Co. and in later environmental studies completed for individual developments (Greer 1988, Frank 1990). In addition, the City's Traffic Engineer has provided analysis of recent trends in traffic flow with particular emphasis on Palos Verdes Drive North.

City of  
Rolling Hills Estates



**GENERAL PLAN**



DECA David Evans and Associates, Inc.

EXISTING ROADWAYS

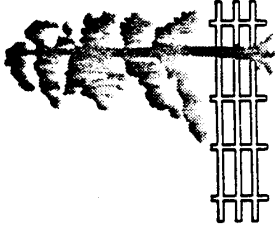
Exhibit 3-4

Exhibit 3-5 and Table 3-4 indicate traffic volumes on various streets within the City. The highest volumes are shown on Hawthorne Boulevard, Crenshaw Boulevard, and Palos Verdes Drive North. While the amount of vehicles on all three streets is substantial, Hawthorne and Crenshaw Boulevards have a minimum of four lanes helping to minimize significant traffic congestion problems.

<b>TABLE 3-4 ROADWAY VOLUMES</b>	
<b>Roadway Segment</b>	<b>ADT</b>
Crenshaw Blvd. n/o Palos Verdes Dr. N.	19,800*
Crenshaw Blvd. s/o Palos Verdes Dr. N.	30,300*
Crenshaw Blvd. s/o Silver Spur Rd.	16,430
Hawthorne Blvd. n/o Palos Verdes Dr. N.	33,600*
Hawthorne Blvd. s/o Palos Verdes Dr. N.	28,400*
Highridge Road	6,910
Silver Spur Rd. n/o Willow Wood	14,280
Silver Spur Rd. s/o Willow Wood	8,380
Silver Spur Rd. se/o Hawthorns Blvd.	15,150
Silver Spur Rd. w/o Crenshaw Blvd.	13,870
Palos Verdes Dr. N. w/o Silver Spur Rd.	14,980
Palos Verdes Dr. N. w/o Hawthorne Blvd.	16,100
Palos Verdes Dr. N, w/o Crenshaw Blvd.	12,100
Palos Verdes Dr. N. e/o Crenshaw Blvd.	23,000*
Palos Verdes Dr. N. e/o Rolling Hills Rd.	35,000*
Palos Verdes Dr. N. e/o Palos Verdes Dr. E.	30,300
Palos Verdes Dr. E. n/o Palos Verdes Dr. N.	7,620
Palos Verdes Dr. E. s/o Palos Verdes Dr. N.	10,300
Rolling Hills Rd. n/o Palos Verdes Dr. N.	8,780
Note: Average daily traffic volumes are for 1983, City of Rolling Hills Estates 1988. n/o = north of, s/o = south of, e/o = east of Source: Greer and Company. 1983 *1988 est.	



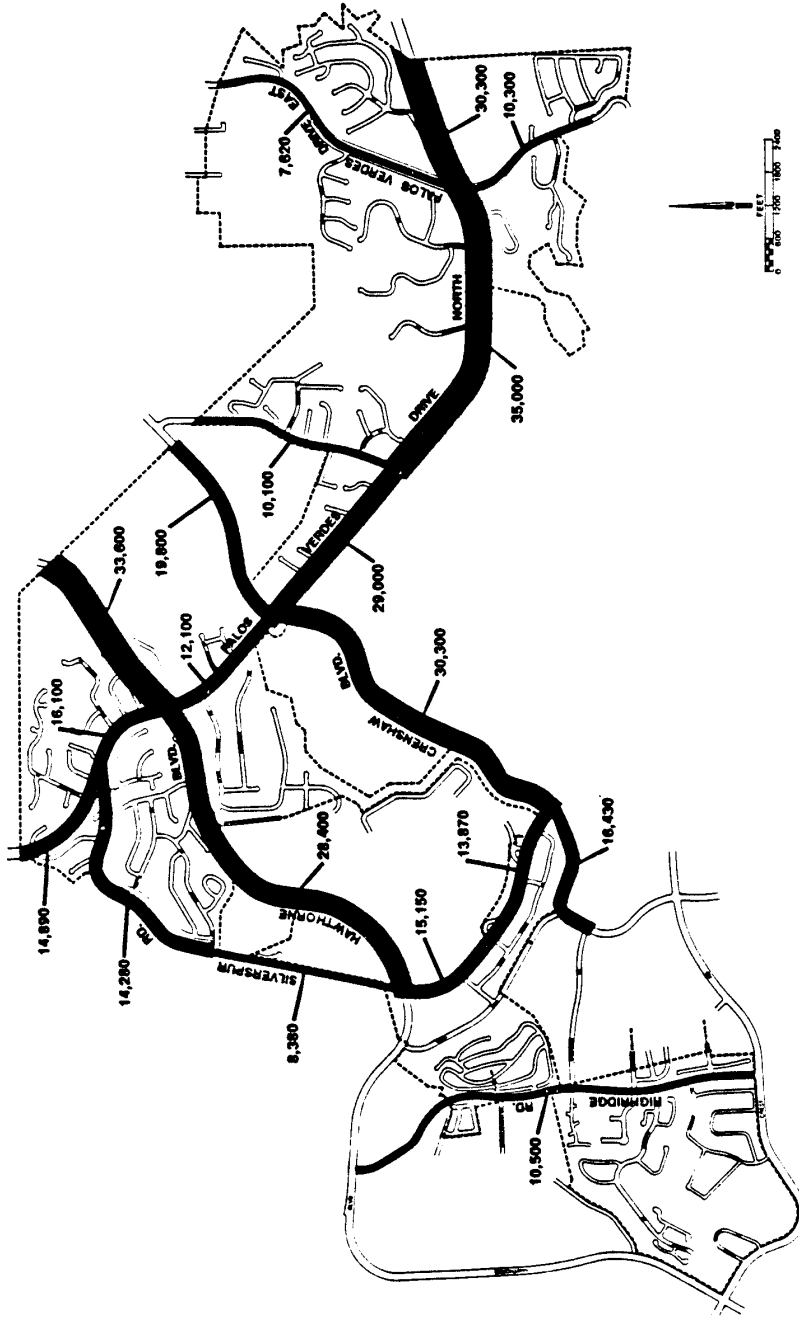
City of  
Rolling Hills Estates



GENERAL PLAN

LEGEND

24,900 - NUMBERS REFER TO  
AVERAGE DAILY  
TRAFFIC VOLUMES



Source: Greer and Associates

AVERAGE DAILY  
TRAFFIC VOLUMES (1988)

In contrast Palos Verdes Drive North has only two lanes for most of its length through the City yet carries more traffic, in some areas, than any other street in the City. Therefore, congestion has become a much more significant concern on this roadway.

In the City's consideration of traffic flow concerns, the most significant street is Palos Verdes Drive North. This street is not only the main artery of Rolling Hills Estates, but one of the primary commute routes for the Peninsula.

For years the majority of traffic has been oriented toward an eastbound commuter route in the morning and westbound direction in the evening, providing access to and from the Harbor Freeway. Recent data indicates that traffic has become much heavier for both westbound morning and eastbound evening traffic. Much of this traffic can be attributed to the aerospace industry locations in the El Segundo area. As a result, the congestion problems on Palos Verdes Drive North, during peak commute hours, have become significant in both directions. In fact, current traffic levels in each direction are almost evenly split. (See Table 3-5.)

There has also been a change in overall traffic volumes on Palos Verdes Drive North. The roadway has experienced a 19% increase over the last five years, and 28% in the last ten years. While these increases have further contributed to the peak hour congestion, it is also important to note that the length of time in which heavy congestion occurs has increased. In other words, the peak hour period has been extended in the morning and afternoon along Palos Verdes Drive North.

While the eastern portion of Palos Verdes Drive North incorporates four travel lanes, the majority of this street has two lanes. Currently, the most congested section is located between the intersections of Crenshaw Boulevard and Palos Verdes Drive East.

In measuring the severity of traffic congestion on a street, a "Level of Service" (LOS) ranging from "A" to "F" is assigned (See Exhibit 3-3). Level "A" represents optimal conditions, while Level "F" indicates the most congested conditions. Two of the most congested intersections have been assessed (Palos Verdes Drive North/Rolling Hills Road and Palos Verdes Drive North/Dapplegray School Road) for the a.m. and p.m. peak hours. For the Palos Verdes Drive North/Rolling Hills Road intersection, the LOS for the a.m. and p.m. peak hours was LOS "D" and LOS "E", respectively. The LOS for the Palos Verdes Drive North/Dapplegray School Road intersection was LOS "E" for both the a.m. and p.m. peak hour. Even though these measurements were taken while Dapplegray School was still in session, traffic volumes remain high since the closure of the school.

Certain recent improvements have occurred subsequent to these measurements which affect Palos Verdes Drive North. Specifically, the signal at the intersection of Rolling Hills

Road/Palos Verdes Drive North has been modified to provide a longer green time on Palos Verdes Drive North. In addition, the repair work on Palos Verdes Drive North was recently completed, providing an alternate route for many residents on the western portion of the Peninsula. While Palos Verdes Drive North still experiences significant traffic levels, these two factors have provided some degree of reduction in traffic congestion.

The two-way peak hour traffic volume on Palos Verdes Drive North has increased 11 percent during the last 10 years, with 9 percent of this increase occurring during the last 5 years. On Pacific Coast Highway there has been an increase in the two-way peak hour volume of 16 percent over the last 10 years, with a decrease of about 12 percent occurring over the last 5 years. During the same time, Rolling Hills Road increased nearly 20 percent in the two-way peak traffic volume in the last 10 years, with about 16 percent of this increase occurring during the last 5 years. The fact that Rolling Hills Road facilitates access to Pacific Coast Highway is important in this analysis. This would tend to indicate that Rolling Hills Road has become much more desirable as a connection between Palos Verdes Drive North and Pacific Coast Highway than Crenshaw Boulevard. In comparison with Pacific Coast Highway, Palos Verdes Drive North presently carries 80 percent of the peak hour volume that is carried by Pacific Coast Highway.

To more accurately evaluate the existing impact of congestion, a comparison of travel times on Pacific Coast Highway versus Palos Verdes Drive North has been provided in Table 3-5.

	<b>Morning (Westbound)</b>	<b>Afternoon (Eastbound)</b>
Pacific Coast Highway/Western Avenue Route (3.40 miles)	9:55 10:47 8:33	10:46 13:52 13:28
Average Time	9:45	12:42
Average Speed	21.5 mph	16.5 mph
Hawthorne Boulevard/Rolling Hills Road/Palos Verdes Dr. N. Route (4.24 miles)	8:50 10:13 8:23	12:13 12:41 11:23
Average Time	9:09	12:06
Average Speed	27.8 mph	21.0 mph

While only three runs were made in each direction on each route, it can be concluded that it takes slightly less time to travel through Rolling Hills Estates on Palos Verdes Drive North than along Pacific Coast Highway. Further, even though the route through the City is 0.75 miles longer, it still takes a shorter travel time. For westbound morning traffic, it takes approximately 30 seconds less out of a 10 minute trip to travel on Palos Verdes Drive North/Rolling Hills Road/Hawthorne Boulevard than it does along Western Avenue/Pacific Coast Highway between these two end points. Similarly for eastbound afternoon traffic it takes approximately 30 seconds less out of a 12 minute trip to travel on Hawthorne Boulevard/Rolling Hills Road/Palos Verdes Drive North than it does along Pacific Coast Highway/Western Avenue between these two end points.

Travel times were also measured in straight runs between Hawthorne Boulevard and Western Avenue on both Pacific Coast Highway and on Palos Verdes Drive North. These runs were made in June of 1987. (Note: Miraleste High School was not in session in June 1987). Afternoon runs on both roadways were made on Wednesday, June 24 between 3:30 and 6:00 p.m. Similar to the two other selected routes through the area, the first run was made at the beginning of the peak hours, the second made during the middle of the peak hours and the third run at the end of the peak hours. The results and averages are shown in Table 3-6.

<b>TABLE 3-6</b>				
<b>TRAVEL TIME MEASUREMENTS</b>				
<b>Hawthorne Boulevard to Western Avenue</b>				
	Morning		Afternoon	
	Eastbound	Westbound	Eastbound	Westbound
Pacific Coast Highway Route (2.75 miles)	6:21	7:55	7:02	11:49
	8:53	8:47	8:20	14:38
	5:53	6:33	12:40	19:17
Average Time	7:02	7:45	9:21	15:15
Average Speed	23.5 mph	21.3 mph	17.6 mph	10.8 mph
Palos Verdes Drive North (3.39 miles)	6:56	6:25	8:22	7:00
	8:07	7:40	7:01	8:24
	6:28	7:00	8:31	13:17
Average Time	7:10	7:02	7:58	9:34
Average Speed	28.4 mph	28.9 mph	25.5 mph	21.3 mph

Eastbound morning peak hour travel time between Hawthorne Boulevard and Western Avenue is approximately the same on either route. In the westbound direction during the

morning peak hour, it takes approximately 45 seconds less using Palos Verdes Drive North to travel between Western Avenue and Hawthorne Boulevard. Eastbound in the afternoon, it takes 80 seconds less to travel across on Palos Verdes Drive North. Westbound in the afternoon, it is nearly 6 minutes faster on Palos Verdes Drive North between Western Avenue and Hawthorne Boulevard. However, it is interesting to note that the volume of traffic on each street is fairly close, although Pacific Coast Highway has four lanes. This is important in that Pacific Coast Highway is designated as a State Highway and developed as a major commercial and commute route, whereas Palos Verdes Drive North is a residential street. Nevertheless, over the past 5 years, peak hour traffic has decreased on Pacific Coast Highway, while Palos Verdes Drive North has seen a 9% increase during that same period.

As schools have been consolidated throughout the Palos Verdes Peninsula additional traffic has been added to the street of Rolling Hills Estates. Palos Verdes Drive North has been directly impacted as students from the schools that closed travel this road.

Given these facts, it is apparent that many of the impacts associated with traffic congestion on Palos Verdes Drive North involve regional issues. Cooperation between various jurisdictions is also important to ensure that all cities provide assistance to resolve such concerns. In that regard, several facts regarding Pacific Coast Highway have been noted by the City Traffic Engineer. The following issues could play a significant role in minimizing congestion on both Pacific Coast Highway and Palos Verdes Drive North.

- # ***Pacific Coast Highway at Hawthorne Boulevard*** - The City of Torrance is planning to widen Pacific Coast Highway for about 1,000 feet on both sides of Hawthorne Boulevard. When completed, three through lanes in each direction will be on Pacific Coast Highway at and through Hawthorne Boulevard.
  
- # ***Pacific Coast Highway at Crenshaw Bboulevard*** - The City of Torrance is considering widening Pacific Coast Highway on both sides of Crenshaw Boulevard to provide three through lanes in each direction. To accomplish these improvements the project may eliminate the existing dual eastbound and westbound left turn lanes from Pacific Coast Highway, providing only one left turn lane eastbound and westbound. While the project is not scheduled at this time, it may occur within the next three to eight years.
  
- # ***Pacific Cost Highway Traffic Signals within the City of Lomita*** - The existing traffic signals on Pacific Coast Highway in the City of Lomita are all pre-timed, operating on a fixed cycle length without regard to actual demand. Pedestrian time to cross Pacific Coast Highway is provided every cycle,

whether or not there are any pedestrians waiting to cross. Because of this and the width of Pacific Coast Highway, about 30 percent of the available green time is now being given to the side streets. Considerable congestion occurs as a result of the existing traffic signal system. Plans are now being prepared to modernize and interconnect traffic signals on Pacific Coast Highway from the western City boundary of Lomita to the Harbor Freeway. It is estimated that the green time which is now provided for the side streets will be reduced in half upon completion of this project.

- # ***Pacific Coast Highway at Western Avenue*** - As part of the traffic signal improvement project, the intersection of Pacific Coast Highway and Western Avenue will be improved to provide northbound to westbound dual left turn lanes. These improvements should reduce the present delays experienced by this movement.

The improvements described above will certainly improve the present operating conditions on Pacific Coast Highway. The greatest single improvement will probably occur with the new traffic signal system through Lomita. Present operating speeds in the afternoon peak hour are about 10 miles per hour. These should improve to between 20 and 25 miles per hour upon completion of this project. The dual left turn lanes from northbound Western Avenue to Pacific Coast Highway will add needed capacity to this movement and reduce delays which these turning motorists now experience. This may encourage some northbound traffic on Western Avenue to continue north to Pacific Coast Highway rather than turn left on Palos Verdes Drive North. Each of the improvements by the City of Torrance will also provide additional capacity to Pacific Coast Highway.

In addition to the planned improvements described above, there are three other potential projects which could improve east-west capacity, on a regional basis, through this area. First, Pacific Coast Highway through Lomita is 72 feet wide between curbs. While it is understood that the City does not plan to physically widen the roadway at this time, a possible option to improve capacity involves the prohibition of curb parking during peak hours. While this roadway travels through a business district, it may be possible to accommodate the present curb parking on side streets or within off-street parking lots during peak traffic hours. If this could be done, then a third through lane in each direction could be provided. A left-hand turn signal at Pacific Coast Highway and Narbonne for northbound traffic on Palos Verdes Drive East would help reduce traffic to Palos Verdes Drive North residential areas.

In considering traffic congestion on any street, the primary concern to motorists is the resulting delay in time. Therefore, it is helpful to evaluate how much time can be saved if

certain improvements were implemented. Table 3-3 indicates that between Hawthorne Boulevard and Western Avenue on Palos Verdes Drive North, it takes a vehicle from approximately 7 to 9-1/2 minutes to travel this distance during morning and peak-hour periods. While there are no specific figures, it is estimated that if Palos Verdes Drive North were widened to four lanes, the amount of time saved would be a few minutes. It is important that the actual benefits achieved from adding lanes are weighed against the resulting impacts, before any policy direction is determined. In the case of Palos Verdes Drive North, it would appear that the benefits received from reducing travel time by a few minutes may not warrant the potential impacts on the quality of life in Rolling Hills Estates.

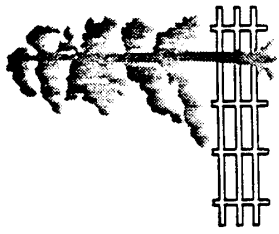
While the City of Rolling Hills Estates has no control over those improvements on Pacific Coast Highway being implemented, the data provided above indicates that future improvements to the highway would likely have a greater long-term effect on traffic congestion for both streets, as opposed to the improvements which could be realized by widening Palos Verdes Drive North.

## **TRAFFIC CONTROL**

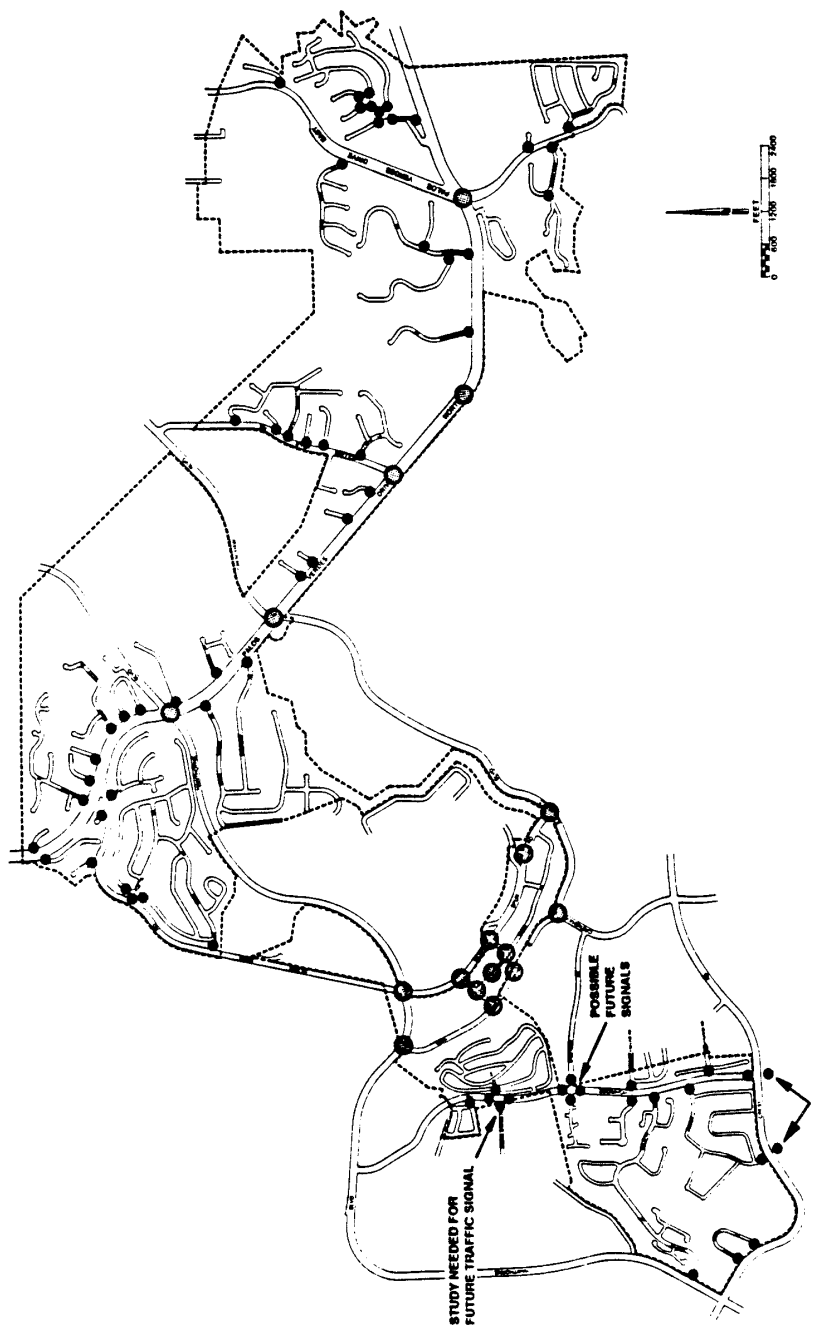
An important consideration of traffic congestion issues is the involvement of traffic control devices within the various street systems (See Exhibit 3-6). This issue has been of particular concern in discussion of Palos Verdes Drive North. Over the past several years, various improvements in the existing signals have been made to provide better traffic flow. Generally speaking, these lights have been timed to provide longer green phases on Palos Verdes Drive North. In addition, turning movements have been better coordinated to minimize the red phase on Palos Verdes Drive North. In the opinion of the Traffic Engineer, there are no traffic control device alternatives remaining which would enable any noticeable reduction in congestion on this street. It has been questioned whether coordinate timing of the signals along Palos Verdes Drive North would have any benefits; however, the Traffic Engineering indicates the signals are too far apart to effectively coordinate.

While the majority of the primary intersections in Rolling Hills Estates are currently signalized, additional signals may warrant consideration in the future, if safety standards are adversely affected. While signalization of intersections can have many positive impacts on traffic flow and safety, it can also have significant impacts on the character of a given area, especially in residential neighborhoods. With the continuing population increase in neighboring Peninsula cities, traffic volumes at most intersections will also increase over time. Given the emphasis of maintaining a rural character in Rolling Hills Estates, it is important that potential impacts of additional signals be evaluated carefully, with the understanding that public safety concerns are of primary importance.

City of  
Rolling Hills Estates  
**GENERAL PLAN**



- LEGEND**
- STOP SIGN
  - SIGNAL
  - CITY BOUNDARY



Source: Greer and Associates

DECD DAVID EWANS AND ASSOCIATES, INC.

**INTERSECTION CONTROLS**



When evaluating the need for signalization, the City reviews specific technical data pertaining to traffic flow, accident rates, intersection design and other factors. If this data indicates that a particular intersection exceeds acceptable standards or levels of service, consideration is then to be given to the installation of signals. Since a primary goal of the City is to preserve the rural community character, signalization of additional intersections should be given priority when it is clear that a signal is needed for protection of public safety and will provide a beneficial improvement to the community.

In some cases, the technical data may indicate that an intersection meets all safety standards, however, it exceeds certain traffic efficiency levels. In these situations, the City must carefully evaluate the potential impacts on the rural character of the City if additional signals are added versus the benefits which could be gained in improved traffic flow.

## **TRAFFIC SAFETY**

The study prepared by Greer and Co. in 1983, provided a comprehensive traffic safety analysis of the City's street systems. While this report provided data to establish many City policies regarding traffic and safety issues, additional data and analysis has been provided to more accurately reflect current conditions and trends.

To assess the trends in traffic safety, average yearly accident rates were consulted for the years 1985-1987. The purpose of this analysis, (summarized in Table 3-7) is to give a better indication of the impacts of additional traffic volumes versus the benefits gained in various street improvements occurring since the preparation of the Greer Report.

<b>TABLE 3-7 ACCIDENT SUMMARY</b>		
<b>Type of Accident</b>	<b>Average Yearly Number of Accidents</b>	
	1980 -1982	1985 -1987
Mid-block collisions	54	58
Intersection collisions	50	57
Fixed object collisions	23	19

Source: City of Rolling Hills Estates. 1989

The 1983 Greer study notes that the accident rate experienced in Rolling Hills Estates is well below the average in Los Angeles County. Nevertheless, there were certain locations which warranted in-depth review in the attempt to improve safety conditions for these areas.

The Hawthorne Boulevard/Palos Verdes Drive North intersection has experienced the greatest number of accidents over the last several years with approximately 10 incidents reported per year. Most of these have involved rear end collisions. The lack of early visibility of traffic signals, as well as the awkward geometry of this intersection, appear to be the major contributing factors to these problems.

Several recommendations were made in the Greer study, most of which involved means for providing earlier warnings to motorists of the upcoming intersection. They included the following:

1. Install advance warning signs (W41) and yellow flashers on the southbound and eastbound approaches. Add the yellow flasher to the existing "signal ahead" (W41) sign on the northbound approach.
2. Install pavement grooving on the northbound and eastbound approaches to reduce skid potential.
3. Install raised reflectorized pavement markings on all four approaches. Due to climatic conditions, such as ground fog, raised reflectorized markings should be used throughout the City.
4. Provide painted channelization for the separate right-turn lanes eastbound and westbound.
5. Provide turning guidelines for left-turn movements on northbound and southbound approaches.
6. Implement a one-second all-red phase between directional through phases to eliminate potential right-angle conflicts.
7. Consider widening the eastbound approach to improve driver visibility on the intersection approach and to reduce the abrupt transition from one lane to four lanes on the approach.

Although Items 3, 4, 5, and 6 listed above have been implemented, the accident rate has remained basically unchanged. In addition to these recommendations, the free right-turn lane on eastbound Palos Verdes Drive North has been eliminated. This additional improvement would address Item 7.

Finally, new loop detectors and larger signal heads were installed in 1986. Following the installation of these improvements, there was no noticeable change in the yearly accident rate. While the accident rate at this intersection is not excessive, it is difficult to determine whether any noticeable decrease in the accident rate can be accomplished with the implementation of all the above-mentioned recommendations.

The City's Traffic Engineer has also reviewed and examined the arrestor beds on Hawthorne Boulevard which were originally constructed under the State Department of Transportation (CalTrans) design standards. Although CalTrans has revised their standards for the construction of new arrestor beds, the Traffic Engineer concludes that the existing arrestor beds are adequate; however, should any modifications be made in the future, consideration for updating the design should be given at that time.

**Palos Verdes Drive North/Crenshaw Boulevard:** The accident rate at this intersection has increased from approximately 3 per year to 8 per year. While there is no obvious accident pattern, the majority of accidents seem to be a result of rear-end collisions.

While the Greer study did not identify any significant design problems with this intersection, the most notable safety concern seems to be related to the steepness of northbound Crenshaw Boulevard. This concern has been especially evident with respect to truck use in this direction. The most severe accidents occurring at this intersection have been a result of trucks losing control on the downhill grade. The City is limited in its abilities to implement improvements in this area, as only the intersection is within the jurisdiction of the City. The section of Crenshaw Boulevard between Palos Verdes Drive North and Silver Spur Road is within the jurisdiction of Los Angeles County. Nevertheless, the City's recent adoption of Ordinance No. 504, prohibits all trucks over 6,000 lbs. from traveling northbound through the intersection of Silver Spur Road and Crenshaw Boulevard. Such trucks are required to use Hawthorne Boulevard, where arrestor beds are available for emergency purposes. While this Ordinance should help minimize the number of accidents on Crenshaw and Palos Verdes Drive North, cooperation from Los Angeles County in improving safety on Crenshaw Boulevard will also help improve traffic safety on this stretch of roadway.

Some concern has also been expressed with the portion of Crenshaw Boulevard north of Palos Verdes Drive North. With the exception of the intersection at Palos Verdes Drive North, Crenshaw Boulevard is within the jurisdiction of Los Angeles County. There are several curb cuts which serve several properties within the City of Rolling Hills Estates. These include the Methodist Church, Country Day School, City Stables, and City Hall. Given the fairly high speeds of travel on Crenshaw Boulevard, some attention should be given to maximizing safety for ingress and egress movements along this street. Specific

improvements which could be considered by Los Angeles County include the provision of deceleration and/or acceleration lanes to separate turning movements in and out of these driveways from through traffic.

**Palos Verdes Drive North/Palos Verdes Drive East:** This intersection has undergone improvement since 1983, when an average of 4 accidents per year occurred. While no improvements to this intersection were recommended in the Greer Study, new loop detectors have been installed for each direction of traffic. Following these improvements in 1985, only one accident has occurred in the last two years.

**Palos Verdes Drive North/Rolling Hills Road:** There has been a slight increase in the number of accidents at this intersection from about 3 collisions per year (1980-1983) to approximately 5 accidents per year (1985-1986). However, it should be noted that from 1982 to 1987, daily traffic volumes have increased from approximately 8,000 to 10,000 vehicles (20%) It would appear that most of these accidents have been rear end collisions, resulting from the stop and go traffic during peak commute hours.

**Palos Verdes Drive North/Silver Spur Road:** From 1980-1982, this intersection experienced 4 accidents. In addition, traffic volumes measured 14,280 vehicles per day on Silver Spur Road, south of the intersection, and 16,100 vehicles on Palos Verdes Drive North. Based on this information, the Greer Report concluded that safety standards and traffic flow were acceptable and therefore no modifications were recommended. From 1985-1987, only one (1) accident was recorded at this intersection. Recent traffic volumes have increased to 16,870 vehicles (15% increase) per day on Silver Spur Road and 17,300 vehicles (7% increase) on Palos Verdes Drive North, warranting consideration for a signal at this intersection. While some delays in traffic flow are experienced at peak hour periods, traffic safety standards have been well maintained. Given the City's concern over the potential impact of additional signals on its rural character and the existing level of safety provided, current conditions do not appear to warrant signalization of this intersection.

**Palos Verdes Drive East Realignment:** At the northerly end of Palos Verdes Drive East, the street follows the boundaries of the Chandler Quarry site, resulting in sharp curves at this point. This section of street has posed safety concerns to the City, especially given the number of trucks which must negotiate these curves. Under an agreement with Chandler and the City, the Chandler Quarry recently dedicated a new right-of-way section across the quarry property, enabling a straighter section of road to be constructed. Although this realigned road will eliminate any dangerous curves, careful consideration must also be given to the resulting speeds along Palos Verdes Drive East. Since the road will be straighter, vehicles could increase their speed. While final design plans have not been approved, the

Traffic Safety Committee, City Traffic Engineer, and Sheriff's Department will work closely on the design to ensure safe conditions for all vehicles, including those accessing surrounding residential access.

**Secondary Access on Major Arterials:** The City has expressed concern with the amount of curb cuts and access points along arterials including Palos Verdes Drive North, Palos Verdes Drive East, Crenshaw, and Hawthorne, and how curb cut access affects safety and traffic efficiency needs of the City.

Many residences currently have primary access on arterial streets. This condition is particularly notable on Palos Verdes Drive North, where a significant number of residences have been developed fronting on this street. The City is primarily concerned about adding new curb cuts for future developments with frontage on an arterial street. Consolidating these curb cuts or pursuing alternative routes for new properties should be considered to help mitigate these safety concerns.

The City has also identified several properties with primary access on a secondary or local street, and additional frontage on arterials. While these secondary forms of access typically serve equestrian areas in the rear yards, they are also used for vehicular access. Before any new curb cuts are permitted on arterials, the City Council should review such proposals to consider the potential safety impacts to vehicular, pedestrian, equestrian and bike traffic. In this review, alternative access routes should also be considered if access onto these arterials cannot be safely accomplished.

In many cases, a secondary point of access may be necessary to serve equestrian facilities which would otherwise be inaccessible from the primary access point. Steep topography and inadequate width between homes and property lines can significantly impact accessibility to some equestrian areas. Therefore, it is recommended that the City Council review requests for secondary access to assess the particular hardships of individual properties. Where these conditions exist, secondary access may be considered.

The City's general policy has been to minimize the number of access points on arterial streets. Additional points of access along these arterials not only pose potential safety hazards for vehicles making various turning movements, but also affects the flow of traffic on those streets most heavily traveled. By consolidating the points of ingress and egress along these streets, traffic flow is improved while minimizing potential points of conflict with residential access, and major arterials.

**Bridle Trails:** The most significant safety concerns related to the equestrian activity results from the interaction between vehicles and horses. Such interaction most commonly occurs

at points where bridle trails cross City streets. While existing traffic data indicates that accidents involving equestrians and vehicles are extremely rare, the noise and traffic along streets may occasionally pose a safety concern to horses and riders.

The design of bridle trails can have an impact on safety as well. For example, the width and steepness of trails can affect the safety of equestrian users. Consideration for requiring the incorporation of consistent design standards and other features for new trails could help minimize safety hazards on future trails. Specific features that can be considered include the use of bridges along trail areas that involve topographic constraints such as canyons and ravines. Bridges can help avoid steep or impassable terrain. In addition, the use of tunnels such as those in existence under Hawthorne Boulevard and Crenshaw Boulevard help separate horses and vehicles.

To help promote equestrian activity in the area, the Peninsula Horsemen's Association was established. One of the primary goals of the group is to promote the construction of a loop trail system providing bridle trail access around the entire Peninsula. The provision of trail linkages or extended trail systems is encouraged in undeveloped areas.

An important element of the trail system is the on-going maintenance of these paths. While the majority of the trails are publicly maintained, many are maintained by homeowners' associations. With the development of new residential areas, the City's policy has been to require the developer to install new trail systems and to have the future homeowners' associations maintain these paths for public access.

**Bike Trails:** There are three basic categories of bike trails within the City of Rolling Hills Estates, as defined by CalTrans. Class 1 bike paths involve designs which are completely separated from traffic lanes. The City's off-street paths that run parallel to Palos Verdes Drive North are defined as Class 1 paths. Class 2 paths are on-street paths that are located along the edge of a street with a striped lane denoting this bike path. Class 3 paths also are located along a street edge, but are not striped. These paths are identified by street signs only.

While the City has developed a fairly comprehensive network of off-street paths, the most apparent need would be the provision of additional Class 2 on-street paths. Upon observation of bike use, it appears that these paths are heavily used by bike club members and other serious riders. In addition, the provision of a Peninsula loop system would seem to be of primary concern. Many bike riders choose to ride on the Peninsula to take advantage of the rural surroundings, the many vistas, and the rolling terrain. While these riders use the existing streets to ride around the Peninsula, many areas do not provide marked travel

lanes to accommodate these riders. In addition, the Traffic and Safety Committee has expressed concern with the small asphalt berms which separate traffic lanes from the bike lane area, as they pose potential hazards to riders rather than providing safe separation from vehicles. Some of these features have been eliminated along Palos Verdes Drive East; however, there are intermittent areas on Palos Verdes Drive North still in existence.

Since these paths require approximately four feet of width, many existing streets can accommodate these bike lanes without disruption to existing travel lanes. In addition, the cost of providing these paths can be much less than off-street paths. Therefore, it would appear that on-street paths would not only service the Peninsula-wide needs of bike riders, but would be the most feasible alternative to implement as well.

**Pedestrian Trails:** There are two basic types of pedestrian traffic that should be considered in Rolling Hills Estates. Within residential areas, the off-street bike paths also serve as pedestrian paths. School children, joggers and others frequently use these paths as they provide a safe and enjoyable way of accessing various points of interest.

The second form of pedestrian activity relates to the commercial areas, specifically the Peninsula Center. With the concentration of retail centers in this area, there is opportunity to encourage pedestrian activity among them. In 1978, the City adopted policy guidelines regarding the development of Peninsula Center. With respect to pedestrian traffic, this document encouraged the development of pedestrian paths which linked commercial centers as well as open space/plaza areas.

The City has required the installation of various elements to enhance pedestrian activity. Brick pavers have been provided on many sidewalks, along with various street furniture items such as the 1890 style lights and benches (as recommended in the Peninsula Center Design Standards). In addition, the incorporation of street trees and other landscaping have helped provide a human scale to these paths. Such features should be encouraged as part of any new commercial development with the Peninsula Center. The continued use of these design elements in new development can encourage additional pedestrian traffic throughout the Peninsula Center.

**Pedestrian Crossings:** Most of the City's intersections incorporate designated crossing areas, many of which are controlled by signals. In addition, several areas in the City serve as school crossings. At some locations, such as Rolling Hills High School, pedestrians are aided by signals. At other locations such as Rancho Vista School pedestrians cross at unsignalized intersections. In these situations, the use of school crossing guards is important to ensure pedestrian safety, especially on arterial streets such as Palos Verdes Drive North.

While signalized intersections provide a high degree of safety at pedestrian crossings, additional safety measures, such as signage, pavement striping, and crossing guards, should be considered at remaining school crossing sites. The use of crossing guards not only provides safer conditions for students, but enables more organized and efficient traffic flow.

## **PENINSULA CENTER COMMERCIAL DISTRICT**

Several shopping centers, as well as a variety of retail stores and offices make up the majority of the commercial area known as the Peninsula Center. This area is bounded by Crenshaw Boulevard and Hawthorne Boulevard to the south and north, respectively, with Indian Peak and Silver Spur Roads providing the western and eastern boundaries, respectively.

With the concentration of commercial activity, the primary concern is the ability to accommodate shoppers and other patrons as efficiently and as safely as possible. While the traffic volumes shown on Table 3-1 indicate that traffic flow has been operating at acceptable levels, the provision of adequate parking facilities can have a significant affect on traffic efficiency in commercial areas.

Not only is it important to provide an adequate number of off-street parking spaces for each commercial use, but the design of these parking lots should incorporate appropriate sized parking stalls, aisle widths and driveway entrances. By addressing these specific design elements, a parking lot will become more accessible, convenient, and safer to use.

To increase traffic flow efficiency along the commercial streets within the Peninsula Center, the City's Traffic Engineer has indicated that a reduction of on-street parking spaces can help. The various movements associated with vehicles entering and exiting on-street parking spaces have a direct impact on traffic flows as well as vehicular and pedestrian safety. If adequate parking facilities are provided as described above, the demand for on-street spaces can be minimized.

It is also important to consider that if off-street parking lots can maintain a high degree of convenience, especially for the retail patron, these shops can be more attractive areas to visit as they become more accessible, safe, and convenient for the shoppers. Therefore, such objectives can provide benefits to the merchants of the City, while improving traffic conditions in the Commercial District. To help achieve this objective, the City would encourage existing shopping centers and retail areas to upgrade parking lots to current standards. This includes the provision of proper circulation patterns.



With a majority of the Peninsula Center currently developed, it is not anticipated that any substantial growth in this commercial area will occur. However, as the surrounding Peninsula population increases, it is likely that additional traffic will be added to the Peninsula Center streets. Therefore, the provision of adequate off-street parking will still be important to future traffic efficiency and possibly the economic vitality of this area.

## **PUBLIC TRANSPORTATION**

In discussing ways of mitigating traffic congestion on the City's street system, the use of public transportation plays an important role. The Peninsula Transit Authority (PTA), which includes the Seniors Dial-A-Ride program, along with the multi-jurisdictional PV Transit System and the RTD bus service and Municipal Area Express (MAX) make up the public transportation system in Rolling Hills Estates. MAX is a limited stop commuter express, providing morning and afternoon service between the Palos Verdes Peninsula and the El Segundo employment center. In addition, many larger employment centers, especially the aerospace industries, operate van pool services, which also help to minimize the number of passenger vehicles on City streets. Unquestionably, the encouragement of these alternative transportation programs offer one means for reducing overall traffic congestion.

With a fairly high concentration of Peninsula residents employed at various aerospace companies, the demand for van pool service would appear to be present. However, to ensure sufficient usage, the accessibility of vans must be such that they minimize inconvenience to the commuter. This means having various pick-up points throughout the Peninsula. However, if riders must drive to these points, parking accommodations must be addressed. While many riders currently park at shopping centers or other large parking lots, such practices can cause conflicts with patrons using the parking lot. Therefore, it is important to consider park and ride provisions for van pool commuters. While most existing parking lots have no surplus spaces beyond what is required by Code for their own use, arrangements between the owners of large parking facilities and the van pool operations could be explored to accommodate long term parking provisions while minimizing conflict with the demand for spaces.

While the van pool program has been established to serve commuters, the PV Transit system primarily serves the needs of Peninsula residents in getting to destinations within the Peninsula. Both the PV Transit and the Dial-A-Ride program offer a means of transportation to seniors, children, and the physically disabled. These systems provide access to all retail and commercial centers, recreation areas, and other various points of interest on the Peninsula. In addition, PV Transit offers connections to other transportation systems, including RTD, which serves a wider regional area, including commute routes. Servicing those areas in demand and providing timely service will help ensure that these systems are

utilized. Likewise, accessibility and frequency of service will be critical factors in encouraging and increasing use by commuters. If these alternative means of transportation are competitive in getting the user to his/her destination in a timely and convenient manner, then these forms of public transportation can become an effective tool for reducing traffic congestion as well as offering an effective means of transportation for those with no other alternatives.