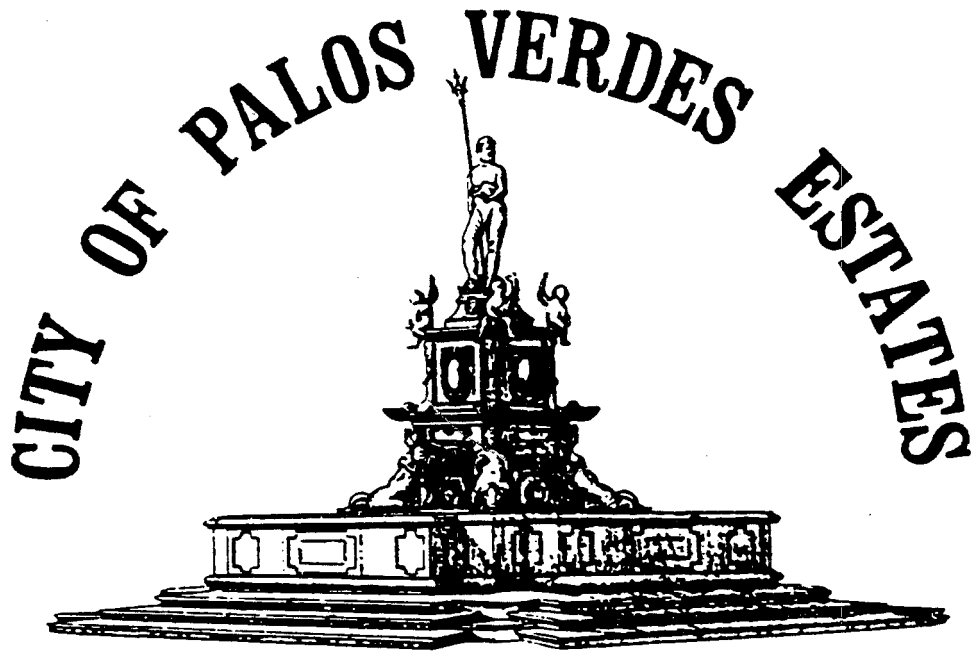


INCORPORATED 1939

CALIFORNIA

GENERAL PLAN

GENERAL PLAN

Introduction

The City of Palos Verdes Estates represents one of the few cities in the Los Angeles metropolitan area which was totally planned from its inception. The beauty of the natural setting of the City has been maintained even while experiencing the rapid growth common to all areas of Southern California since World War II. This City is a good example of the benefits of Planning and the necessary firm commitment of the residents to adhere to the plan.

California Planning Law states that the General Plan shall be comprehensive, long term, and general. These provisions are certainly accomplished by the Master Plan developed in 1924 and zoning regulations adopted by the City in 1948, which have satisfactorily served as a guide to quality development to the present. The plan under which the City grew can be more precise than the normal general plan in most of its elements, because the original plan is essentially a completed fact.

This General Plan is a commitment to the foresight, interest, and effort of the community in the past, and a reaffirmation of these guides applied to the present. This plan provides a sound program for the future by establishing developmental objective guidelines for those areas of interest which are necessary to provide the quality of life desired in an increasingly complex society.

History

Recorded history of the Palos Verdes Peninsula began more than 400 years ago when the Spanish explorer, Cabrillo, claimed the land for the Crown of Spain.

From the time the land was settled, the green hills supported the huge cattle herds of the Dominguez and Sepulveda Ranchos. Title disputes between the factions were finally settled in the early 1800's by the grant to the Sepulveda family of 30,000 acres comprising Rancho Los Palos Verdes.

The Peninsula entered the 20th century with the purchase of 16,000 acres by Mr. Frank Vanderlip in 1913. An ambitious estate development in the Portuguese Bend area was brought to an abrupt halt by the advent of World War I.

A real estate firm, headed by Mr. E. G. Lewis purchased 3200 acres of the Vanderlip Ranch in 1921. The "Palos Verdes Project" was initially established to provide planning and development for the entire Peninsula. The first development increment included the communities of Palos Verdes Estates and Miraleste.

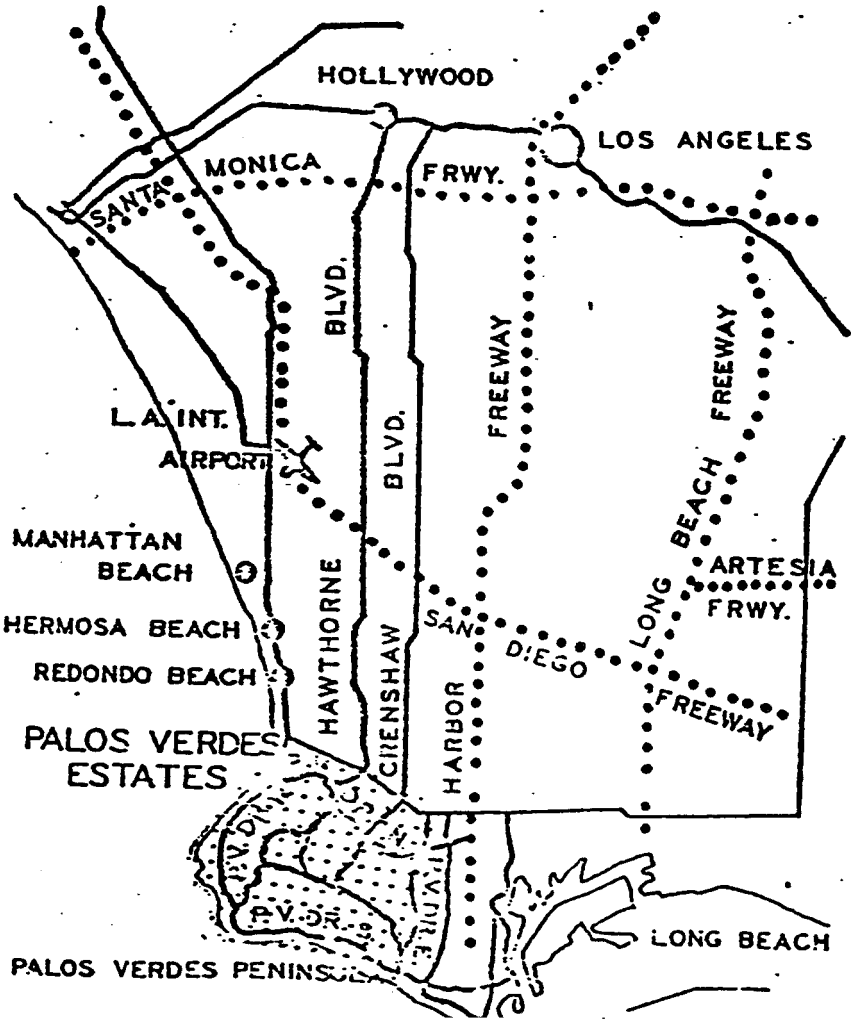
Adopted 1/10/73 CC

Deed restrictions were established for each parcel of land to insure conformity of use to the Master Plan and to provide features which guaranteed quality development. The Palos Verdes Homes Association was instituted to administer the Master Plan, protective restrictions, and maintenance of streets and public areas.

Palos Verdes Estates was the first increment of the "Project" consisting of over 3,000 acres of the initial purchase. The community was fortunately well established before the depression forced the abandonment of the Master Plan and development of the rest of the Peninsula. The City was incorporated on December 20, 1939 to take over the normal governmental functions. The Homes Association's Board of Directors and Art Jury have continued to provide guidance to the development of the community through administration of the protective restrictions.

Setting

The City of Palos Verdes Estates is within the Los Angeles, Long Beach metropolitan area approximately 30 miles southwest of downtown Los Angeles. The City is a coastal community advantageously sited on the beautiful rugged shoreline of the Palos Verdes Peninsula. Elevations range from sea level to 1154 feet above sea level. The City is a part of the Palos Verdes Peninsula Planning Area.



Planning Area

The entire Palos Verdes Peninsula is considered to be the Planning Area. It has developed as a prime residential community out of the mainstream of the metropolitan core but readily accessible to the advantages of the diversified goods and services it has to offer.

The Peninsula has access to rail, freeway, highway and air facilities which provide access to the major business, industrial and recreational areas available to Southern California.

A prime characteristic of the Planning Area is the rugged terrain which has generally limited development to residential use. This pattern is still predominant; although a major change within the pattern is the constant pressure for higher density residential development which will directly affect the City by ever increasing population and resultant problems.

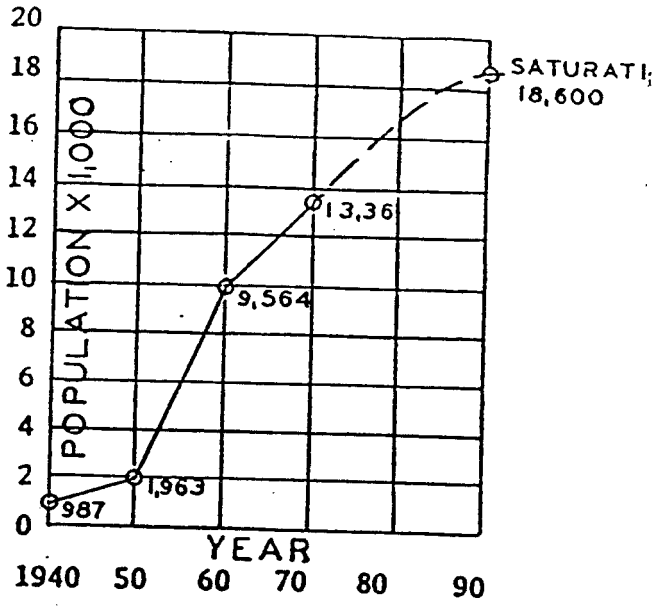
Considerations Basic to the General Plan

Palos Verdes Estates is an established, low density, residential City within the Peninsula Planning Area. Basic planning considerations for the needs of the people must be considered within the framework of the part the City plays in the Planning Area and the Los Angeles Region.

1. The Area is undergoing a basic change in the density and types of residential development.

2. Employment opportunities for the great majority of Peninsula residents will continue to be outside the Planning Area in the neighboring industrial-commercial center.

3. The City will continue to fulfill its role in the area as a low-density residential, bedroom community.



4. The changing character and increasing number of residents in the City, while committed to maintaining the quality of past development, may require new streets in undeveloped areas and minor modification of streets in developed areas, and may require additions to or changes in recreational facilities and in City services. The projected saturation population within the existing City boundaries is 18,600.

5. Development of properties within the City is governed by deed restrictions on every parcel. Consideration of these restrictions must be recognized in the General Plan.

These basic considerations are reflected in the General Plan to give proper direction to the development of the City, provide for the basic needs of the community, and to retain those elements which will insure the quality of the community for future residents.

OBJECTIVES AND GOALS

The objectives and goals which serve to define the direction of specific elements of the General Plan of the City of Palos Verdes Estates are as follows:

1. Residential Community

   To maintain a low density, predominately single-family, resident pattern of land use that will provide basic needs for housing, recreation, education, and services,

2. Economic Needs

   To draw on the facilities in the Peninsula and Los Angeles region to fulfill the needs for employment, industry and major commercial enterprise.

3. Quality Development

To foster those practices which encourage high quality development and prevent deterioration of established residential areas.

4. Traffic Network

To develop a traffic network within the area for the convenient and safe access of pedestrians and vehicles while not sacrificing the quality and appearance of the community to the needs of any mode of transportation.

5. Community Appearance

To emphasize the natural beauty of hills, canyons, and seashore and diminish the impact of man made things on the natural landscape.

6. Regional Needs

To provide for that need in the Los Angeles Region for the segment of the economy which requires low density, high quality residential use.

7. Planning Area Influence

To promote those factors which influence development of the Planning Area for the qualitative benefit of man.

8. Community Facilities

To be aware of the changing needs of education, recreation, safety, and services and take appropriate action for timely development of these facilities.

9. Open Space

To continue the pattern of open-space and parkland reservations in new developments.

The establishment of the above goals serves to define the object of the General Plan - to provide pleasant surroundings, for living, working and playing to promote the health, safety and well being of the residents.

Objectives and goals as any other segment of the Plan are subject to change. All statements in the Plan should be reviewed periodically to insure that they are compatible with changing conditions and concepts.

LAND USE ELEMENT

Palos Verdes Estates originated as the first unit of a Master Plan for development which encompassed the entire Peninsula. Economic conditions of the late 1920's forced the abandonment of most of the original Plan; however, the "Estates" was already established and well on its way to becoming a viable community. The City was incorporated in 1939 to provide required services.

To define the goal of the original planners and the attitude of the residents in preserving the objectives of the community, it may be well to quote from a summary of the Protective Restrictions:

> "The restrictions have been most carefully worked out for every part of Palos Verdes Estates, to accomplish the following results:
>
> First: To preserve the fine views of ocean, mountains and park;
>
> Second: To increase with the years the wonderful natural beauty of the property, enhanced with fine plantings; and
>
> Third: That every purchaser in Palos Verdes may be sure when building his home there that his neighbor will have to build an equally attractive type of building. In other words, he will feel secure in knowing that his home can never be damaged by an unsightly or undesirable structure either upon adjoining lots or in any part of Palos Verdes Estates."

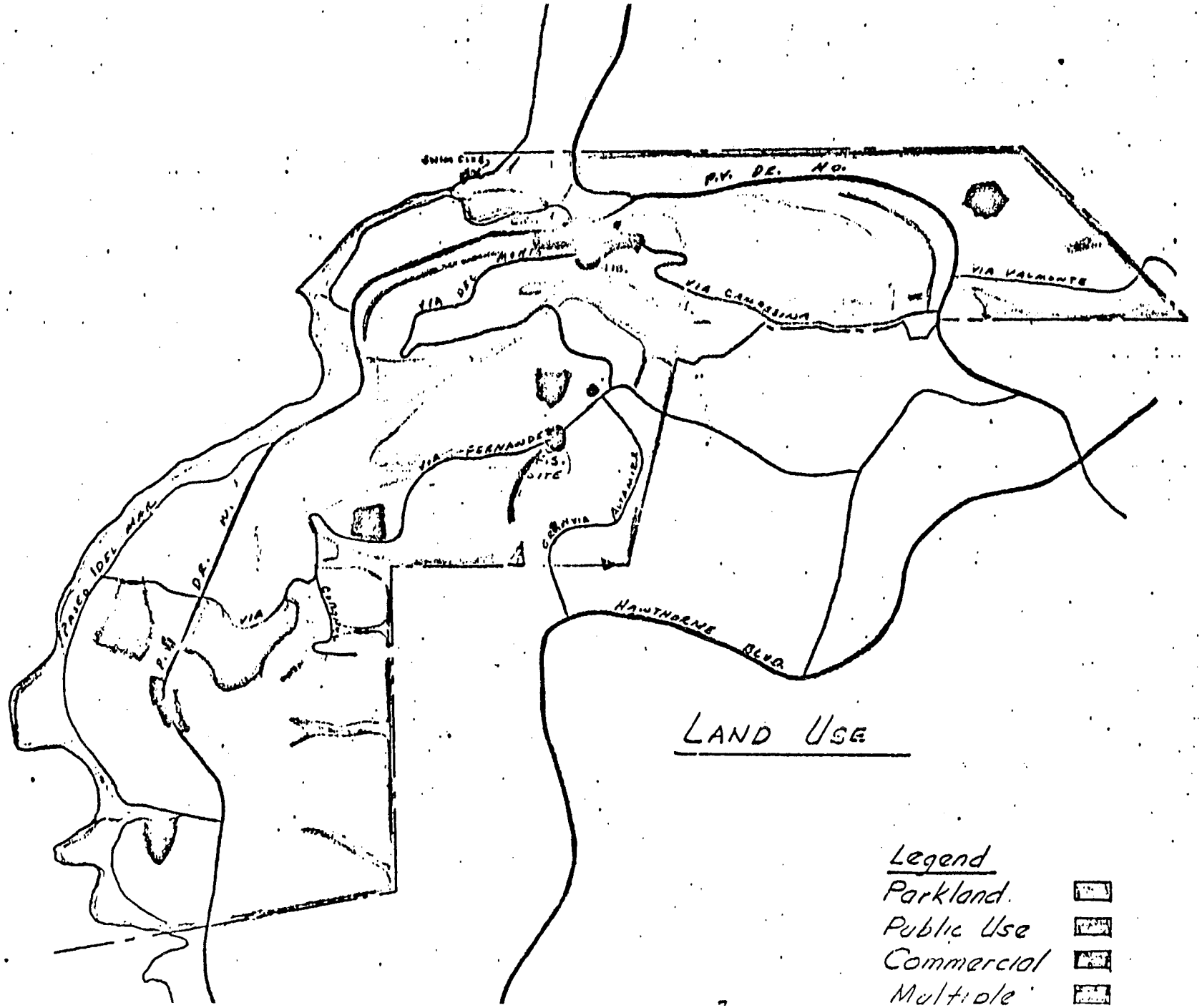
The above quote more than anything else, sums up the objectives and development goals of the community to the present and into the future.

Existing Land Use

The existing pattern was basically established by the zoning incorporated in the Protective Restrictions established for each parcel in 1924. The Zoning Ordinance adopted by the City in 1948 conformed to the original plan; however it was even more restrictive in that many lots in commercial and multiple dwelling zones were rezoned to single family residential use.

Commercial Centers: The City is served by two small business centers which provide some of the basic needs of the residents.

The Lunada Bay commercial area provides space for banking, retail grocery, pharmacy, professional services, minor retail convenience centers and two automobile service stations. The commercial area is almost totally developed.


SWIM CLUB
P.V. DR. NO.
VIA VALMONTE
VIA CANADA
VIA FERNANDEZ
P.V. DR. NO. 1
PASEO DEL MAR
VIA
HAWTHORNE BLVD.
Legend
Parkland
Public Use
Commercial
Multiple

LAND USE

Malaga Cove is the larger of the two commercial areas and provides banking, postal service, professional service offices, retail grocery, pharmacy, and automotive and miscellaneous services. This area is also almost fully developed.

The residents rely on the surrounding community to provide most major commercial services. Large commercial centers on the Peninsula and in adjacent cities provide convenient, readily accessible shopping areas to fulfill the needs of the people. Additional commercial area is not considered essential to the needs of the City.

Multiple Family Residential: Zones for this use are established in the areas surrounding the two commercial centers. Present development generally provides high quality units with a relatively stable population. The existing 262 units now developed combined with the potential of the vacant lots would total about 350 dwelling units with an average density of approximately 23 units per gross acre.

Single Family Residential: The major portion of the City is devoted to this use. All but about 200 acres of residential land in the City has been subdivided with lots established. This zoning classification encompasses all single family residential use and is not further broken down into zoning classes related to minimum lot size groupings which is common in most jurisdictions.

Densities in specific areas range from less than 1 to 7 units per gross acre (including streets and parklands). The average density when considering the total number of potential dwelling units (4,950) related to the net acreage zoned for single family residential (1482A.) is 3.3 units per acre. When the total area of the City is considered including parkland and streets, the average density is 1.7 units per gross acre. The 200 acres of undeveloped residential land is under the current requirement of 15,000 s.f. minimum lot size. This coupled with the parkland and open space requirement of approximately 50% of the area in private ownership restricts density to less than 2 units per gross acre in new subdivisions.

Considering all residences on a population basis, with projected saturation population of 18,600 persons, the average population intensity is 6.12 persons per gross acre. Current average intensity is 3.48 occupants per dwelling unit which is slightly above average for suburban areas.

Industrial: The industrial areas surrounding the Peninsula provide the needed space for this use. There is no land designated for industrial use in the City. The terrain and characteristics of the City presently preclude any necessity for industrial zoned property.

Flood Hazards: The areas of the City subject to flood or mudslides are generally located in the canyons and hillsides reserved as parkland. Those areas zoned for habitation are subject only to minor local flooding. Plans for new construction are required to provide facilities for minimizing those hazards.

The City with its own resources and through participation with Los Angeles County Flood Control District has constructed storm drains to minimize flood hazards. Additional storm drains will be constructed as the need arises and funds become available.

Public Buildings

Since these facilities play an important part in the Plan, this is considered as a portion of the Land Use Element. These buildings provide the required services to meet the physical, cultural, educational and recreational needs of the community. The location of required public services should provide for maximum benefit to the residents.

Civic Center: The Civic Center provides the focal point for city activities. The present building constructed in 1960, currently houses the Administrative offices, Council Chambers, Police Department, Fire Department and adjacent City Services building and accomodates, through leased space, the Palos Verdes Homes Association.

City Hall: Space for City administrative functions and the Homes Association is considered adequate for the foreseeable future.

Existing Police facilities are adequate; however, future expansion, if required, will be accomodated within the confines of the existing civic center property.

Fire Department facilities for a single-station department are adequate. To provide adequate fire protection for ultimate City growth and reasonable response time, a second station may be required..

City Service Building: Any need for replacement or expansion of this facility will be confined to the existing civic center area.

Schools and Recreation

The City is served by the Palos Verdes Peninsula Unified School District. Schools combined with recreational sites are developed within the City. Existing school sites will probably serve future population growth. Active recreational activities are available on the school grounds.

The City will advise the District of activity in any subdivision which could result in significant impact on school enrollment. It is assumed that the school grounds will continue to be available for active recreational pursuits. The 123 acres of land reserved for schools combined with 678 acres of open space lands provide over 800 acres of land for recreational use throughout the City.

Elementary Schools	Site Area (Acres)	Attendance (1972-73)
Valmonte	11.2	475
Montemalaga	9.7	612
Lunada Bay	10.6	564
Zurita (School Site)	10.2	
Intermediate Schools		
Margate (with adjacent undeveloped site)	28.6	1,151
Malaga Cove	7.2	973
High School		
Palos Verdes High School	45.8	2,355

Library

The City is served by a branch of the Palos Verdes Library District. The main library is in the Peninsula Center with a branch in Malaga Cove. The Malaga Cove library has a collection of 26,000 volumes and current circulation of 100,000 books annually.

Recreational Facilities

The City owns and operates the Swim Club in Malaga Cove. The Palos Verdes Country Club facilities and Golf course, the Palos Verdes Tennis Club facilities and the horse stables in Valmonte Canyon are owned by the City and operated under concession agreements for public use.

Summary

Community appearance is the outward manifestation of past and future planning efforts. Physical development must provide more than just what is correct by technical standards. Streets, shops and homes must not only fulfill their basic function, but also have an obligation to provide beauty and charm to the area they serve. It is this extra effort which must predominate in the future as in the past. Standards cannot be compromised by convenience, expediency or short term benefit.

Goals and Objectives

To continue the land use pattern established by the zoning ordinance adopted in 1948, and in addition:

1. Encourage and develop programs eliminating all overhead utilities within the City. Limited funds are available for this purpose and should be utilized where possible in conjunction with highway reconstruction. Assessment districts, if required, for local undergrounding should be encouraged.

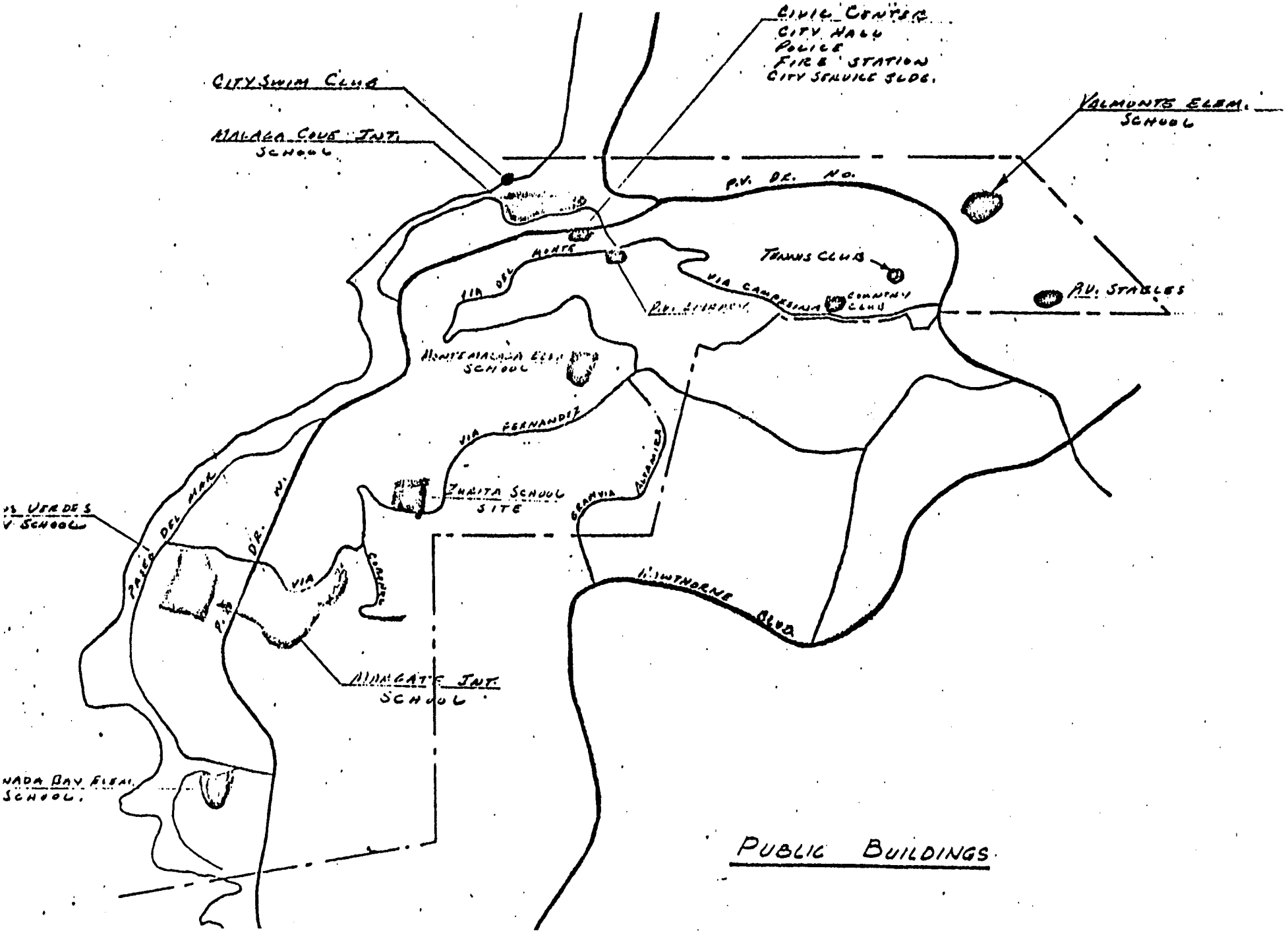
2. Establish a long range plan for additional plantings, replacement, preservation and maintenance of existing plantings in parkland and rights-of-way.

3. Maintain the openess of the shoreline by preserving the adjacent parkland in its natural-state as part of the established Shoreline Preserve.

4. Fulfill the objectives of the Planning Commission in establishing the Planting Regulations to encourage uniform and suitable street trees, and parkway and parkland planting.

5. Continue rigid controls over building site grading, roadway development and other improvements to insure conformity with the requirement to maintain as much as reasonably practical the natural contour of the hillsides.

6. Develop standards for "roadside hardware" to combine utility with appearance.



PUBLIC BUILDINGS

CIRCULATION ELEMENT

The street system is a vital element in urban areas. The development of the automobile and reliance on it has created problems unforeseen 30 years ago. The residents of the City are automobile oriented and will continue to rely on it to provide the mobility required for employment and services.

Although the original City was planned with an extensive rail rapid transit system, the idea was abandoned and there does not appear to be a reasonable replacement for the automobile in the foreseeable future. Development of rapid transit in the Los Angeles area will have no effect on traffic volumes within the City, although patterns may change depending on terminal locations.

The street pattern developed in 1924 may not in all cases meet the needs of today and the future. Adequate right-of-way widths are available in the existing system to provide most of the traffic patterns necessary to serve future demand.

The ready accessibility of freeways and highways to Peninsula residents and the availability of Los Angeles International Airport, Long Beach Airport, Los Angeles-Long Beach Harbor facilities and rail depots meet the needs of the residents for mobility and travel service. The Rapid Transit District provides limited bus service to the Peninsula with one stop in the City at Malaga Cove Plaza. The City must be aware of rapid transit developments and remain receptive to proposals which are economically feasible and of benefit to the Community.

Bicycling is being promoted as a means of local transportation and recreation. The number of cyclists has increased sharply over a brief period and provisions are being made to incorporate a safe system of bike routes into the existing street system.

Objectives and Goals

1. Provide an efficient network of streets for intra City mobility without sacrificing community quality to the needs of any mode of transportation.

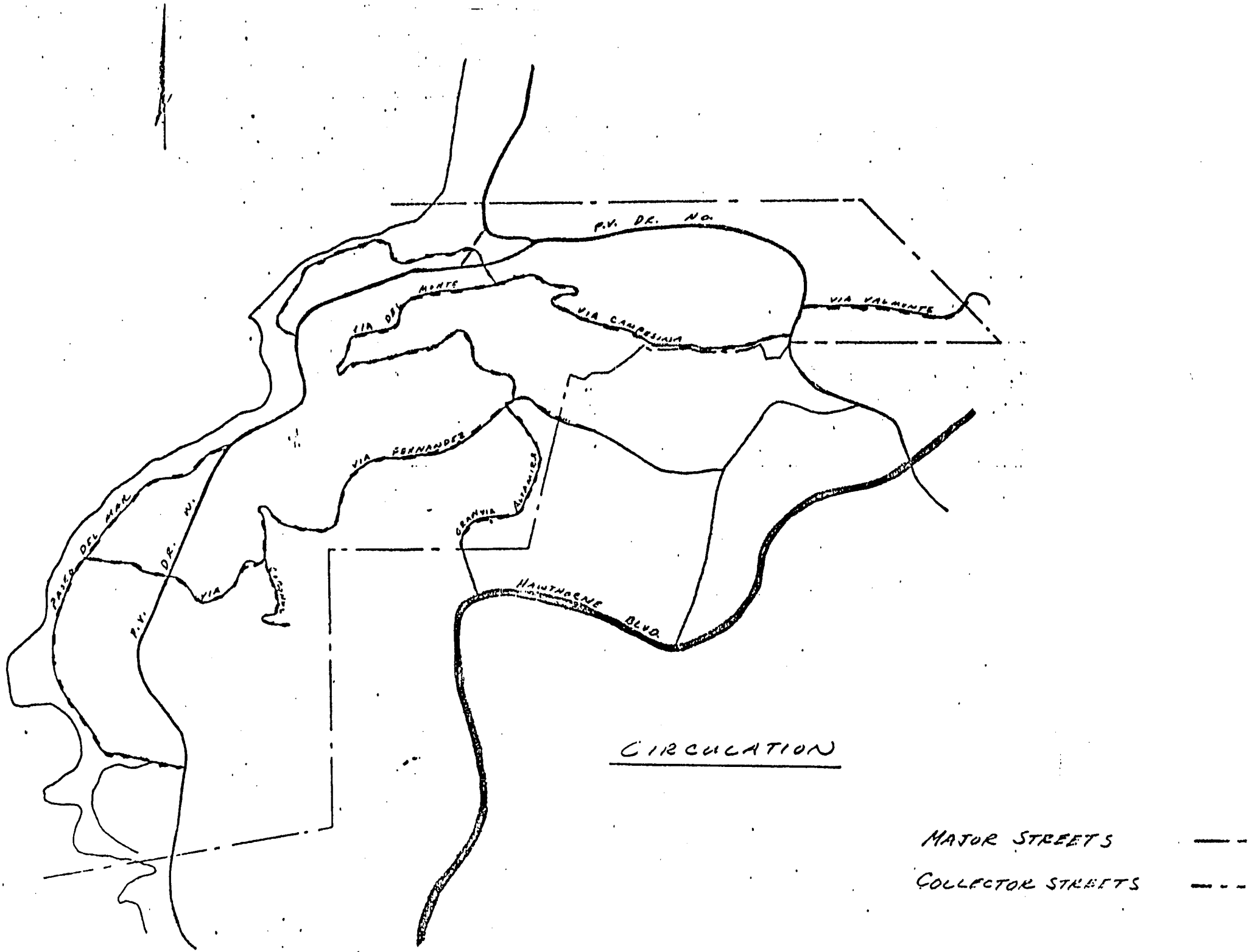
2. Continually review existing developed local streets to provide plans for improving circulation and correcting any safety deficiencies, always considering the wishes of the residents on matters affecting the general character of the City.

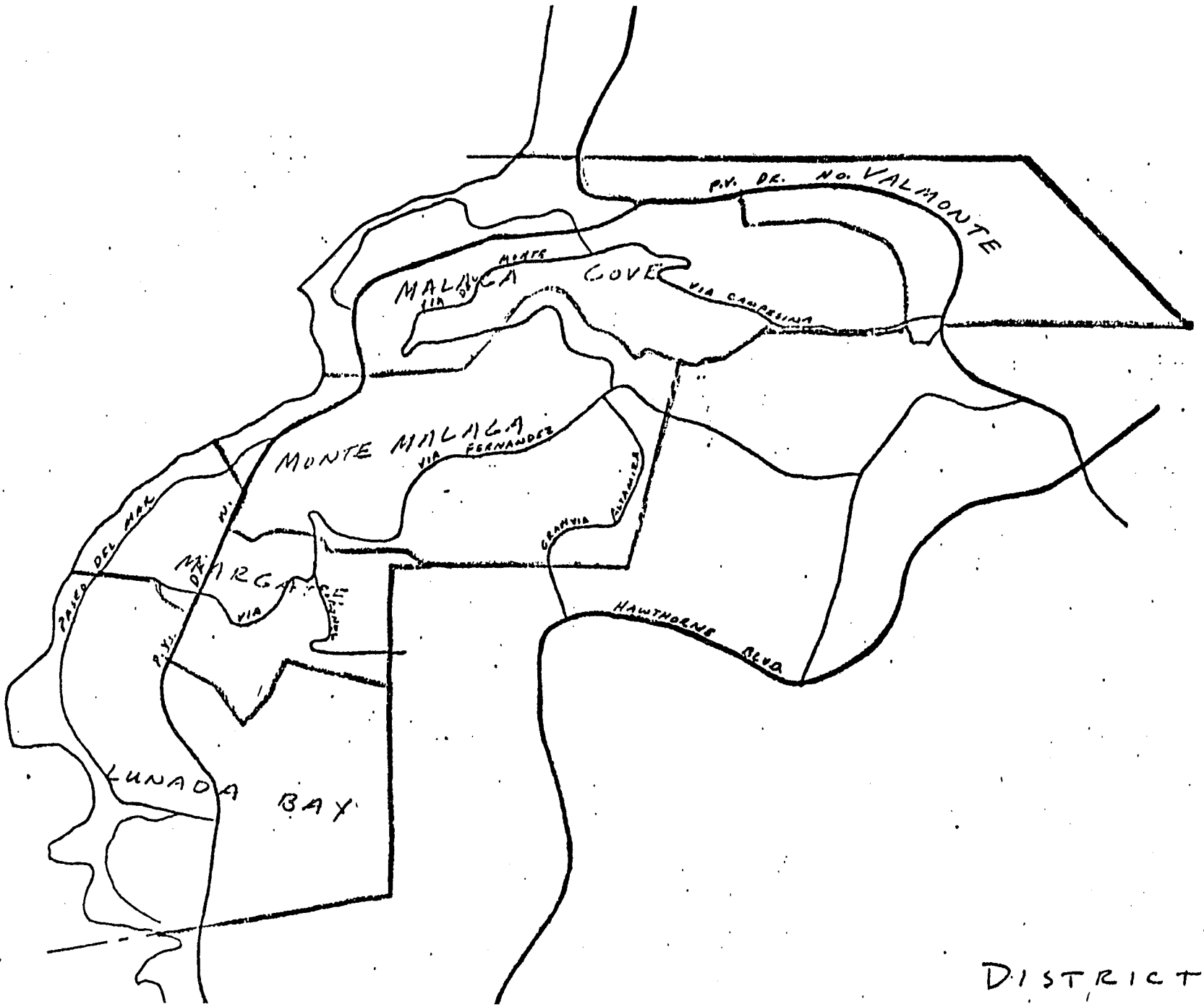
3. Develop and adopt construction guidelines and standards for future street modifications.

4. Bicycle Routes

   a. Install delineated bike lanes on existing streets where there is a demonstrated need and existing conditions are safe.

   b. Provide bike lanes where needed in new construction and reconstruction.


P.V. DR. NO.
VIA DEL MONTE
VIA CAMPESINA
VIA VALMONTE
VIA FERNANDEZ
GRANVIA ALVARADO
PASEO DEL MAR
P.V. DR. NO.
P.V.
VIA
HAWTHORNE BLVD.
CIRCULATION
MAJOR STREETS
COLLECTOR STREETS


P.V. DR. NO. VALMONTE
MALAGA COVE
VIA CAMPESINA
MONTE MALAGA
VIA FERNANDEZ
GRANVIA ESPANOLA
HAWTHORNE BLVD
LUNADA BAY

DISTRICTS

CONSERVATION ELEMENT

The most valuable resource in the City is the natural beauty of hillsides, canyons and seashore. The preservation of over 678 acres of parkland and seashore in essentially native state has always been of vital interest to the residents. These open space areas and the Shoreline Preserve encompass those resources of the City which are amenable to conservation practices within the inten of the State Planning Act.

The only mineral resources known within the City include small pockets of Palos Verdes stone and diatomaceous earth. Commercial development of any natural resource whether by mining, quarrying or drilling, onshore or offshore, is not in the interest of the residents and is considered unacceptable as a developmental goal of the Plan. Commercial development of such natural resources is also prohibited by the Protective Deed Restrictions applicable to all land within the City.

Objectives and Goals

1. Conserve the natural parkland canyons and hillsides for drainage control, for watershed, and to afford protection fro natural flora and fauna.
2. Encourage proper planting and forestation of the parkland areas to inhibit erosion, prevent fires and improve habitation for wildlife.
3. Require connection to public sewers to prevent contamination and pollution of underground waters, streams, and intertidal waters.
4. Participate, on a regional basis, in the Water and Waste Management program of Los Angeles County for water conservation, liquid and solid waste management and flood control.*
5. Conserve and maintain the shoreline in its natural state, restricting physical improvements to limited pedestrian access for enjoyment and education.
6. Provide corrective devices to retard the erosion of the bluffs where accelerated by existing physical development.

Standards

Planting of parklands is to conform to regulations adopted by the City, June 1968 and subsequent amendments. All plantings for which the City will have maintenance responsibility are to be approved by the Planning Commission.

Development of private property along the bluffs requires geologic studies, positive drainage control and landscaping plans which will prevent deterioration of the adjacent parkland.

* See Interim Technical Report - Water and Waste Management Program the Regional Planning Commission of Los Angeles County July 1, 1971.

All drainage outlets to the ocean are to provide design and construction features which will maintain the aesthetic qualities of the bluffs and canyons and not affect the stability of the natural slopes.

The standards and requirements of the Shoreline Preserve Master Plan adopted March, 1970 are incorporated in this element of the General Plan.

RECREATION ELEMENT

The original design of the City provided generous space for various types of recreational activities. The canyons, hillsides, seashore and many small parks provide areas for passive recreation. The large play yards adjacent to the school sites, the golf course, tennis club, swim club, riding stables and accessibility to the ocean furnish developed facilities for active recreational needs.

To retain the rural residential character of the City, the undeveloped parkland areas are reserved for primarily passive recreation providing places of solitude and natural beauty for the resident and visual pleasure for the passerby.

The basic philosphy of the City in furnishing developed recreational facilities is to provide encouragement to groups proposing special projects which are determined to be of benefit to the residents of the City for general recreational use. Financing for construction is provided by the group making the proposal and adequate user fees are charged to maintain the facility on a "pay as you go" basis. City revenues are not considered appropriate for financing special activity facilities.

Developers of unsubdivided land are required to dedicate an amount of land equal to 50% of the area of land in private use for parks and open space. Fees paid in lieu of parkland dedication, are used to develop park areas in the vicinity of the new subdivision for generally passive recreational pursuits of the residents.

Recreational Facilities

Palos Verdes Golf and Country Club: This City owned facility provides an 18 hole golf course on 213 acres of parkland. The club house provides dining and space for adult group activities. The Country Club and Golf Course are operated under concession agreements with the City. Membership in the Golf Club is available to residents. The golf course provides the dual benefit of active recreational facilities and open space for passive recreation.

Palos Verdes Tennis Club: This City owned facility is located on City parkland and provides a clubhouse and 10 regulation courts. It is operated under a concession agreement with the City, with membership and lessons available to the residents.

Palos Verdes Stables and Riding Trails: The stables are owned by the City and operated under a concession agreement. Riding horses and boarding spaces are available on a rental basis. Located in Valmonte Canyon, they are immediately adjacent to almost 2 miles of riding trails through the canyon and along the median of Palos Verdes Drive North. These trails tie into riding trails developed in areas outside the City.

Swimming Facilities: The Roessler Memorial Swimming Pool located along the shore in Malaga Cove is owned and operated by the City. The pool facilities at Palos Verdes High School were constructed by private subscription in conjunction with the School District and are available to the residents of the City and the District. These olympic sized pools and game room facilities provide swimming and activities during the summer months. Fees charged for use of the facilities pay for the maintenance and operation.

School Sites: The 123 acres of land incorporated in the school sites within the City provide adequate space for most active recreational needs of the residents. The City and School District provide joint recreational programs at various times throughout the year utilizing school facilities. Dual use of these facilities for active recreation is considered essential for efficient utilization of public resources.

The Elementary school sites generally provide grass play areas, hard surface game areas and playground equipment. The intermediate schools have grass and hard surface game areas which provide facilities for the normal field sports. The high school is equipped with a swimming pool, and facilities for track, football, baseball and a variety of team and individual sport activities. The School District has made space available on the school sites for construction of baseball diamonds for various league participants.

Natural Reservation: These areas of parkland generally comprise the hillsides and canyons preserved in natural state. They provide scenic beauty and the opportunity for random hiking and nature observation.

Parks: The many small parks and plazas throughout the City were originally dedicated to provide pleasant settings for commercial areas. The change in many commercial lots to residential use by the zoning ordinance, retained these areas to be incorporated into neighborhood residential park areas.

These areas will generally be developed with formal landscaping in keeping with the surrounding neighborhood. The burden of financing construction will normally be incurred by the properties in the vicinity of the park in accordance with plans approved by the City. Developement standards are contained in Planting Regulations adopted by the City in 1968. Once landscaping is established, the City will normally assume maintenance responsibility for landscaping of general benefit.

Parkways: The broad parkways developed in the City provide pleasant avenues for walking and for horseback and bike riding. The street tree program and adjacent private landscaping serve to beautify the public ways throughout the City.

Shoreline: Over 4.5 miles of shoreline in the City provide ready access for many forms of water oriented recreation. The ruggedness of the beach and limited access combined with the intent of the City to preserve the shoreline in its natural state, limits water recreation to those sports requiring pedestrian access only. The ready availability of adequate marinas, boating facilities and sandy beaches in areas immediately adjacent to the City make it unnecessary to consider these types of development along the coastline of the City.

Goals and Objectives

1. The undeveloped parklands are to be reserved for primarily passive recreational activities.

2. Formal landscaping of neighborhood park areas is encouraged through participation of the property owners benefiting from the development.

3. Dedication of parks and open space and/or appropriate development is mandatory in new subdivisions.

4. Utilize school recreational facilities to provide for the active recreation needs of the community.

5. New and existing special activity facilities are to be user financed and maintained in so far as practical.

6. Shoreline recreational activities are confined to those uses envisioned within the guidelines of the "Shoreline Preserve"

7. Preserve the integrity of residential areas by confining development of active recreational facilities to those areas of parkland, unused street rights-of-way and school sites appropriate to the proposed use.

OPEN SPACE ELEMENT

Palos Verdes Estates is fortunate in being endowed with over 678 acres of parkland set aside by the original developers for open space use. The preservation of open areas has become an important consideration in the quality of urban living. These lands are reserved for this purpose by deed restrictions, the intent of the residents and the policy of the City. The charge to the City in the deed restrictions is quite clear and provides the basis for the use of these lands.

> "...said realty is to be used and administered forever for park and/or recreations purposes..."

The intent of the deed restrictions and City policy allows construction of roadways, utilities, and recreation oriented facilities on suitable parkland areas after due consideration of environmental impact.

The Shoreline Preserve, combining the coastal parkland with the Tideland Grant, is a significant portion of the open space reserves in the City. The open shoreline, bluffs and coastal canyons are to be preserved for scenic value.

Appendix A of the Plan describes those lots reserved for parkland.

Goals and Objectives

1. Reserve parkland canyons and hillside areas primarily for passive recreation purposes. Limit development to natural landscaping and walking trails.

2. Develop small park lots and plazas with formal landscaping in keeping with the neighborhood and the desires of the residents.

3. Establish a Marine Refuge within the City Shoreline Preserve.

4. Require dedication (or in-lieu fees) of land in an amount equal to 50% of land area in private use in new subdivisions or land divisions to be used for parks and open space.

HOUSING ELEMENT

The Housing Element of the General Plan has been required by State Code since 1969 and must comply with guidelines established by the State Department of Housing and Community Development. The guidelines promulgated and housing plans developed by the State, SCAG and Los Angeles County concentrate primarily on the provision of adequate housing for low and moderate income groups. This is appropriate to fulfill the national and state goal of providing "a decent home and suitable living environment for every American family" and is supported fully by the residents of Palos Verdes Estates. It is difficult to incorporate these provisions in many areas of the Los Angeles Region, the Peninsula Planning Area and particularly Palos Verdes Estates.

Housing for this segment of the economy (low to moderate income) must achieve many things. The most important is low cost. Along with this must be considered relationship to the job market, access to recreational facilities, shopping, transportation and other things which are necessary to fulfill basic needs. The cost of housing, operating in a relatively free market, is dependent on land, development, material and labor costs and the continuing costs of maintenance. The rugged terrain of Palos Verdes Estates, soil conditions and fairly remote location provide for high costs in all categories. The fragile coastal environment is not capable of supporting high density development without totally revising the natural setting. The remote coastline setting with low density development has also served to increase the cost of land and housing at a faster rate than other properties in the region as a larger percentage of the population is able to afford more affluent accommodations. This is the basic situation which must be accommodated in the Housing Element for the City of Palos Verdes Estates.

6-8-73
6-11-73 P.C. Adopt
9-10-73 P.C. Adopt
10-9-73 C.C. Adopt

PRESENT SITUATION

Every parcel in the City, in addition to zoning requirements, is also regulated by deed restrictions administered by the Palos Verdes Homes Association, a private corporation, Restrictions pertaining to housing determine minimum size, height, type of construction and minimum cost which currently ranges from $16,000 to $80,000. The low end of the cost range is too low to support construction of a unit on lots which currently start at $20,000. Housing costs usually average 2 to 3 times lot cost to enable an economical venture and satisfy housing requirements in this price range. Grading regulations do not permit mass grading to provide more economical development costs.

The City does provide housing for a broad range of economic groups. Existing housing is currently available ranging from $50,000 to over $300,000. Of course this is well out of consideration for low and moderate income groups with requirements in the $20,000 or less range. Apartment units available also reflect an average monthly rental rate of over $300 per month.

Appendix H-1 shows the average density of development throughout the City. The data is extracted from the Masterplan developed by the Palos Verdes Peninsula Unified School District in 1968. Information is also included showing total number of residential units in the City and projected ultimate development based on the adopted land use plan.

Over 90% of the residents find employment outside of the City and and in fact outside of the Peninsula Planning Area. The majority of employment is located to the north of the City in the areas of Aerospace industry concentrations and central Los Angeles business district.

Single Family Residential: Current data (March 1, 1973) shows 3,852 single family units developed in the City at an average market value (based on assessed valuation) of $60,000. Average size is determined to be about 2000 s.f. with 6 rooms. Minimum size is 1200 s.f. 88% of the single family units, which comprises 94% of unit availability, are owner occupied. Because of the relatively small size of the City and the housing market served, an individual unit by unit inventory was not considered necessary.

Housing construction was started in the City in the mid 1920's with relatively few units constructed until after World War II. Over 90% of the housing units in the City were constructed since 1946. Those constructed prior to that time were generally large expensive homes of high quality construction. All homes constructed are custom designed and must be designed by an architect. This feature, along with the deed restrictions and building code enforcement has maintained a relatively high quality of construction in the City. While economic life of an average home may be considered to be 35-40 years, most construction in the City would tend to support a useful life of over 50 years. A summary of number of units constructed by year is attached as Appendix H-2.

Except in isolated instances, there are no substandard dwellings in the City. The value of homes in the area has tended to keep most structures well maintained and updated. A significant factor which has enabled the City to maintain standards for high quality is the stability of the land use plan adopted by the Zoning Ordinance in 1948 and reaffirmed in the Adoption of the Land Use Element of the General Plan.

Multiple Residential: The City currently has an inventory of 262 multiple dwelling units averaging 2 bedrooms each. These are generally what might be classifed as luxury apartments with rents averaging well over $300 per month. The two areas in the City zoned for multiple dwelling use are adjacent to the small commercial centers and are located to provide easy access to the main streets in the City.

Most of the units were constructed in the 1955 to 1965 period with another boom in apartment construction being experienced now. Another trend which may affect the availibility of rental units is the current marketing of new and existing apartments as condominiums. Because of inadequate parking facilities of most units constructed prior to the 1961 ordinance increasing parking requirements, conversion to condominium uses will not be feasible without extensive reconstruction. Since the older units are of good construction and demand for rentals will remain at a high level, it is not anticipated that any of these units will be redeveloped in the foreseeable future. None of the existing units is considered to be in dilapidated condition.

Public Facilities: Water and sewer facilities are available to serve all existing and future development in the City. Connection to public sewers has been required since November 17, 1967. All areas with soil problems compounded by use of private disposal systems have been connected to the sewerage system. One small area in the vicinity of Rosita Place consisting of four lots has not as yet been connected. The "sand dune" area of the City which generally comprises the Valmonte area in the northerly portion of the City has not been required to be connected unless percolation problems develop. Over 90% of the residences in that area have been connected.

Adequate school sites are provided in the City to serve projected populations as specified in the Palos Verdes Peninsula Unified School District's Master Plan. Some of the schools in the City are currently operating over capacity because of lack of construction funds. Since the District's boundaries are not coincident with the City limits, the existing schools in the City also accommodate children from the more rapidly growing areas outside of the City. The rapid development on the Peninsula combined with failure of construction bond issues has seriously hampered the ability of the School District to accommodate the school population in permanent facilities. The School District is currently updating their Masterplan as a base for determining what measures can be taken to provide required space.

While the City is primarily a "bedroom" community dependent on property tax to provide required services, the relatively slow orderly growth has enabled the City to provide essential safety and public services. It is anticipated that the projected growth can be accommodated within the existing framework of the established City departments and administration.

Relation to General Plan: A City exists only to serve a common interest of the residents. Housing is the key element in the Plan for Palos Verdes Estates as a primarily residential community. All elements of the Plan are directed toward supporting a high quality residential environment. The small commercial areas designated in the Land Use Element are established to serve minimum basic needs of residents. The Circulation Element provides a transportaion and utility network to serve low density residential development. Open Space, Recreation and Conservation goals serve a dual purpose of preserving the natural setting and provide the amenities and outlets necessary for a high quality of life. Any alteration in the Housing Plan which would tend to increase density would have a serious affect on all of the Elements of the General Plan and its goals.

FUTURE DEVELOPMENT

The City is presently over 80% developed. The remaining large land areas that could be developed and current status is tablulated below:

Portion Lot H, Tract 4400 - 160 acres - Tentative Map approved for 220 single family residences.

Lot 1, Block 1, Tract 7334 - 30 acres - Tentative Map filed for 30 single family residences.

Portion of Lot H of Rancho Palos Verdes - 19 acres (Annexation No.2 - Ordinance 219). No activity at present.

Portions Tract 8043 and 7334 - 135 lots - Individually owned R-1 - Lots to be developed by owners.

All of the above parcels are suitable for low density single family development. The fairly rugged terrain and limited access routes precludes high intensity uses. While much of the undeveloped land could be developed as low density multiple housing, the developed street system including plans for future improvement is designed only to accommodate the low density single family residential uses contemplated by the zoning ordinance.

The type and kinds of construction existing in the City and the lifestyle goals of the residents, preclude consideration of re-development projects. There may be a possibility of reconstructing improvements on developed lots in some areas of the City where the land value has exceeded the value of improvements. As this disparity increases it may promote reconstruction by the owner, however, with the deed restrictions on the lots this will only be on a lot by lot basis.

The 11 lots remaining in the City zoned for multiple residences are fast being depleted during the current condominium "boom". There are units planned or proposed involving at least 7 of these lots. These lots are adjacent to main streets capable of handling increased traffic intensities. These would also not qualify for low or moderate income housing as the condominium units will be in the $30,000 to $50,000 range with relatively high monthly maintenance assessments. The remote location, high cost, traffic problems, disruption of community goals and deed restrictions effectively preclude development of the type of units which can materially affect any housing problem which may exist in the Los Angeles region.

ENVIRONMENTAL CONSIDERATIONS

The entire Land Use Plan of the City along with the Conservation and Open Space Elements focuses the primary thrust of development of the City toward preserving as much as practical the natural coastal environment. The vast areas of parkland (over 25%) reserved for open space use provides for retaining the shoreline, coastal canyons and rugged hillsides in a near natural condition enhanced by additional plantings. These areas provide refuge for varieties of wildlife and plantings which would be eliminated by intensive land use.

Probably the greatest benefit that the City of Palos Verdes Estates can provide in the Regional Plan is to make available the beautiful scenery and unrestricted views available to the entire region. It is one of the few areas in the Los Angeles area where a "Sunday drive" can still offer economical recreation.

POPULATION CHARACTERISTICS AND HOUSING NEEDS

Statistical data developed in the 1970 census provides the best current information. Extracts of pertinent data are attached as Appendix H-3. A review of this data can provide an insight into the segment of the economy seeking housing in Palos Verdes Estates.

The housing needs demanded in the community can best be shown by tabulating the real estate activity over the last few years.

	Planning Area (P.V. Peninsula)	Palos Verdes Estates
1970	Avg. House sold - $58,486	$64,385
1971	" " " - 60,640	69,328
1972	" " " - 65,769	74,785

Current demand for this community indicates a 4 bedroom home with family room in the vicinity of 2500 s.f. is most desired. This reflects the greater affluence among a younger population group with school age children.

THE HOUSING PROGRAM

The program will remain essentially the same as determined in the deed restrictions established in the original development of Palos Verdes Estates in 1924. There is also a need in any community for quality low density residential uses. These areas contribute to the total region the character and open space needed by all. The Peninsula does not provide an area for suitable development of moderate cost high density housing. Access routes to the area are limited and construction difficult. It is remote from the major industrial and commercial centers offering mass employment opportunities. The coastal environment is particularly sensitive to intense use. A balanced regional housing program must provide for the needs of all groups. The natural setting of Palos Verdes Estates restricts usage to low density high cost development.

As a basic City philosphy, land development or redevelopment is not encouraged or discouraged by the City. Land has historically been developed at the rate determined by the owners and in accordance with City requirements. This policy has provided a relatively stable growth rate based on economic conditions.

Review

The City Statistical Summary prepared annually by the City Manager's office shall be appended to this Element to provide a running update of information relative to housing. This is to be accomplished during the annual review of the General Plan by the Planning Commission.

Objectives

1. To support workable programs which will provide adequate housing for all segments of the economy in the Los Angeles Region.

2. As a specific City objective, to provide for that segment of the economy which requires low density, high quality residential use.

HOUSING ELEMENT

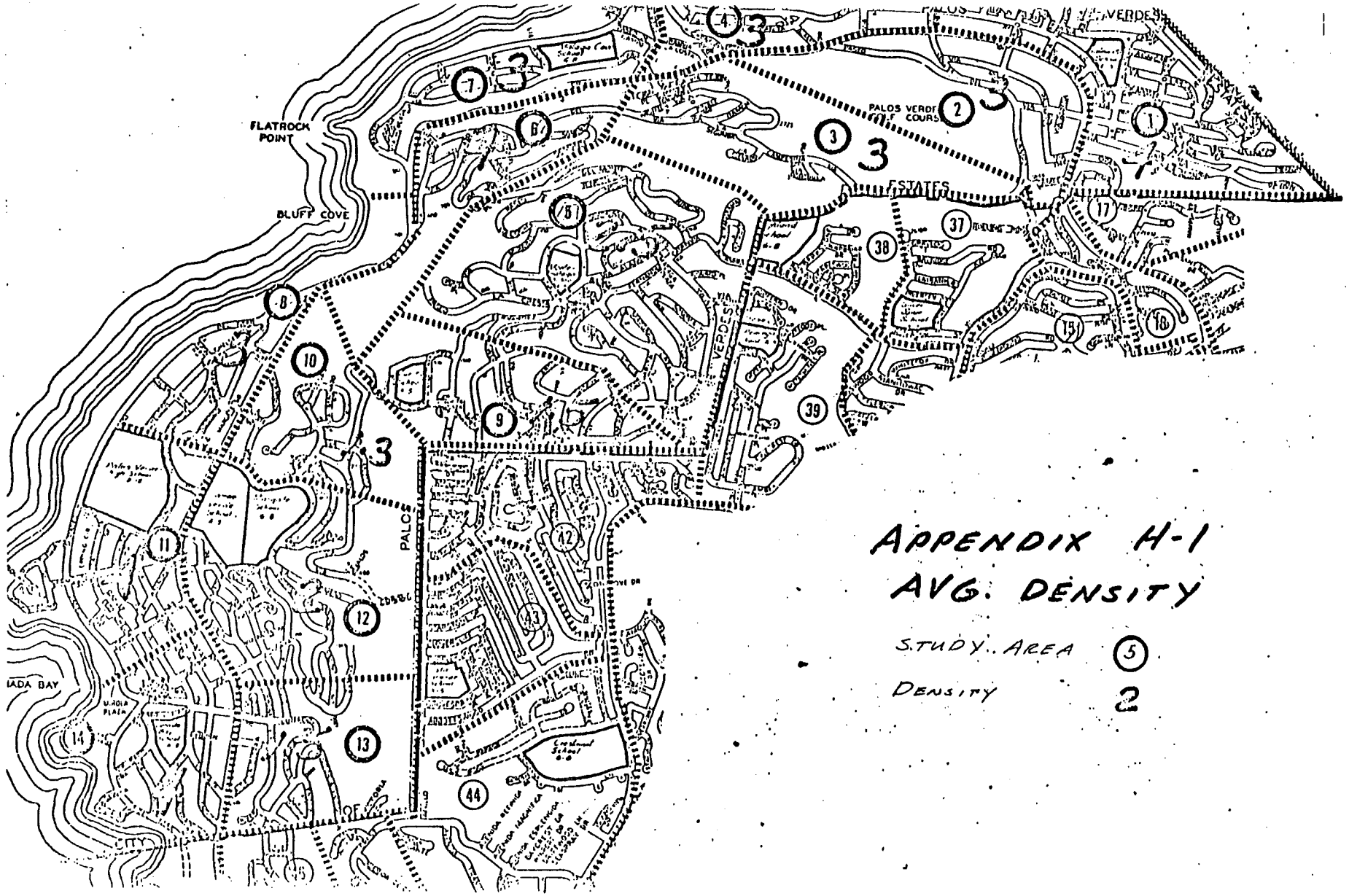
APPENDIX H-2

SUMMARY OF CONSTRUCTION SINCE INCORPORATION (Dec. 1939)

Year	Units Constructed	Year	Units Constructed
1940	unk.	1956	253
*1941	16	1957	156
1942	12	1958	132
1943	0	1959	129
1944	0	1960	127
1945	6	1961	122
*1946	30	1962	187
*1947	65	1963	135
*1948	80	1964	88
1949	73	1965	82
1950	124	1966	65
1951	196	1967	72
1952	169	1968	61
1953	257	1969	61
1954	281	1970	45
1955	346	1971	64
		1972	86
		1973	39 (a/o April 30)

* Estimated

Dwelling Units as of March 1, 1973	Existing	Projected	Total
Single Family	3,852	1,098	4,950
Multiple	262	88	350


FLATROCK POINT
BLUFF COVE
PALOS VERDE COURS
ESTATES
PALOS
APPENDIX H-1
AVG. DENSITY
STUDY AREA 5
DENSITY 2

FAMILIES: TOTAL 13946 NEGRO 21 0% SP AM 372 3%
3666 NEGRO 0 0% SP AM 63

A. FAMILY INCOME

	NUMBER	PCT	10 20 30 40 50 60 70 80 90
1-999,	0	0 T	
NONE,	0	0 N	
& LOSS	0	0 S	
1000	26	1 T	
TO	0	0 N	
1999	6	10 SSSS	
2000	0	0 T	
TO	0	0 N	
2999	0	0 S	
3000	11	0 T	
TO	0	0 N	
3999	0	0 S	
4000	15	0 T	
TO	0	0 N	
4999	0	0 S	
5000	14	0 T	
TO	0	0 N	
5999	0	0 S	
6000	35	1 T	
TO	0	0 N	
6999	0	0 S	
7000	21	1 T	
TO	0	0 N	
7999	0	0 S	
8000	29	1 T	
TO	0	0 N	
8999	0	0 S	
9000	49	1 T	
TO	0	0 N	
9999	0	0 S	
10000	148	4 T	
TO	0	0 N	
11999	0	0 S	
12000	227	6 TT	
TO	0	0 N	
14999	0	0 S	
15000	1436	39 TTTTTTTTTTTTTTT	
TO	0	0 N	
24999	27	43 SSSSSSSSSSSSSSSS	
25000	1342	37 TTTTTTTTTTTTT	
TO	0	0 N	
49999	30	48 SSSSSSSSSSSSSSSSS	
50000	313	9 TTT	
AND	0	0 N	
OVER	0	0 S	

B. TYPE OF INCOME

	NUMBER	PCT	10 20 30 40 50 60 70 80 90
WAGE	3230	88	TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
AND	0	0 N	
SALARY	50	79	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
NONFARM	861	23	TTTTTTTTT
SELF-	0	0 N	
EMPLOY	32	51	SSSSSSSSSSSSSSSSSS
FARM	48	1 T	
SELF-	0	0 N	
EMPLOY	7	11	SSSS
SOC SEC	420	11	TTTT
OR	0	0 N	
RR RET	5	8	SSS
PUB ASST,	51	1 T	
OR	0	0 N	
WELFARE	0	0 S	
ALL	2486	68	TTTTTTTTTTTTTTTTTTTTTTTTTTT
OTHER	0	0 N	
INCOME	30	48	SSSSSSSSSSSSSSSSSS

C. RATIO OF FAMILY INCOME TO POVERTY LEVEL

UNDER	14	0 T	
0.50	0	0 N	
	6	10 SSSS	
0.50	12	0 T	
TO	0	0 N	
0.74	0	0 S	
0.75	11	0 T	
TO	0	0 N	
0.99	0	0 S	
1.00	12	0 T	
TO	0	0 N	
1.24	0	0 S	
1.25	2	0 T	
TO	0	0 N	
1.49	0	0 S	
1.50	26	1 T	
TO	0	0 N	
1.99	0	0 S	
2.00	110	3 T	
TO	0	0 N	
2.99	7	11 SSSS	
3.00	3479	95 TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	
OR	0	0 N	
MORE	50	79 SSSSSSSSSSSSSSSSSSSSSSSSSSSSSS	

MEDIAN FAMILY INCOME TOTAL 23760 NEGRO 0 SP AM 24250

TOTAL POPULATION 13641

DATA ITEM	COUNT	PERCENT	RECORDS SUPPRESSED
WHITE POPULATION	13539	99.3	0
NEGRO POPULATION	13	0.1	0
INDIAN POPULATION	4	0.0	0
OTHER SPECIFIED RACES	79	0.6	0
REPORTED OTHER RACE	6	0.0	0
OWNER OCCUPIED DWELLING UNITS	3483	87.6	0
RENTER OCCUPIED DWELLING UNITS	429	10.8	0
VACANT DWELLING UNITS	63	1.6	0

TOTAL DWELLING UNITS 3976

DATA ITEM	COUNT	PERCENT	RECORDS SUPPRESSED
1-UNIT STRUCTURES	3733	93.9	0
2 OR MORE UNIT STRUCTURES	241	6.1	0
MOBILE HOMES	1	0.0	0
OVER CROWDED UNITS	36	0.9	0
UNITS LACKING PLUMBING FACILITIES	8	0.2	0
UNITS LACKING KITCHEN FACILITIES	4	0.1	0
POPULATION IN OVERCROWDED UNITS LACKING PLUMBING FACILITIES	0	0.0	0

VALUE OF OWNER OCCUPIED UNITS

	COUNT	PERCENT
LESS THAN 5000	0	0.0
5000- 9999	1	0.0
10000-14999	0	0.0
15000-19999	3	0.1
20000-24999	9	0.3
25000-34999	136	4.0
35000-49999	1018	29.6
50000 +	2276	66.1
MEDIAN	50001.	
RECORDS SUPPRESSED	0	

RENT OF RENTER OCCUPIED UNITS

	COUNT	PERCENT
LESS THAN 40	3	0.7
40-59	0	0.0
60-79	2	0.5
80-99	4	1.0
100-119	5	1.2
120-149	11	2.7
150-199	78	19.3
200-299	133	32.9
300 +	168	41.6
MEDIAN	274.	
RECORDS SUPPRESSED	0	

TOTAL RECORDS 1

POPULATION 16 YEARS OLD AND OVER: TOTAL 9517 PALOS VERDES ESTATES NEGRO 0 0 % SP AH 211 2 %

D. LABOR FORCE STATUS

	NUMBER	PCT	10 20 30 40 50 60 70 80 90
IN CIV	5195	55	TTTTTTTTTTTTTTTTTTTT
LABOR	0	0	N
FORCE	138	65	SSSSSSSSSSSSSSSSSSSSSSS
	5065	97	TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
EMPLOYED	0	0	N
	138	100	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS
	130	3	T
UNEMP	0	0	N
	0	0	S

E. OCCUPATION OF EMPLOYED POPULATION

PROF.	1959	39	TTTTTTTTTTTTTT
TECH	0	0	N
& KIND.	44	32	SSSSSSSSSSS
MGR ADM	1282	25	TTTTTTTTT
EXCEPT	0	0	N
FARM	32	23	SSSSSSSSS
SALES	604	12	TTTT
WORKER	0	0	N
	8	6	SS
CLERICAL	518	10	TTTT
&	0	0	N
KINDRED	9	7	SS
CRAFTS	228	5	TT
FRMN &	0	0	N
KINDRED	12	9	SSS
OPER.	66	1	T
EXCEPT	0	0	N
TRANSP	8	6	SS
TRANSP	43	1	T
EQUIPT	0	0	N
OPER	0	0	S
LABORER	106	2	T
EXCEPT	0	0	N
FARM	6	4	S
FARMERS	7	0	T
& FARM	0	0	N
MGRS	0	0	S
FARM	0	0	T
LABOR	0	0	N
& FRMN	0	0	S
SVC WKR	189	4	T
EXCEPT	0	0	N
PVT HH	0	0	S
PRIVATE	63	1	T
HSEHD	0	0	N
WORKER	19	14	SSSSS

F. EXPERIENCED UNEMPLOYED PERSONS

	NUMBER	PCT	10 20 30 40 50 60 70 80 90
PROF	45	36	TTTTTTTTTTTTT
TECH	0	0	N
& MGR	0	0	S
SALES	17	14	TTTTT
WORKER	0	0	N
	0	0	S
CLERICAL	17	14	TTTTT
&	0	0	N
KINDRED	0	0	S
CRAFTSMAN	5	4	T
FRMN &	0	0	N
KINDRED	0	0	S
OPERA-	10	8	TTT
TIVES	0	0	N
	0	0	S
LABORER	17	14	TTTTT
EXCEPT	0	0	N
FARM	0	0	S
FARM	0	0	T
WORKER	0	0	N
	0	0	S
SVC WKR	13	10	TTTT
EXCEPT	0	0	N
HSEHD	0	0	S
PRIVATE	0	0	T
HSEHD	0	0	N
WORKER	0	0	S
LAST	0	0	T
WORKED	0	0	N
IN 1959	0	0	S

G. YEARS OF SCHOOL COMPLETED (POPULATION 25 YEARS OLD AND OVER)

ELEM:	191	2	T
8 YRS	0	0	N
OR LESS	10	11	SSSS
HI SCH:	349	4	T
1 TO 3	0	0	N
YEARS	0	0	S
HI SCH:	1498	19	TTTTTTT
4 YRS	0	0	N
	40	25	SSSSSSSSSS
COLL:	1985	25	TTTTTTTTT
1 TO 3	0	0	N
YEARS	36	23	SSSSSSSSS
COLL:	3789	49	TTTTTTTTTTTTTTTTTTT
4 YRS	0	0	N
OR MORE	64	41	SSSSSSSSSSSSSSSS

MEDIAN EDUCATION TOTAL 16 NEGRO 0 SP AH 15

CITY OF PALOS VERDES ESTATES

SCENIC HIGHWAYS ELEMENT

CITY OF PALOS VERDES ESTATES

DEPARTMENT OF
PUBLIC WORKS
(213) 378-0383

CITY HALL
PALOS VERDES ESTATES
CALIFORNIA 90274

NEGATIVE DECLARATION

CITY OF PALOS VERDES ESTATES, CALIFORNIA

GENERAL PLAN SCENIC HIGHWAYS ELEMENT

Project Description

This project consists of the adoption of the scenic Highways Element of the General Plan of the City of Palos Verdes Estates, California as required by the State of California Government Code Section 65302.

FINDINGS

In view of the fact that the conclusions of the Scenic Highways Element do not propose any adverse alterations to the environment as defined under the California Environmental Quality Act it is hereby determined that this project will not have a significant effect on the environment.

INITIAL STUDY

The initial study for this project is the second draft of the proposed Scenic Highway Element, prepared by George Taylor, Director of Public Works/Planning Director of the City of Palos Verdes Estates. Copies of the initial study can be obtained from the office of the Director of Public Works, 340 Palos Verdes Drive West, Palos Verdes Estates, California 90274.

Posted: PV Library
7/31/75 City Hall
PV County Club

SCENIC HIGHWAYS ELEMENT

INTRODUCTION

Authority for Scenic Highways Element

The State of California Government Code Section 65302 (h) requires a scenic highways element of all city general plans as follows:

> The plan shall include a "scenic highway element for the development, establishment, and protection of scenic highways pursuant to the provisions of Article 2.5 (commencing with Section 260) of Chapter 2 of Division 1 of the Streets and Highways Code."

Scope

The General Plan Guidelines of the California Council on Intergovernmental Relations give the following direction in the development by cities of the Scenic Highways Element:

> This element provides for the local planning for official and unofficial scenic highways. Official scenic highways are so designated by the State Scenic Highway Advisory Committee after plans have been adopted and submitted by the local jurisdiction. Highways eligible for such designation are listed in the Streets and Highways Code Section 263. Official County Scenic Highways are also designated by the State Scenic Highway Advisory Committee upon application from the local jurisdiction.
>
> Standards for official designation of scenic highway rest on the analysis, planning and protection of the scenic corridor through which the highway traverses. The Department of Transportation has prepared a guide on official scenic highway designation which is available at their local district offices.

SCENIC HIGHWAYS ELEMENT

TABLE OF CONTENTS

The scenic highways element is the initial step leading toward the official designation as a scenic highway. As such, the element provides the basis for the preparation of specific scenic corridor plans. The element is not a scenic highway corridor study, but rather provides the basis for scenic corridor studies by the Department of Transportation or by the local jurisdiction. For cities and counties in which a scenic corridor study has been completed, the element may be a more specific plan or set of policies to protect and enhance the scenic corridor.

Although the emphasis of the scenic highway element is on the designation of state highway routes as "scenic" routes, this does not preclude local agencies from developing and adopting local scenic routes, for example:

A. Identification and evaluation of scenic corridors in the planning area, consideration of special features such as entryways, river or bay front highways, park drives, and similar important natural or landscaped and beautified arterials. Inclusion of a bikeway system with the scenic highway corridor may be considered.

B. Statement of policy with diagram-map indicating the communities scenic highway system and the routes therein.

C. Guide to implementation measures.

GENERAL INFORMATION FOR ELEMENT

History of City's Development

The City of Palos Verdes Estates developed as a residential community starting in the 1920's and was incorporated in 1939. The City is part of the master development plan for the entire Palos Verdes Peninsula prepared by the initial developers, the Vanderlip Syndicate, in 1924. Although the original master development plan has been modified extensively outside the Palos Verdes Estates City limits, the City has retained the characteristics conceived in the original plan.

Inherent in the development of the City has been the retention of strong aesthetic control of development and the parkways and parklands. This has resulted in extremely pleasant street corridors. This control is exercised by both the City and the Art Jury of the Homes Association.

Evidence of the City's concern for providing pleasant street corridors is contained in the Rules and Regulations for the Planting, Pruning and Removal of Trees and Shrubs in Streets and Public Places adopted by the City Council in June of 1968.

These rules require that the abutting property owner maintain the parkways adjacent to his property in a safe condition free from weeds, trash and other debris.

Existing Highway System

The City has no state or interstate highways within its limits. The only "through city" streets are Palos Verdes Drive North and Palos Verdes Drive West. This arterial carries approximately 27,000 vehicles daily and provides access from the community to the commercial and industrial areas of the greater Los Angeles area.

Scenic Highway Potential Area

The entire community of Palos Verdes Estates offers the potential for scenic drives. The County of Los Angeles has designated a circle system in the Peninsula area including portions of Palos Verdes Drive North as second priority scenic highways. The full length of Palos Verdes Drive West represents part of the Malibu to Long Beach scenic route under the County system.

Palos Verdes Estates' Actions

Palos Verdes Estates has acted to complement projected scenic ~~highways~~ drives in the area by regulating land use along its portion of Palos Verdes Drive North and West as well as all other streets. This control was accomplished through long standing City and Homes Association actions, including regulations on architecture, landscaping, building setbacks and parkway and parkland use controls. The City has also caused the undergrounding of utilities along portions of Palos Verdes Drive West and hopes to complete all undergrounding in the near future. The City prohibits advertising signs of all kinds along Palos Verdes Drive North and Palos Verdes Drive West, except on a controlled and extremely limited basis.

Highway Beautification

Palos Verdes Estates has committed itself to maintaining the existing scenic corridors on all of its streets. In addition, the Homes Association has exercised exemplary taste in regulating the architecture and landscaping of all developments within the City.

Existing zoning regulations limit the size, location and type of on-site signs to a maximum of 35 square feet per business.

Shoreline Preserve

Palos Verdes Estates has obtained from the State of California a Tideland Grant for the protection, preservation, and conservation of the Tideland areas along its boundaries. In addition the City has created a Shoreline Preserve on the City owned property consisting of approximately 130 acres adjacent to the Tidelands. The prime objective of the masterplan for this preserve is to preserve and maintain its natural state: favor current limited recreational uses: and support expanded educational and scientific activities. This preserve has thereby created a very pleasing area and the view of this area from the surrounding streets is a definite asset.

Conclusions

In order to implement the Scenic Highways Element of the General Plan of the City of Palos Verdes Estates the following steps or actions should be taken:

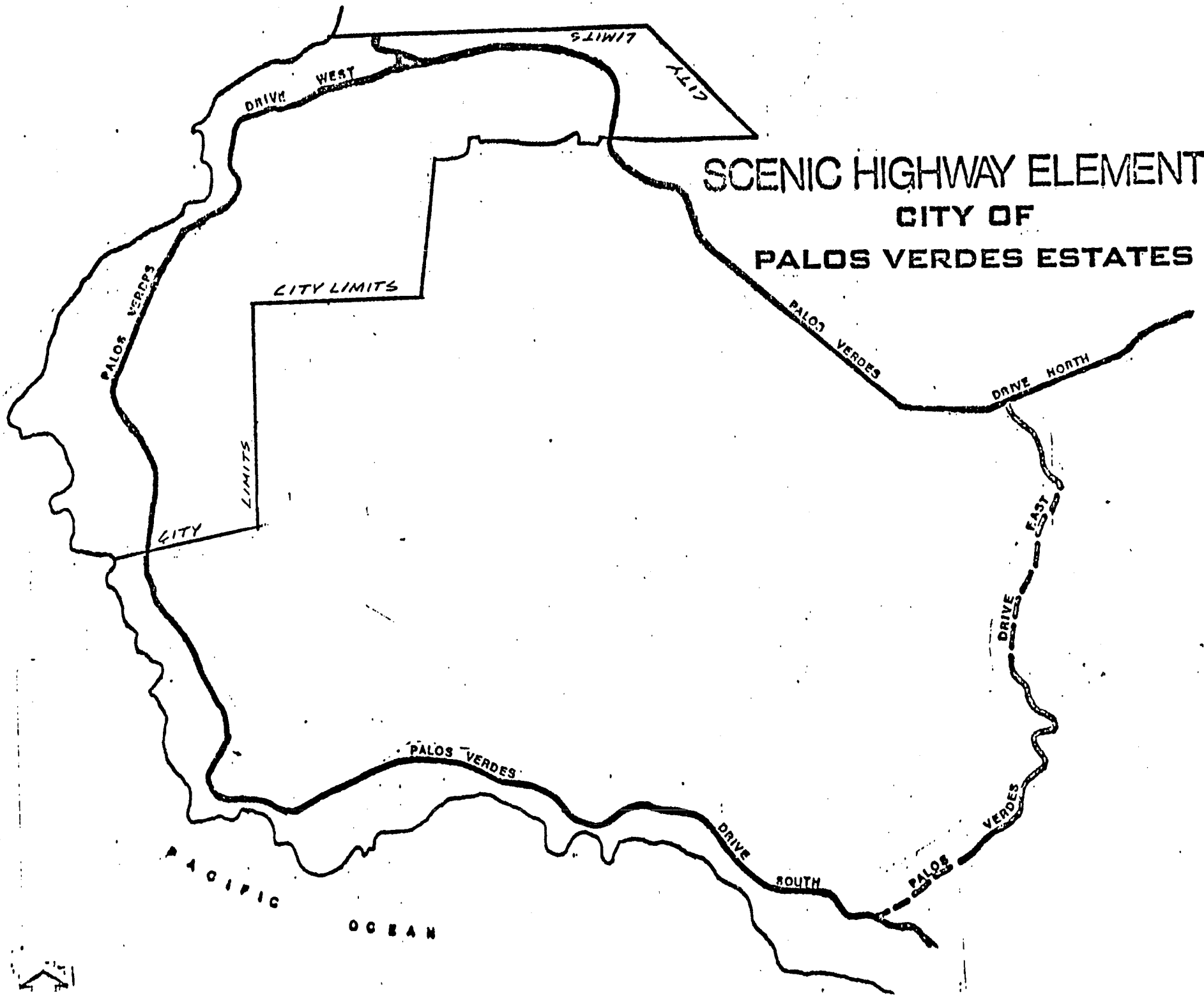
1. Work with neighboring jurisdictions to upgrade and beautify all highways.
2. Underground all utility systems within the City as monies become available and as approved by adjacent property owners.
3. Provide for the planting of street trees along all roadways in the City.
4. Regulate all on-site signs and prohibit off-site signs in all residential and commercial areas.
5. Consider views from the highways in all commercial developments, and require landscaped areas in all parking lots.
6. Limit the height of all construction to two and one half stories where view may be unfavorably affected.
7. Enforce the City's zoning requirements relative to outdoor signs.
8. Work with the commercial community to emphasize the positive factors in a program of highway beautification.
9. Study and evaluate the possible affect on highways from a scenic standpoint during the course of preparation of environmental impact reports for major projects in Palos Verdes Estates.

IMPLEMENTATION OF ELEMENT

General Comments

The City of Palos Verdes Estates has, since its inception, maintained the highest degree of scenic corridors on all of its streets, parkways and parklands. The Homes Association in turn has maintained the same degree of control on development of private property throughout the City. This policy of development and maintenance will undoubtedly be continued in the years to come.

The generally hilly terrain of the area does not lend itself to extensive widening of scenic corridors without adverse effects on private properties, parkways and parklands.


SCENIC HIGHWAY ELEMENT
CITY OF
PALOS VERDES ESTATES
CITY LIMITS
CITY LIMITS
PALOS VERDES DRIVE WEST
PALOS VERDES DRIVE NORTH
PALOS VERDES DRIVE EAST
PALOS VERDES DRIVE SOUTH
PALOS VERDES
PACIFIC OCEAN

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CITY OF PALOS VERDES ESTATES

SEISMIC SAFETY ELEMENT

OF THE GENERAL PLAN

Prepared and Submitted by: George C. Taylor
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Approved by Planning Commission November 4, 1975

Approved by City Council December 9, 1975

CITY OF PALOS VERDES ESTATES

DEPARTMENT OF
PUBLIC WORKS
(213) 378-0383

CITY HALL
PALOS VERDES ESTATES
CALIFORNIA 90274

NEGATIVE DECLARATION

CITY OF PALOS VERDES ESTATES, CALIFORNIA

GENERAL PLAN SEISMIC SAFETY ELEMENT

Project Description

This project consists of the adoption of the Seismic Safety Element of the General Plan of the City of Palos Verdes Estates, California as required by the State of California Government Code Section 65302

FINDINGS

In view of the fact that the conclusions of the Seismic Safety Element do not propose any adverse alterations to the environment as defined under the California Environmental Quality Act it is hereby determined that this project will not have a significant effect on the environment.

INITIAL STUDY

The initial study for this project is the first draft of the proposed Seismic Safety Element, prepared by George Taylor, Director of Public Works/ Planning Director of the City of Palos Verdes Estates in conjunction with Dr. Bernard W. Pipkin, Associate Professor Department of Geological Sciences, University of Southern California. Copies of the initial study can be obtained from the office of the Director of Public Works, 340 Palos Verdes Drive West, Palos Verdes Estates, California 90274.

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October 17, 1975

TO: Planning Commission

FROM: George Taylor, Public Works Director/City Engineer

SUBJECT: Seismic Safety Element

Enclosed is a copy of the subject element for your review.

Please note a public hearing on this element will be held at your meeting of November 4, 1975.

Should you have any questions please contact me.

Very truly yours,

George Taylor
Public Works Director/
City Engineer

GT/mm

cc: Dr. Pipkin w/copy
Public Works Director w/copy
Hee
Graf
File

PREFACE

Shortly after six o'clock on the morning of February 9, 1971, between five and ten million residents of Southern California were awakened by the sudden and frightening shock of an earthquake. In ten seconds extensive damage was done to structures, mainly in the northern San Fernando Valley. Some of these structures collapsed, causing deaths and injuries, others were damaged to the verge of collapse, and many suffered costly, though non-hazardous, damage.

The earthquake centered near Pacoima Dam just northeast of the San Fernando Veterans Administration Hospital. In the northern San Fernando Valley the shaking was very intense; in central Los Angeles the shaking was strong, attenuating to rather weak shaking in Long Beach. It was fortunate that the earthquake was not of greater magnitude, for in that case a much greater area would have experienced very strong ground shaking and there would have been a much greater loss in life and property damage.

The earthquake had a Richter magnitude of 6.6, and the area deformed by the fault slip was about twelve to fifteen miles on a side. The effect was that an area of approximately 200 square miles in the San Gabriel Mountains moved southward and rose permanently several feet. In doing so it caused very strong ground shaking over this area and propagated ground-shaking waves, whose intensity decreased with distance, over a substantially larger area.

Fortunately, the San Fernando earthquake was not a great shock in geological terms. It released only one hundredth as much energy as the 1964 Alaska earthquake. In fact, shocks of energy-release comparable to the San Fernando earthquake occur about once every five years in Southern California, but they are seldom close to developed areas. The San Fernando earthquake caused a greater financial loss than the much larger Alaska earthquake because it occurred on the edge of a large metropolitan area instead of in a sparsely populated region.

Still, it was mainly good fortune that the fatalities were relatively few. Had the earthquake centered twenty miles farther south, close to the center of population in metropolitan Los Angeles, it would have done much more damage and caused the collapse of many more old buildings. Had it occurred three hours later in the day there would have been many more occupants in the buildings that did collapse. Had the freeways been crowded, the bridges that collapsed would have caused many more deaths and injuries, and other casualties would have resulted from automobile accidents caused by the sudden disruption of the thoroughfare. Had the earthquake occurred when more people were on downtown streets there would have been many more casualties from falling debris. Finally, the lower San Fernando Dam had only four feet of freeboard after its partial failure; had it then failed completely - or even after emptying was well along - an area inhabited by 80,000 people would have been inundated.

There is reasonable expectation that before the end of the century an earthquake of much greater magnitude will occur in Southern California. It can be expected to produce very strong shaking over the entire Los Angeles metropolitan area. This ground shaking probably will not exceed the intensity experienced in northern San Fernando Valley, but it may be almost as strong.

Most modern construction withstood strong ground shaking satisfactorily during the San Fernando earthquake, which shows that the metropolitan area can be made to survive a truly great earthquake if certain necessary improvements are made.

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CITY OF PALOS VERDES ESTATES

INTRODUCTION

Authority of Seismic Safety Element

Section 65302 (f) of the Government Code of the State of California requires that each city prepare and adopt a seismic safety element of the city's general plan as follows:

> A seismic safety element consisting of an identification and appraisal of seismic hazards such as susceptibility to surface ruptures from faulting, to ground shaking, to ground failures, or to effects of seismically induced waves such as tsunamis and seiches.
>
> The seismic safety element shall also include an appraisal of mudslides, landslides, and slope stability as necessary geologic hazards that must be considered simultaneously with other hazards such as possible surface ruptures from faulting, ground shaking, ground failure and seismically induced waves.

In accordance with that section of the Government Code, the City of Palos Verdes Estates has prepared a seismic safety element which takes into consideration the specific geological and physical characteristics of Palos Verdes Estates, as well as the general characteristics from a seismological standpoint of the geographical area in which the city is located.

The earthquake did reveal certain weaknesses in engineering and construction practices, and in institutional and organizational arrangements. The Commission believes that these weaknesses can be corrected by appropriate improvements in safety regulations, in building codes and in preparations for an emergency. Even though the earthquake brought tragedy to some, if it leads to the correction of these weaknesses it will have brought a long-term benefit to all Southern Californians.

-- Report of the Los Angeles County
Earthquake Commission
SAN FERNANDO EARTHQUAKE
February 9, 1971

Background For The Element

The Urban Geology Master Plan prepared by the California Division of Mines and Geology in 1973 states that, if given a continuation of present conditions, it is estimated that losses due to earthquake shaking will total $21 billion in California between 1970 and the year 2000. That report also states that losses, especially life losses, due to shaking from future earthquakes can and should be reduced through a combination of measures involving geologic and seismologic research, engineering practices, building codes, urban planning and zoning, fiscal and taxation policies, and preparedness planning. Estimates of potential loss of life for this period range well up into the thousands.

The General Plan Guidelines of the California Council on Intergovernmental Relations issued in September 1973 points out the following information about earthquakes:

> The most widespread effect of an earthquake is ground shaking. This is usually (but not always) the greatest cause of damage. Structures of all types, including engineered structures and public utility facilities, if inadequately constructed or designed to withstand the shaking force, may suffer severe damage or collapse. The vast majority of deaths during earthquakes are the result of structural failure due to ground shaking. Most such deaths are preventable, even with present knowledge. New construction can and should be designed and built to withstand probable shaking without collapse. The greatest existing hazard in the State is the continued use of tens of thousands of older structures incapable of withstanding earthquake forces. Knowledge of earthquake-resistant design and construction has increased greatly in recent years, though much remains to be learned.

A second effect of earthquakes is ground failure in the form of landslides, rock falls, subsidence and other surface and near-surface ground movements. This is often the result of complete loss of strength of water-saturated sub-surface foundation soils ("Liquefaction"), such as occurred near the Juvenile Hall in the 1971 San Fernando earthquake, and in the massive Turnagain Arm landslide in Anchorage, during the 1964 Alaska earthquake. Most such hazardous sites can be either avoided or stabilized if adequate geologic and soil investigations are utilized.

Another damaging effect of earthquakes is ground displacement (surface rupture) along faults. Such displacement of the earth's crust may be vertical, horizontal or both and may offset the ground by as much as 30 feet (as in 1857 in Southern California). It is not economically feasible to design and build foundations of structures (dams, buildings, bridges, etc.) to remain intact across such zones. Fault zones subject to displacement are best avoided in construction. In addition to regional investigations necessary to the basic understanding of faults and their histories, detailed site investigations are needed prior to the approval of construction in any suspected active fault zone. Utilities, roads, canals and other linear features are particularly vulnerable to damage as the result of ground displacement.

Other damaging effects of earthquakes include tsunamis (seismic sea waves, often called "tidal waves"), such as the one which struck Crescent City and other coastal areas in 1964; and seiches (waves in lakes and reservoirs due to tilting or displacement of the bottom or margin). The failure of dams due to shaking, fault displacement or overtopping (from seiches or massive landsliding into the reservoir) can be particularly disastrous. Most modern dams are designed and constructed to be earthquake-resistant; some older dams were not. In addition to man-made dams, temporary dams may be created by earthquake-triggered landslides. Such inadvertently created dams are certain to fail within a relatively short time.

Injury, loss of life, and property damage resulting from earthquakes are not only caused by structural deficiencies but also by equipment, machinery, furniture, and other installations which happen to be located within a structure.

It should be recognized that the building of structures in the area of known geologic hazards involves an element of risk and that future construction must be in accordance with that risk. Consequently, Palos Verdes Estate's policies should be geared to the following definitions:

Acceptable Risk - The level of risk below which no specific action by local government is deemed to be necessary.

Unacceptable Risk - Level of risk above which specific action by government is deemed to be necessary to protect life and property.

Avoidable Risk - Risk not necessary to take because individual or public goals can be achieved at the same or less total "cost" by other means without taking the risk.

OBJECTIVES AND POLICIES

Goals and Objectives

The seismic safety goals and objectives of the City of Palos Verdes Estates are to develop and implement programs that will help to protect the lives and property of city residents by reducing seismic hazards.

The potential dangers created by seismic activity requires that it should be the basic goal of the City to:

1. Minimize injuries and the possible loss of life, disruption of public services, and damage to or destruction of property associated with major earthquakes.
2. Aid in the restoring of services to a level that enables the residents and businesses to return to normal activity as soon as possible after an earthquake.
3. Reduce the economic and social dislocations resulting from a major seismic event.

General Policies

In carrying out the general goals of Palos Verdes Estates and reaching the objectives for seismic safety it will be necessary for the City to:

1. Provide a base of seismic information that will require consideration of geologic hazards at the earliest possible point in the further development of the city.

2. Support a realistic disaster plan which would quickly become operational should the area be affected by a major earthquake or other type of disaster.
3. Minimize the number of existing structures and conditions that represent seismic hazards through enforcement of building codes.
4. Require geologic reports as a pre-requisite to the issuance of building permits for major structures.
5. Use geologic and seismic data to guide the placement and development of essential public structures such as schools, police and fire facilities, hospitals, and other types of critical installations.
6. Require consideration of geologic and seismic data in the preparation of environmental impact reports.
7. Inform the public of potential seismic hazards as they affect buildings and structures.

From the standpoint of man-made structures, exposure to earthquake hazards involves several factors:

1. Seismic nature of the site on which a structure is located.
2. Ability of a structure to resist earthquakes.
3. Use or occupancy of a structure, both as to number of occupants and amount of time occupied.

4. Effective life of a structure from a physical standpoint.

Emergency Operations for Earthquakes

After the San Fernando Earthquake of 1971, various governmental agencies the American Red Cross, and non-governmental groups took effective measures to minimize the disastrous effects of the earthquake. Recovery was relatively rapid. However, weaknesses were noted in emergency operations. Some agencies performed independently at a time when team effort would have been of greater benefit. The need was shown for local agencies to provide emergency operating centers where information could be pooled and coordination achieved from a single, central location. Since disasters usually affect many local governments, provision should be made for interjurisdictional coordination and exchange of information in the event of an emergency.

Providing for seismic safety includes the development of a major earthquake response plan. Such a plan should:

1. Outline actions to be taken in earthquake situations.
2. Be coordinated with emergency plans of other governmental organizations - both local and county-wide.
3. Contain descriptive elements based upon local conditions such as:

a. Organization and training

b. Communications control

c. Fire protection

d. Water and other utility systems

e. Medical and hospital services

f. Transportation (if necessary)

The emergency plan should provide an organizational structure for dealing with any type of local emergency. It is a tool for use in case of a major earthquake, but it must be geared to function in any disaster. In preparing the EOP, the following response priorities should be considered:

1. Provide medical aid to the injured, protect the uninjured from hazards created by the earthquake, and provide for those people who are left homeless.
2. Restore community services as soon as possible, including utility services and the reopening of essential businesses.
3. Protect public and private property from further damage due to aftershocks, fire and looting.
4. Provide services to neighboring communities that also have been damaged and need assistance.
5. Facilitate post-disaster recovery throughout the community.

The City of Palos Verdes Estates Emergency Operations Plan as revised in February of 1974 provides such a plan.

GENERAL INFORMATION ON EARTHQUAKES

Faults and Seismicity

Seismic movements of the earth or earthquakes are caused by the sudden rupturing and displacement of the earth along faults (weak portions of the earth's crust). This rupturing relieves stress that has been building up in the earth's crust. It also is generally believed that this stress is caused by the movement of large plates that constitute the earth's crust. As these crustal plates move against or past one another, stress develops which causes the crust on the edge of each plate to become deformed. When too much deformation (elastic strain) builds up, the rocks snap along a fault. This relieves the strain by allowing each side of the fault to move to a position of lower stress, and transmits elastic waves in all directions.

A fault which separates two plates is not always perceivable on the earth's surface, but there are land forms and geologic criteria and instrumentation which can be used to map its location. The fault is not one solid, continuous line, but is composed of a system of splinter faults which appear periodically on the earth's surface. The term fault trace is used to describe a line on the surface of the earth formed by the intersection of the fault with the earth's surface.

Rupture and cracking of the ground are surface expressions of earthquakes which originate on subsurface faults. Earthquakes occur at various depths within the earth's crust. The point below the surface where the rupture first occurs is known as the focus and can be located with the help of seismic instruments. The term "epicenter" is usually used to describe the point of initial rupture directly over the focus. The instrumental epicenter is that point on the earth's surface directly above the focus but may not be the area of maximum damage.

There are two kinds of faults: active faults which have experienced displacement in recent geologic time, suggesting that future displacement can be expected on these faults; and inactive faults that have shown no evidence of movement in recent geologic time, suggesting that these faults are dormant. However, some faults labeled as inactive are so termed due to lack of historic data knowledge.

Geological Processes of Earthquakes

Earthquakes commonly give rise to various geological processes that may cause severe damage to structures and loss of life to people in them. These processes include surface rupture ground shaking, associated ground failure, generation of large waves in bodies of water, and regional subsidence. These seismic hazards vary widely from area to area, and the level of these hazards depends on both geologic conditions and the extent and type of land use. They are described below:

Surface Faulting. The earth's crust is laced with faults -- planes or surfaces in earth materials along which failure has occurred and materials on opposite sides have moved relative to one another in response to the accumulation of stress. Most of these faults have not moved for tens-of thousands of years and thus can be considered inactive. Others, however, show evidence of current activity or have moved sufficiently recently to be considered active, i.e., capable of displacement in the near future. A fault movement beneath a building in excess of an inch or two could have catastrophic effects on the structure, depending upon its design and construction and the shaking stresses it experiences at the same time.

Generally, faults are regarded as active and of concern to land-use planning when there is evidence that they have moved during historic time; or through geologic evidence, there may be a significant likelihood that they will move during the projected use of a particular structure or piece of land. Because geologic evidence may be lacking as to the times of past movement, geologists may be able to estimate relative degree of activity only after a regional analysis that may extend far beyond the locality under consideration. Such analysis may be based on historic evidence of fault movement, seismic activity (occurrence of small to moderate earthquakes along the fault trace even though not accompanied by obvious fault movement), displacement of

recent earth layers (those deposited during the past 10,000 years), and presence of topographical fault-produced features (scarps, sag ponds, offset stream courses and disruption of man-made features such as fences and curbs.)

Movement seldom is limited to a single fault surface throughout the lifetime of a fault system such as the San Andreas. In many places individual fault surfaces make up the San Andreas in a zone varying in width from a few hundreds to thousands of feet. Faults that commonly produce significant displacement (more than several inches at a time) often have related branches that diverge from the main fault but usually have less movement along them. They also may have secondary faults that are not directly or obviously connected physically to the main fault trace. Secondary faults are usually nearby (within hundreds of feet) of the main rupture, but they may extend as much as several miles away. As with branch faults, displacement along secondary faults is usually only a fraction of that along a main fault.

Ground Shaking. Probably the most difficult task today, in terms of the predictive capability of the geologist and seismologist, is devising a reasonably reliable method of predicting "ground shaking" effects - - what most people and structures react to during an earthquake. Examination of damage from numerous past earthquakes, in lieu of conclusive strong-motion seismograph records, has suggested to

geologists and engineers that the greatest damage to tall structures results where they are built over thick, relatively soft, water-saturated sediments and that the least damage occurs where they are built on very firm bedrock.

Ground Failure. Earth materials in a natural condition tend to reach equilibrium over a long period of time. In geologically active areas such as California and Alaska, there are many regions where earth materials have not yet reached a natural state of stability. For example, most of the valleys and bay margins are underlain by recent loose materials that have not been compacted and hardened by long-term natural processes. Landslides are common on most of the hills and mountains as loose material moves downslope. In addition, many activities of man tend to make the earth materials less stable and hence to increase the chance of ground failure. Some of the natural causes of instability are earthquakes, weak materials, stream and coastal erosion, and heavy rainfall. Human activities that contribute to instability include oversteepening of slopes by undercutting them or overloading them with artificial fill, extensive irrigation, poor drainage, resulting in subsidence, and removal of stabilizing vegetation. These causes of failure, which normally produce landslides and differential settlement, are augmented during earthquakes by strong ground motions that result in rapid changes in the state of earth materials. It is these changes, by means of liquefaction and loss of

strength in fine-grained materials, that result in so many landslides during earthquakes.

Results of Ground Failure. Although the basic causes of ground instability are simple in concept, the consequences are often complex and highly variable. They include numerous varieties of landslides, ground cracking, lurching, subsidence, and differential settlement. Moreover, these types of ground failure occur on a wide variety of ground conditions. Landslides, for example, do not necessarily require a steep slope on which to form, particularly during earthquakes. Many occur on slopes that are virtually flat, and the surface on which they fail may be very shallow (1 to 2 feet deep) or as much as hundreds of feet below the ground surface. The type of ground failure that develops in a given area is determined by the nature of the natural or man-made disturbance that occurs and partly by the topographic, geologic, hydrologic, and geotechnical characteristics of the ground.

Tsunami and Seiche Effects. Tsunami are large ocean waves which are generated by rapid changes in elevation of large masses of earth and water. Such rapid movement may generate huge waves of destructive force that can travel thousands of miles. During the 1964 Alaskan earthquake, for example, faulting and crustal warping created tsunami, or sea waves, tens of feet high that spread more than 1,500 miles from the source area and caused devastation to coastal communities within

their reach. The effects of tsunami can be greatly amplified by the configuration of the local shoreline and the sea bottom. Seiches are earthquake-generated waves within enclosed or restricted bodies of water (lakes, reservoirs, and bays).

How Earthquakes Are Measured

Vibrations produced by earthquakes are detected, recorded, and measured by instruments called seismographs. The zig-zag trace recorded by a seismograph - called a "seismogram" - reflects the varying amplitude of the vibrations by responding to the motion of the ground beneath the instrument. From the data expressed in seismograms, the time, epicenter and focal depth of an earthquake can be determined, and estimates can be made of the amount of energy that was released.

The severity of an earthquake can be expressed in several ways. The magnitude of an earthquake, as expressed by the Richter magnitude scale, is measured by the amplitude of the seismic wave. The amplitude is measured on a seismogram of a standard seismograph. When the earth quakes, the amplitude of the wave recorded on the seismograph is measured and then is corrected mathematically to what the amplitude would have been if it had been recorded at a distance of 100 kilometers from the epicenter. The Richter magnitude derived from these corrected seismograph recordings indicates the amount of energy released as if it had been recorded at this standard 100-kilometer distance from the epicenter of the quake.

The intensity as expressed by the Modified Mercalli Intensity Scale, is mostly a subjective measure which depends on the effects of a quake such as damage at a particular location.

Richter Magnitude Scale. The Richter magnitude scale, named after Dr. Charles F. Richter, Professor Emeritus of the California Institute of Technology, measures the energy of an earthquake at its source, and is the scale most commonly used. On this scale, the earthquake's magnitude is expressed in whole numbers and decimals. However, Richter magnitudes can be confusing and misleading unless the mathematical basis for the scale is understood. It is important to recognize that magnitude varies logarithmically with the wave amplitude of the quake recorded by the seismograph. Each whole number step of magnitude on the scale represents an increase of 10 times in the measured wave amplitude of an earthquake, and an increase of 31 times in the amount of energy released by the quake. Thus, the amplitude of an 8.0 magnitude earthquake is not twice as large as a shock of magnitude 4.0, but 10,000 times as large. Correspondingly, a magnitude 8.0 earthquake releases almost one million times more energy than one of magnitude 4.0.

A quake of magnitude 2 on the Richter scale is the smallest quake normally felt by humans. Earthquakes with a Richter magnitude of 7 or more are commonly considered to be major. The Richter magnitude scale

has no fixed maximum or minimum; observations have placed the largest recorded earthquake in the world at about 8.9, and the smallest at about -3. Earthquakes with magnitudes smaller than 2 are called "micro-earthquakes." Richter magnitudes are not used to estimate damage. An earthquake in a densely populated area, which results in many deaths and considerable damage, may have the same magnitude as an earthquake that occurs in a barren, remote area, that may do nothing more than frighten the wildlife.

Modified Mercalli Intensity Scale of 1931 - The first scale to reflect earthquake intensities was developed by de Rossi of Italy and Forel of Switzerland in the 1880's. This scale, with values from I to X, was used for about two decades. A need for a more refined scale increased with the advancement of the science of seismology, and in 1902, the Italian seismologist, Mercalli, devised a new scale on a I to XII range. The Mercalli Scale was modified in 1931 by American seismologists Harry O. Wood and Frank Neumann to take into account modern structural features, and modified by Charles F. Richter in 1956 and rearranged:

I. Earthquake shaking not felt. But people may observe marginal effects of large distance earthquakes without identifying these effects as earthquake-caused. Among them: trees, structures, liquids, bodies of water sway slowly, or doors swing slowly.

II. Shaking felt by those at rest, especially if they are indoors, and by those on upper floors.

III. Felt by most people indoors. Some can estimate duration of shaking. But many may not recognize shaking of building as caused by an earthquake; the shaking is like that caused by the passing of light trucks.

IV. Hanging objects swing. Windows or doors rattle. Wooden walls and frames creak.

V. Felt by everyone indoors. Many estimate duration of shaking. But they still may not recognize it as caused by an earthquake. The shaking is like that caused by the passing of heavy trucks, though sometimes, instead, people may feel the sensation of a jolt, as if a heavy ball had struck the walls. Hanging objects swing. Standing autos rock. Crockery clashes, dishes rattle or glasses clink. Doors close, open or swing. Windows rattle.

VI. Felt by everyone indoors and by most people outdoors. Many now estimate not only the duration of shaking but also its direction and have no doubt as to its cause. Sleepers wakened. Hanging objects swing. Shutters or pictures move. Pendulum clocks stop, start or change rate. Standing autos rock. Crockery clashes, dishes rattle or glasses clink. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Weak plaster and Masonry D* crack. Windows break. Doors close, open or swing.

VII. Felt by everyone. Many are frightened and run outdoors. People walk unsteadily. Small church or school bells ring. Pictures thrown off walls, knicknacks and books off shelves. Dishes or glasses broken. Furniture moved or overturned. Trees, bushes shaken visibly, or heard to rustle. Masonry D* damaged; some cracks in Masonry C*. Weak chimneys break at roof line. Plaster, loose bricks, stones, tiles, cornices, unbraced parapets and architectural ornaments fall. Concrete irrigation ditches damaged.

Modified Mercalli Intensity Scale of 1931 (Continued)

VIII. Difficult to stand. Shaking noticed by auto drivers. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Furniture broken. Hanging objects quiver. Masonry D* heavily damaged; Masonry C* damaged, partially collapses in some cases; some damage to Masonry B*, none to Masonry A*. Stucco and some masonry walls fall. Chimneys, factory stacks, monuments, towers, elevated tanks twist or fall. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off.

IX. General fright. People thrown to ground. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. Steering of autos affected. Branches broken from trees. Masonry D* destroyed; Masonry C* heavily damaged, sometimes with complete collapse; Masonry B* is seriously damaged. General damage to foundations. Frame structures, if not bolted, shifted off foundations. Frames racked. Reservoirs seriously damaged. Underground pipes broken.

X. General panic. Conspicuous cracks in ground. In areas of soft ground, sand is ejected through holes and piles up into a small crater, and, in muddy areas, water fountains are formed. Most masonry and frame structures destroyed along with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes and embankments. Railroads bent slightly.

XI. General panic. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. General destruction of buildings. Underground pipelines completely out of service. Railroads bent greatly.

XII. General panic. Conspicuous cracks in ground. In areas of soft ground, sand is ejected through holes and piles up into a small crater, and, in muddy areas, water fountains are formed. Damage nearly total, the ultimate catastrophe. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into air.

*Masonry A: Good workmanship and mortar, reinforced, designed to resist lateral forces.
Masonry B: Good workmanship and mortar, reinforced.
Masonry C: Good workmanship and mortar, unreinforced.
Masonry D: Poor workmanship and mortar and weak materials, like adobe.

Source: Urban Geology Master Plan

TECHNICAL FINDINGS OF THE SEISMIC SAFETY ELEMENT

Geologic Setting.

The Palos Verdes Hills are within the greater geological province known as the Los Angeles Basin. The entire southern California area is seismically active and there are several active faults in the Basin in close proximity to Palos Verdes Estates (Fig.1). The Newport-Inglewood fault is the closest major active fault and was the one responsible for the damaging Long Beach earthquake of 1933. The peninsula proper is bounded by two active faults on the north and south sides (Fig.2). The Palos Verdes Fault on the north side does not break through to the ground surface and is manifest by steeply dipping upper Pleistocene sands and gravels. The fault on the south side lies offshore and is inferred to exist along the steep slopes of the San Pedro Escarpment that leads down into the depths of the San Pedro Basin at 3,000 feet below sea level. Most of the active faults of the L. A. Basin exist in deeply buried granitic or metamorphic basement rocks and movement at depth has caused anticlines or domal structures to form in the thick overlying pile of sedimentary rock. Within the basin the overlying rocks attain a thickness of up to 16,000 feet, whereas on the Palos Verdes Peninsula they are much thinner and estimated to be about 2,000 feet thick. In contrast, the San Andreas fault 50 miles to the east, and the San Gabriel frontal fault system that caused the disastrous Sylmar earthquake of 1971, are known to have surface rupture.

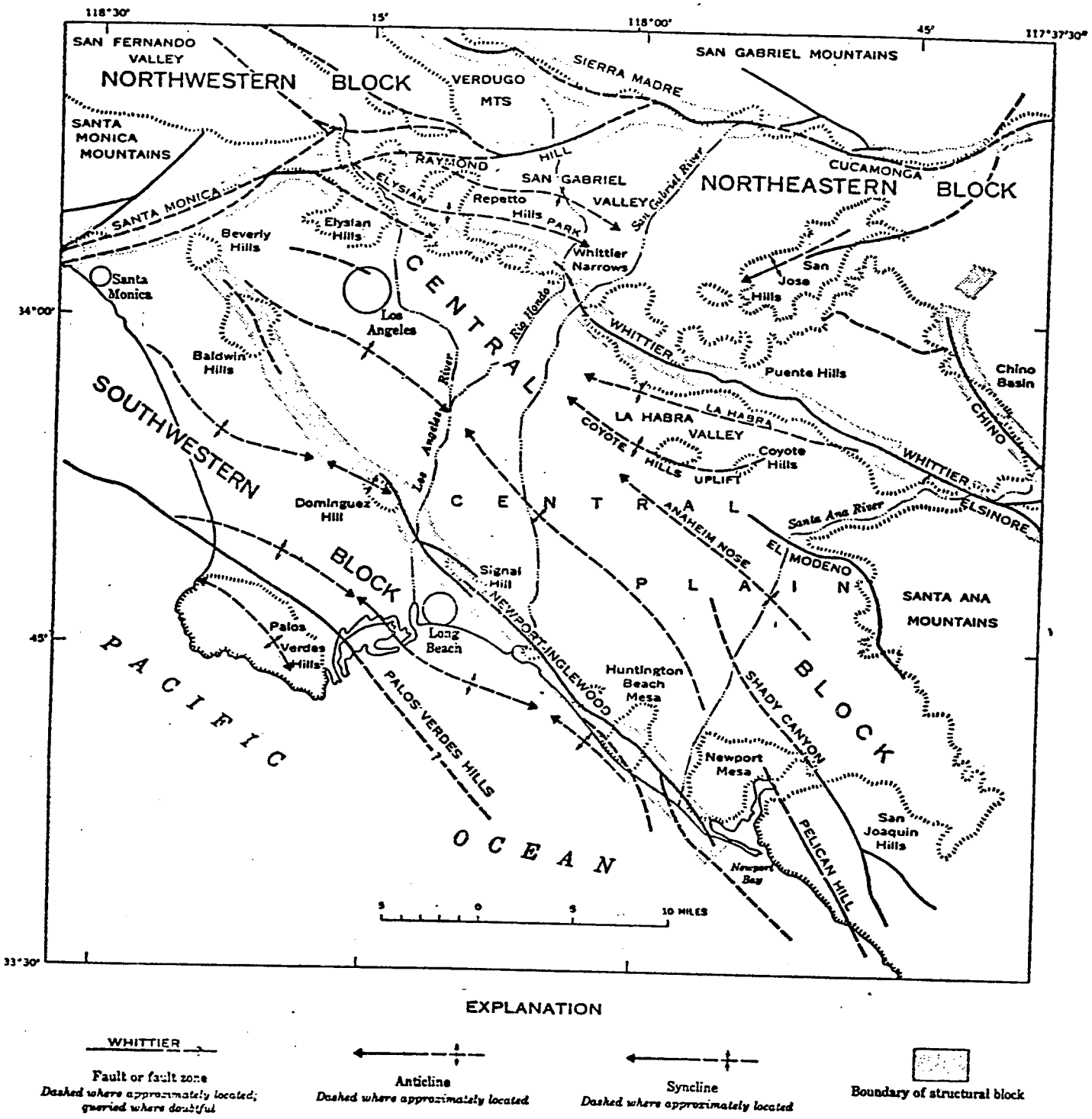

Figure 1. Major geographic and structural features of basement rock in the Los Angeles Basin (after Yerkes and others, 1965)

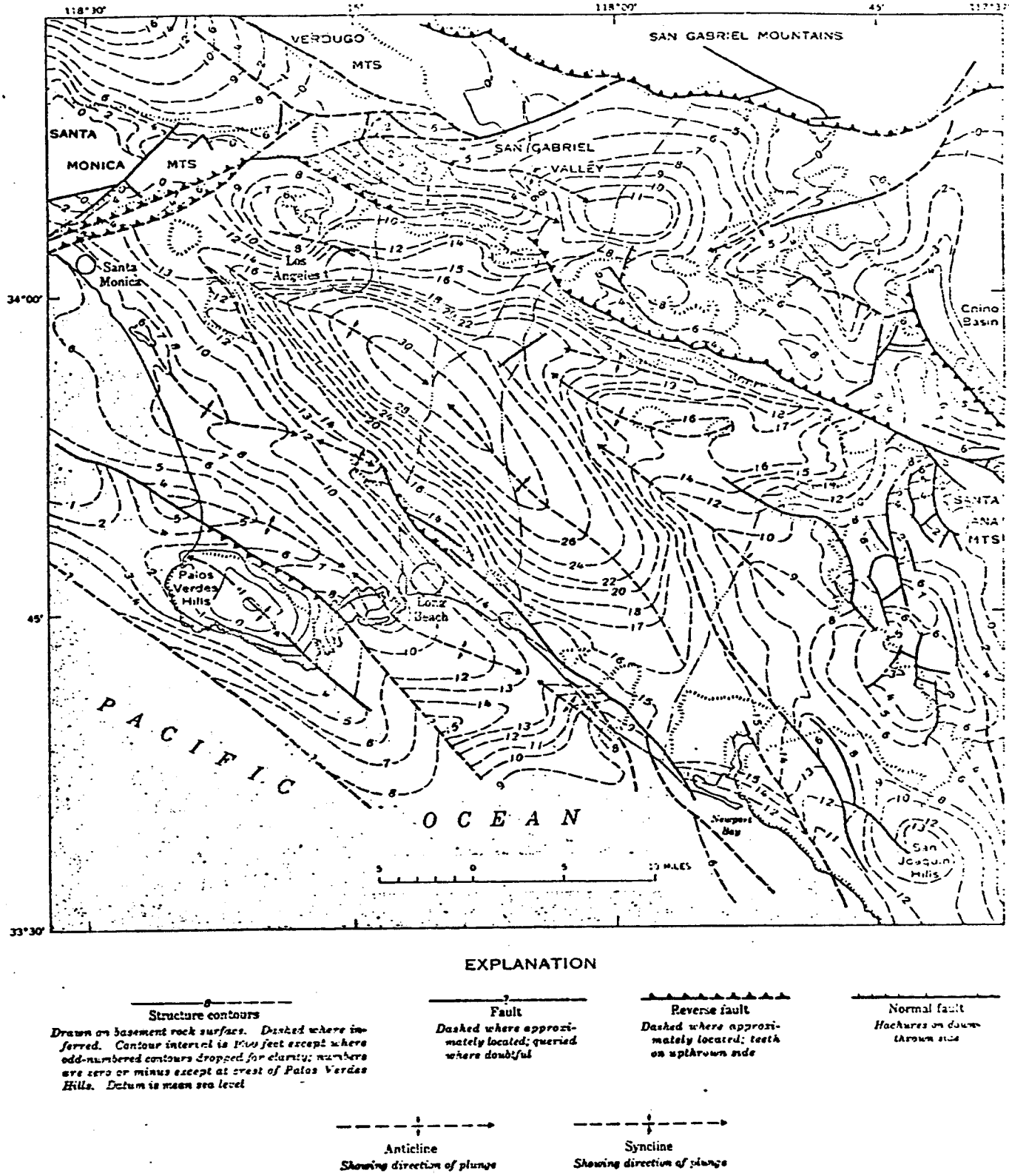

Figure 2. Major faults, structural features, and contours on basement rock, L.A. Basin (after Yerkes and others, 1965

This fact has far-reaching consequence on the accelerations and surface intensity to be expected from movements along these faults. Much greater damage can be expected where surface rupture occurs than where movement is at depth and the overlying rocks subjected to bending and lesser fracturing.

Geological Materials.

The Palos Verdes Hills consist of a basement or foundation rock of Jurassic to Cretaceous age known as the Catalina Schist. Draped over these ancient rocks are found up to 2,000 feet of marine sedimentary rocks that vary from Miocene to Pleistocene in age. The greatest area of Palos Verdes Estates is underlain by Miocene shales of the Monterey Formation. Smaller areas are supported by Pleistocene marine terrace deposits and sand dune material (Fig. 3).

Seismic History.

Table I contains a listing of earthquakes of magnitude 4.0 and over within a 50 kilometer (30 mile) radius of Palos Verdes Estates, 33°45'N, 118°20'W) as provided by the Seismological Laboratory at the California Institute of Technology. It is quite obvious that with the exception of the primary shock of the Long Beach earthquake of 1933 (Richter Magnitude 6.3) and a few aftershocks of that event, there have been no major events in the region. The 1933 event caused damage to a significant degree (VII+ on the Modified Mercalli Scale) in a region of 450 square miles from Manhattan Beach to Laguna Beach, California

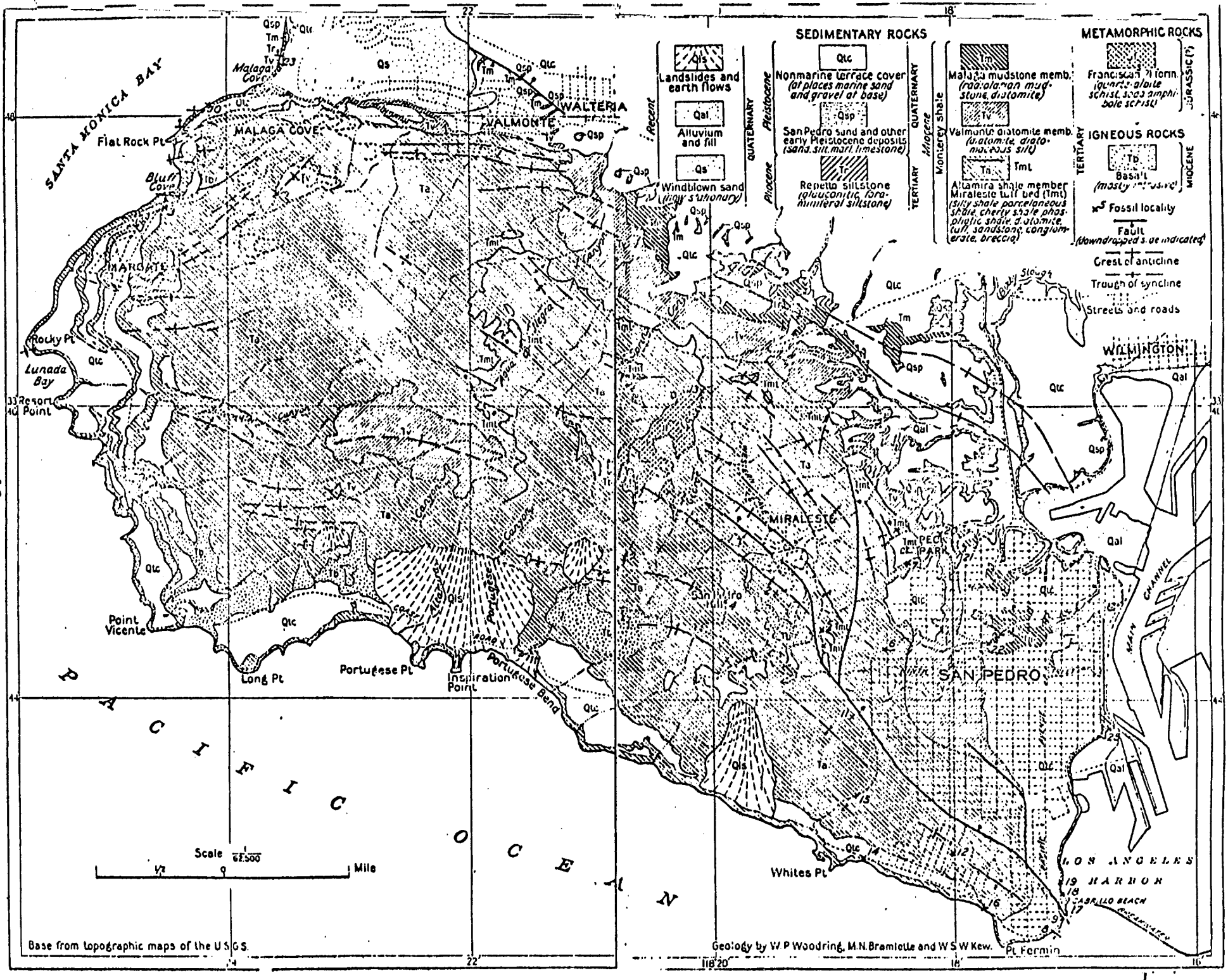

Fig. 3 Geologic map of Palos Verdes Hills (after Woodring, et. al., 1936)

(Wood, 1933). No accurate estimate of ground shaking was possible for the Palos Verdes Estates area as it was sparsely populated, however, according to Wood (1933), "...Inside the area mentioned there are many places where significant damage was not conspicuous--on hilly ground or where underground conditions were not unfavorable and construction not too bad or unsuitable. This was noticeably the case on the compact sedimentary rocks of the San Pedro Hills west of Long Beach. In fact, a considerable part of the area appeared to be characterized by intensity lower than grade VII of the 1931 scale." Richter (1959) notes "On the principally Tertiary block of the San Pedro Hills intensity was barely VI, contrasting sharply with serious damage nearby in San Pedro and Long Beach."

An intensity of VI was assigned to the Palos Verdes Estates area as a result of the Sylmar shock of February 9, 1971 that had a Richter Magnitude of 6.4 (U.S. Geological Survey, 1971). In other words, the two major earthquakes in the area in the last half century have produced only minor (slight) damage.

Seismic Hazards

Ground rupture. The Palos Verdes fault trends in a northwesterly direction and lies several hundred yards northeast of Palos Verdes Estates (Fig. 2). The fault does not displace surface rocks, rather, it is manifest by a sharp downbending of Pleistocene deposits along the norheast edge of the hills. Subsurface data from deep wells and gravity profiles indicate the fault lies outside the study area and displaces older base —

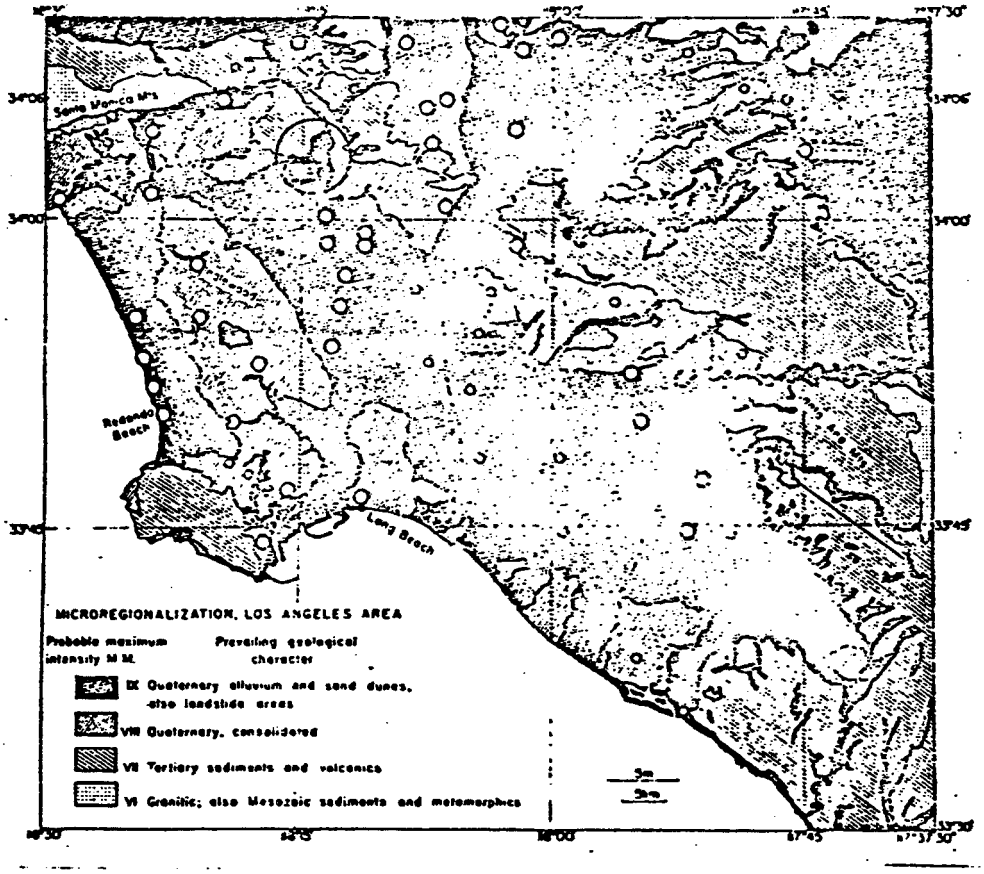

Fig. 4. Microregionalization map of Los Angeles Basin and vicinity(after Richter, 1959)

ment rock at depth, however, it only arches the younger overlying sedimentary rocks. Many low-magnitude earthquakes have been centered along the fault, yet no surface rupture has ever been reported.

Shaking. In his attempt to characterize ground response to the greatest expectable earthquake throughout southern California and the state, Richter (1959) has assigned an intensity of VII (modified Mercalli Scale) to most of the City of Palos Verdes Estates (Fig. 4). He assigned these ratings as follows: Intensity VII, Tertiary sediments and volcanics as are found over most of the Peninsula (Fig. 3); Intensity VIII, to consolidated Quaternary deposits; and an Intensity IX, to Quaternary stream deposits, sand dunes, and landslide areas. On the north side of Palos Verdes Estates there is a small area underlain by consolidated Quaternary deposits (Figs. 3 and 4), whereas the remainder of the city is underlain by Tertiary sedimentary rocks. In Palos Verdes Estates the younger Quaternary deposits are so thin that it is anticipated that only a slight additional response to seismic waves will be felt in these areas. Drill data and surface exposures indicate that the younger sands attain a thickness of 30 feet along the cliffs near the Pacific Ocean, and that they thin toward the north and east from there.

Tsunami. The only record of a local earthquake having caused a sea wave of large magnitude was in connection with the earthquake of December 21, 1812. This is to be found in mission records and it was reported that a ship was carried up the canyon at Refugio Beach north of Santa Barbara, then back out to sea (Byerly, in

State of California, 1964). The entire shoreline of the City of Palos Verdes Estates is backed by sea cliffs from 100 to 200 feet high, and even if a tsunami were generated no seismic sea wave could ever top these heights. There is no tsunami risk in the area.

Ground failure. Permanent disruption or settlement of foundation materials may be caused by liquefaction of poorly consolidated sand or clay soils. Liquefaction of unconsolidated sands may occur where they are of a critical grain size and water saturated. Quaternary sands (ancient dune sands) underlying the northern part of the study area are coarse-grained and cohesive. Where exposed along seacliffs at Malaga Cove they stand in near-vertical slopes. Minor seepage has been noted locally at the contact of the sands and underlying diatomaceous shale. However, this flow is intermittent and not indicative of a saturated sand body as is required for liquefaction.

So-called "quick" clays collapse when subject to artificial or natural vibrations. These deposits are characteristically of glacial-marine sedimentary origin and not known to exist at the surface or subsurface on the Peninsula.

Associated Geologic Hazards.

Landslides. Mass wasting, that is, the downslope movement of rock and soil must be considered simultaneously with direct seismic effects. Falls and slides can be triggered by earthquake motion on steep slopes, as a rule those greater than 2:1 (about 28^{o}). On the Palos Verdes Peninsula large slides have occurred along bedding planes in the Altamira Shale and are strictly a local phenomenon.

Slump or rotational failures are restricted to shallow depths within the soil profile and are not considered serious hazards. Rock falls have been reported along the seacliffs in the study area and could be a problem under seismic loads where adverse geologic structures exist. Large Translational failures (block glides) along bedding planes are known on the Peninsula but have not occurred in the study area.

In order to assess the risk from these hazards maps were prepared derivitive from the U.S. Geological survey topographic and geologic ones. The derivitive maps (see appendices) show slope angles and earth materials in the study area. Shown on the maps are slopes steeper than 2:1 (greatest susceptibility to failure during a quake). 2:1 to 5:1 (low susceptibility), and slopes less than 5:1 (essentially no risk). Rock and soil types at or just beneath the surface are also shown. The relative susceptibility of each to ground shaking and sliding is as follows:

Quaternary Terrace Cover(Qtc) - - deposits on raised marine terrace surfaces. Usually a thin or non-existent sand layer covered by adobe soil. The adobe cover varies in thickness from a foot to as much as twenty feet. Where the terrace cover is thick, a greater response to seismic waves may be expected. Slopes are less than 5:1 therefore no landslide risk.

Quaternary Sand Dunes (Qs) - - Consolidated and cohesive sand of variable thickness, but at least 30-feet thick in the northwest part of the study area. Terrain underlain by this soil would be most responsive to seismic waves. Occurs in areas of low slope angles thus little landslide potential.

Valmonte Diatomite (Tv) - - Small outcrop area of diatomaceous shale along seacliffs in the northwest portion of the city. This rock has a high resistance to downslope movement, however, along cliffed areas some failures have occurred due to groundwater seepage. Some lurching effects can be expected during a strong earthquake.

Altamira Shale (Ta) - - Usually thin adobe soils overlying competent siliceous and diatomaceous shales with relatively low response to seismic shaking. Where local adverse geologic conditions exist it may be slide prone.

Tertiary Basalt (Tb) - - Resistant bedrock type not prone to sliding and with a low response to seismic waves. This material acts to buttress slopes and the cliffed points along the Peninsula shoreline.

Along seacliff areas, where there is a thick terrace or sand-dune cover, lurching effects would be the greatest hazard due to ground motion. This could result in ground cracking and slumping along the cliffs during shaking. Such sites are delineated on the map (Exhibit A) most notably the Malga Cove-Bluff Cove section.

Bedrock along the cliffs is expected to perform well during an earthquake. Some falling of loose joint blocks and detached rocks will occur, but gross failure is not anticipated. Preliminary geotechnical investigation is required for each building site along the cliffs reducing risks to a minimum. A few sites have already been designated as marginal and would require extensive ground modification before approval for building.

Assessment.

Palos Verdes Estates is a small suburban residential community

with an area of 4.75 square miles. It is bounded on the northeast by the Palos Verdes fault and lies in a region of high seismicity in Southern California. The largest local quake in historic times was a Magnitude 6.2 on March 10, 1933, centered near Long Beach. Shaking effects on the Peninsula ranged from Intensity VII (modified Mercalli Scale) in areas underlain by Tertiary sedimentary rocks, to Intensity VIII where consolidated younger terrace and dune-sand deposits occur. No surface rupture due to faulting has ever occurred on the Peninsula, and the known active faults in the region lie outside the study area.

Shaking will cause slight damage to well-built structures, whereas considerable damage may be expected in older and/or poorly built structures. Inasmuch as 98± percent of the buildings in the city are one and two-story single-family dwellings of modern construction, little serious damage due to shaking is expected. Older structures may sustain considerable damage. There are 34 one, two, and three-story multiple dwellings clustered about the Malaga Cove and Lunada Bay commercial centers. These are modern wood, stucco, and brick construction and would sustain damage similar to well built single-family dwellings.

Surficial slumps of soil and weathered bedrock can be expected on slopes steeper than 2:1 during strong motion. Dwellings founded on piers or caissons in bedrock will not be affected by slumping, however, older structures with shallow continuous footings on steep slopes may sustain considerable structural damage. Large translation failures (block glides) are not known in Palos Verdes

Estates, although massive failures of this type have occurred at Portuguese Bend (Merriam, 1960) and Point Fermin. The adverse geologic conditions and rock types leading to this type of failure have not been found within the city, but they may exist in currently undeveloped land or city-owned parklands.

Damage or loss of life from seiche, tsunami, and mudslide is considered negligible, although access to city-owned beaches should be restricted should an earthquake centered offshore occur.

Mitigating Measures.

The City of Palos Verdes Estates has implemented the following plans and regulations which individually and collectively provide for control of the level of risk that may occur due to seismic related hazards.

1. An emergency operations plan.
2. A two and one half story building height restriction.
3. A Grading Ordinance which requires individual review and preparation of an environmental impact analysis on any development that:
   a. Requires removal of major native vegetation.
   b. Results in a combined cut and fill grading in excess of 250 cubic yards.
   c. The Building Official believes there is need for an Engineering Geology Report or Soils Engineering Report .
4. A requirement that all building plans be signed by a licensed architect unless the value of a new building is less than $8,000.00 or the value of an addition, alteration or repair is less than $4,000.00 or the project does not involve any architectural

4. (cont.)

   design or structural engineering.

5. An Ordinance which adopts the 1973 addition of the Uniform Building Code prepared and published by the International Conference of Building Officials.

LAND USE AND CIRCULATION

The land use and related circulation development in Palos Verdes Estates is single family residential except in the Lunada Bay and Malaga Cove commercial centers. These patterns are set by deed restriction in addition to the City's land use and zoning regulations. In view of this, future development of the City is limited to single family residents and upgrading or replacement of existing multi-family and commercial buildings.

By normal processing of new building permits and remodeling and reconstruction permits, building code requirements are met and structures are required to comply with current design standards for seismic occurrences.

SEISMIC SAFETY ELEMENT RELATIONSHIPS

Relationship to the General Plan

This mandatory element of the Palos Verdes Estates General Plan reflects the statewide concern for seismic safety planning. Palos Verdes Estates General Plan is two years old, and it is considered as complete and in need of no revisions. The Circulation Element and the Land Use Element are parts of the original document adopted in 1973. The City also has adopted the Housing Element, Safety Element, Noise Element and the Open Space-Conservation Element of the General Plan as required by State law. This Seismic Safety Element is closely related to the Safety Element and forms the basis for all building permit evaluations.

The City-wide limitation of a two and one half story building height acts as a positive factor in reducing the percentage of casualties in the event of a major quake along the Newport-Inglewood system or great quake along the San Andreas system.

Environmental Impact Report Procedures

It is appropriate and desirable that the City require that a comprehensive environmental impact report be prepared on all significant projects that deal with new buildings or zone changes that provide for intensification of land use. A development's ability to withstand potential natural disaster should play an important part in the findings in such a report.

IMPLEMENTATION AND REVIEW

Building Inspection Program

A continuing building inspection program has been followed throughout the years of Palos Verdes Estates'existence. Due to the nature of the improvements within the City, it has not been necessary to follow an extensive building inspection program with particular reference to seismic safety. However, in the future, major construction or developments should be required to conform to seismic safety in accordance with contemporary standards. It has been found that pre-1933 buildings used lime motor for joints, poor quality bricks, inadequate structural ties connecting roofs and walls, and no reinforcing steel in the walls. Any high risk structure in Palos Verdes Estates should be located and identified. It if is economically feasible to do so, such a structure should be strengthened and modernized. In some cases, it may be more appropriate to reduce the load level or occupancy of the structure. As a last resort, any building which cannot be rehabilitated and is literally unsafe should be demolished.

Contingency Plans for Major Disasters and Emergencies

In cooperation with Civil Defense Area G of Region I (Los Angeles County) of the California Office of Emergency Services, the City of Palos Verdes Estates has prepared an Emergency Operation Plan (EOP). This plan provides for preparing, mobilizing and employing public and private resources to meet essential needs in serious emergencies. This plan can be placed in effect when a state of war emergency exists in the State of California, when a state of emergency affecting Palos Verdes Estates is

declared by the Governor, or in case of local emergency by action of the City Government.

The City of Palos Verdes Estates also has a Mutual Aid and Joint Powers Agreement with the twelve other cities located within operational Area G of Civil Defense Region I of California. This agreement provides that it is necessary and desirable that the resources, personnel, equipment and facilities of any one part to the agreement be made available to any other party to prevent, combat, or eliminate a probable imminent, or actual threat to life or property resulting from a local peril, local emergency, local disaster, or civil disturbance, in the absence of a duly proclaimed "state of extreme emergency" or "state of disaster", and to render mutual and supplementary police protection one to the other as the need may arise.

Seismic and Emergency Information Programs

Study and experience have shown that the public generally does not know what to do before, during, or after a major earthquake. Due to the unpredictability of earthquakes and the potential violence and destruction in their wake, some individuals fail to prepare properly, and therefore react irrationally.

The public should be made aware of the relative seismic safety hazards of Palos Verdes Estates and its geographical area. Consequently, the City should develop and implement an emergency information and education program to provide the public with timely instructions that will enable the residents to prepare for and safely respond to the effects of a major earthquake or other type of disaster or emergency. This should include information about the nature of earthquakes and why Southern California is subject to seismic occurrences.

The local schools, churches and civic organizations should be encouraged and aided to the extent practicable, to provide disaster training for school children and others. This should include information and advice on how to protect themselves, their families, and their homes during and after a major earthquake or other emergency.

Building Code Update

The City of Palos Verdes Estates operates under the International Conference of Building Officials Building Code which has been adopted by reference with some local modifications. Prior to adoption by the City Council, the Building Code and its amendments are submitted for thorough review by the construction industry and various professional organizations.

In cooperation with the ICBO, steps should be taken to provide the necessary building regulations to insure the stability of major new buildings in case of significant seismic events. Conversely, the

City should be aware of the changes made by the ICBO in the Uniform Building Code to increase the seismic safety of various kinds of structures, and they should be adopted for appropriate use in Palos Verdes Estates.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the data developed during this study for the Seismic Safety Element of the General Plan of the City of Palos Verdes Estates, the following comments, conclusions and recommendations are submitted for consideration and action:

1. No earthquake faults are known to directly underlie the City of Palos Verdes Estates,

   However, some branches of the Palos Verdes Fault may not have been located and geologic surveillance should continue as areas near the zone are more fully developed.

2. Palos Verdes Estates is generally free of any possible damage due to the following phenomina: Ground rupture, Tsunami, liquefaction, large translational failures (Block Glides), Seiche and mudslides.
3. The greatest predictable earthquake throught Southern California could result in an intensity of VIII on the modified mercalli scale in a limited area of Palos Verdes Estates with the

majority of the City having an intensity of VII.

4. 4. The only areas that could expect major damage due to ground shaking are the older structures.

5. In the areas of the City where Altamira Shale or Valmonte Diatomite outcroppings occur along the seacliffs, special efforts should be made to eliminate and prevent groundwater seepage.

6. Preliminary geotechnical investigations should continue to be required on any building site located along the seacliffs, and in addition on any lot with a slope equal to or steeper than two feet horizontal to one foot vertical.

7. The upgrading of building and safety codes for new construction from a seismic safety standpoint should be aimed at lessening loss of life or serious injury. Any increased protection above this level should be at the option of the owner of the property. However, property owners should be encouraged to take the steps necessary to protect their properties against the economic risks of seismic hazards.

8. Pre-1933 buildings in Southern California constitute the most serious threat to public safety because of the probability of their collapse during strong earthquakes in the future. By normal remodeling and reconstruction permits, building code requirements are met and structures are required to comply with current design standards for seismic occurrences.

9. Structures and facilities which are particularly important in post-disaster operations, such as emergency power installations, emergency operating centers, public safety facilities and essential elements of key communications systems, should be designed and constructed to withstand strong earthquake shaking and to continue to function.

10. All public schools are required by state law to conform to very rigid seismic safety design. In addition the Field Act requires that any non-complying structure be brought up to standard. The schools in Palos Verdes Estates are all subject to these requirements and have complied with them.

11. Most typical, modern, one-story, wood-frame houses perform well during eartquake ground shaking in that no severe hazards are created nor are major economic losses widespread in such structures.

12. Utility companies serving or within Palos Verdes Estates should consider the effects of significant seismic events in the planning, design, construction and operations of their installations. To the extent practicable, they should provide spares or redundancies in separated locations, and they should develop repair and recovery ability for emergencies including standby capability. In general, the features of the various systems which are the most vulnerable to

12. seismic disturbances should be identified, and steps should be taken to have the utility companies minimize potential adverse effects. For example valves should be installed at strategic locations for shutoff and isolation of a section of a system. Interconnections of systems for safety are desirable even though they may be limited in capacity.

13. Public safety and welfare depend greatly on the functioning of public utility systems, such as water supply, sewers, gas, electricity, communications and transportation. Consequently, continuing attention should be given to insure that these faciltities will not be seriously disrupted during an earthquake. Public utilities are, in general, such complicated systems that special studies should be made on how adequate earthquake resistance can best be achieved at an economical cost. The State of California probably should take the lead in initiating and sponsoring such research.

14. There are no major highway structures, overpasses, bridges, or tunnels within the City of Palos Verdes Estates, which would be vulnerable to landslides, liquefaction or other geologic hazards.

15. Adequate fire protection should be an integral part of the planning for seismic safety. This includes provisions for an adquate water supply, both from the standpoint of an effective distribution system and a standby source of water on an emergency basis. Also, zoning practices should insure that future developments

adequately provide for the manipulation and deployment of firefighting equipment, particularly in the residential areas of the City.

SELECTED BIBLIOGRAPHY

TABLES

AND

APPENDICES

Selected Bibliography

Appendix A - Definitions of Terms

Appendix B. Map Exhibit A Geologic Earth Materials

Appendix C. Map Exhibit B Generalized Slope Map

Table I - Earthquake Activity

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Appendix A

DEFINITIONS OF TERMS

Accelerograph

An instrument for measuring accelerations or for detecting and measuring vibrations.

Aftershock

Aftershocks are a part of the release of accumulated elastic strain. When a significant earthquake occurs, it not only relieves the pressure along its particular section of fault but also changes the stress patterns for miles around. These changes, in turn, create adjustments of their own.

California Emergency Services Act

The California Emergency Services Act, Chapter 7 of Division 1 of Title 2 of the Government Code, is that portion of the State Code that provides the legal basis for the preparation of emergency plans and the conduct of emergency operations by the State of California and its political subdivisions.

Emergency Operating Center (EOC)

An emergency operating center is a facility designed and equipped to provide a site for local government executives and key officials to direct and control emergency operations. When constructed to Federal criteria, it provides protection against fallout radiation (100 protection factor) and includes a communications center, emergency power, fuel, food and water for a fourteen-day period.

Emergency Operations

Emergency operations refer to those measures and actions taken by local governments and their departments and agencies to minimize loss of life and property and to mitigate hardship resulting from disaster and to expedite recovery.

Epicenter

The part of the earth's surface directly above the point where the fault slip began.

Fault

A fracture of the earth's crust accompanied by a displacement of one side of the fracture with respect to the other.

Active Fault

A fault that has moved in recent geologic time and which is likely to move again in the relatively near future. (For geologic purposes, there are no precise limits to recency of movement or probable future movement that define an "active fault". Definitions for planning purposes extend on the order of 10,000 years or more back and 100 years or more forward. The exact time limits for planning purposes are usually defined in relation to contemplated uses and structures.)

Inactive Fault

A fault which shows no evidence of movement in recent geologic time and no evidence of potential movement in the relatively near future.

Field Act

A statute (Education Code, Sections 15451-15465), enacted following the Long Beach earthquake of 1933, that gave the State Division of Architecture authority and responsibility for approving design and supervising construction of public schools and establishing severe penalties for violations.

Foreshock

Minor movements along faults that sometimes precede and may even provide part of the triggering device for a main earthquake shock. They can occur weeks or months in advance, and their foci or hypocenters may be somewhat removed from that of the main movement.

Ground Deformation

Visible manifestation of earth movement along a fault, or earth cracking. Such movement may have been vertical or horizontal, or both.

Modified Mercalli Scale

A system that describes the effects (intensity) of an earthquake at specified points in terms of a series of levels ranging from I to XII. These intensities tend to be highest near the epicenter of the earthquake, decreasing with increasing distance from a central area; but often this is much modified by the nature of the ground.

Richter Scale

The Richter Magnitude Scale measures the magnitude of an earthquake. Earthquake magnitude numbers are used to compare differenct earthquakes independently of the locations of their epicenters or points of observations. They are calculated from measurements of seismograph records.

Riley Act

Health and Safety Code, Division 13, Part 3, Chapter 2, (Sections 19100-19170, which was enacted in 1933 following the Long Beach earthquake. The act established minimum State standards for construction and exempted farm buildings and dwellings occupied by not more than two families outside the limits of incorporated areas.

Scarp

A line of cliffs produced by faulting or erosion.

Seiches

Earthquake-induced standing waves in lakes or ponds.

Seismic Sea Waves (Tsunami)

Ocean waves, created by submarine earthquakes, that travel great distances at high speeds (average 450 mph) and have a high destructive potential depending on a number of factors such as shoreline configuration and depth of water. They are commonly referred to as tidal waves.

Seismograph

An instrument that writes a continuous record of the successive earth waves generated by an earthquake.

Soil Liquefaction

Change of water saturated cohesionless soil to liquid, usually from intense ground shaking; soil loses all strength.

Strong Shaking

That degree of shaking produced by the earth waves that are generated by an earthquake and radiate out from the hypocenter which is sufficient to cause substantial damage to structures of any size.

Tectonic

Of or relating to the deformation of the earth's crust; the forces involved in or producing such deformation, and the resulting forms. Movement may be rapid resulting in an earthquake, or slow (tectonic creep).

Uniform Building Code

The Uniform Building Code of the International Conference of Building Officials, which was written and adopted initially by the members of the conference in 1926 and as repeatedly amended. Though "uniform" in appearance, it recognizes special requirements of individual areas and so provides.

TABLE I

CALIFORNIA INSTITUTE OF TECHNOLOGY

SEISMOLOGICAL LABORATORY, 295 NORTH SAN RAFAEL AVENUE, PASADENA, CALIFORNIA

MAILING ADDRESS
P.O. BIN 2 — ARROYO ANNEX
PASADENA, CALIFORNIA 91109

TELEPHONE (213) 795-6806

The accompanying list is compiled from the USCoast and Geodetic Survey "Earthquake History of the United States, Part II, Stronger Earthquakes of California and Western Nevada," and yearly publications, "United States Earthquakes;" Gutenberg and Richter, "Seismicity of the Earth," and the publications of Caltech Seismological Laboratory.

Where the month is blank, the time of year is known only roughly, and the day is of no significance.

Time of day (24 hours, midnight to midnight) is given where known. PST

LAT and LONG are the latitude and longitude of the epicenter where it is known or inferred from the available reports of distribution of intensity: otherwise, the coordinates of the area of highest reported intensity.

Q indicates the presumed accuracy of LAT and LONG:

3 instrumental location good within 15 km.
4 listed to the nearest $\frac{1}{4}$ or 0.1 degree
5 listed to the nearest $\frac{1}{2}$ degree
6 listed to the nearest degree

MAG is magnitude on the Richter scale

I is maximum reported intensity on the Modified Mercalli Scale of 1931

A indicates estimated area of perceptibility:

1 1,000 - 2,999 square miles
2 3,000 - 9,999
3 10,000 - 29,999
4 30,000 - 99,999
5 100,000 - 299,999
6 300,000 or over

special reports take precedence over the above:
8 seismic sea wave
9 surface faulting is indicated or confirmed by descriptions of ground fissures

D distance in kilometers from the point designated by LAT and LONG to 33° 45' N, 118° 20' W

STRONG EARTHQUAKES NEAR 33°45'N 118°20'W (PALOS VERDES REGION)

YEAR	MO	DA	H M	LAT	LONG	Q	MAG	I	A	D
1812	12	8	.07..00..00.00	33..30.00	117..40.00	4..	0.0..	8.5..		68
1855	7	10	.20..15..00.00	34..00.00	118..30.00	5..	0.0..	8.0..	8	32
1878		1	.00..00..00.00	34..00.00	118..30.00	5..	0.0..	7.2..		32
1889	8	27	.18..15..00.00	34..00.00	118..00.00	6..	0.0..	6.0..		41
1890	2	9	.04..06..00.00	34..00.00	117..30.00	5..	0.0..	6.0..		82
1893	4	4	.11..40..00.00	34..30.00	118..30.00	5..	0.0..	8.5..	9	85
1903	12	25	.09..45..00.00	34..00.00	118..00.00	5..	0.0..	6.0..		41
1910	5	15	.07..47..00.00	33..30.00	117..30.00	5..	6.0..	7.0..		82
1912	12	14	.00..00..00.00	34..00.00	119..00.00	5..	0.0..	6.5..		67
1918	4	22	.13..15..00.00	34..00.00	117..30.00	5..	0.0..	6.0..		82
1918	11	19	.12..18..00.00	34..00.00	118..30.00	4..	0.0..	6.0..		32
1920	6	21	.18..48..00.00	34..00.00	118..30.00	5..	4.9..	8.0..	3	32
1920	7	16	.10..08..00.00	34..00.00	118..30.00	5..	0.0..	6.0..		32
1927	8	4	.04..24..00.00	34..00.00	118..30.00	5..	0.0..	6.0..		32
1929	7	8	.08..46..00.00	34..00.00	118..00.00	4..	4.7..	8.0..		41
1930	8	30	.16..40..00.00	33..00.00	118..00.00	5..	5.2..	7.0..	3	89
1933	3	10	.17..54..00.00	33..36.00	118..00.00	4..	6.2..	9.0..	5	35
1933	10	2	.01..10..00.00	33..48.00	118..06.00	3..	5.4..	6.0..	2	22
1938	5	31	.00..33..00.00	33..42.00	117..30.00	4..	5.5..	6.0..	4	77
1939	12	27	.11..28..00.00	33..48.00	118..06.00	4..	4.5..	6.0..		22
1940	10	10	.21..57..00.00	33..48.00	118..24.00	4..	5.0..	6.0..	3	8
1941	11	14	.00..41..00.00	33..48.00	118..12.00	4..	5.4..	7.5..	2	13
1944	6	18	.16..03..00.00	33..54.00	118..12.00	4..	4.5..	6.0..	3	21
1952	8	23	.02..09..00.00	34..30.00	118..12.00	4..	5.0..	6.0..	4	84
1956	1	2	.16..25..00.00	33..48.00	117..30.00	4..	4.7..	6.0..	2	77
1956	2	6	.18..17..00.00	34..36.00	118..36.00	..	4.2..	6.0..	2	97
1956	2	6	.19..16..00.00	34..36.00	118..36.00	..	4.6..	6.0..	2	97
1957	3	18	.10..56..00.00	34..06.00	119..12.00	4..	4.7..	6.0..	2	89
1961	10	20	.11..49..00.00	33..39.00	118..00.00	3..	4.3..	6.0..	1	33
1965	1	1	.00..04..00.00	34..00.00	117..36.00	3..	4.5..	6.0..	2	73
1965	4	15	.12..08..00.00	34..06.00	117..30.00	3..	4.5..	6.0..	2	86
1965	7	15	.23..46..00.00	34..24.00	118..36.00	3..	4.5..	6.0..	2	76
1965	11	12	.15..55..00.00	34..00.00	118..12.00	3..	3.0..	6.0..		30
1966	10	1	.21..12..00.00	33..58.00	118..19.00	3..	3.5..	6.0..		24
1967	6	14	.20..58..00.00	34..00.00	117..58.00	3..	4.1..	6.0..		44

TABLE I - A

CALIFORNIA INSTITUTE OF TECHNOLOGY

SEISMOLOGICAL LABORATORY, 295 NORTH SAN RAFAEL AVENUE, PASADENA, CALIFORNIA

MAILING ADDRESS:
P.O. BIN 2—ARROYO ANNEX
PASADENA, CALIFORNIA 91109

The accompanying list is extracted from a catalog of earthquakes recorded at the Seismological Laboratory, Pasadena, California, and its auxiliary stations.

Double periods replace colons in origin times, latitude and longitude; and separate quality from magnitude, and depth of focus from list identifiers.

Q -- quality of epicenter location
- 1 unusually accurate
- 2 accurate within 5 km.
- 3 accurate within 15 km.
- 4 rough

MAG -- magnitude on the Richter scale

DEPTH -- depth of focus in kilometers below sea level, If LIST is 8 or 9, depth was assumed to be 15 km. in solving for epicenter

LIST -- identifies source of epicenter determination:

- 9 Local Earthquake Bulletin 1934-1957, issued by the Seismological Laboratory and edited and revised by Clarence Allen and Pierre St. Amand
- 8 Local Earthquake Bulletin 1957 -- June, 1961, and later shocks not located by the method of least squares
- 7 locations determined by the U.S. Coast and Geodetic Survey: origin time reported to the nearest second, coordinates to the nearest tenth of a degree
- 1 locations obtained at the Seismological Laboratory, Pasadena, using the method of least squares on an electronic computer.

D -- distance in kilometers from a specified point in the region; given only if the list is confined to shocks within a circle about that point.

For further details, see Nordquist, "A catalog of Southern California earthquakes, and associated data processing programs" Bulletin of the Seismological Society of America, vol. 54, pp 1003-1011 (reprint 480).

Time is Greenwich Mean Time -- for Pacific Standard Time, subtract 8 hours, for Pacific Daylight Time, subtract 7 hours.

EARTHQUAKES MAGNITUDE 4.0 AND OVER WITHIN 50 KILOMETERS OF 33°45'N 118°20'W
(PALOS VERDES AREA)

YEAR	MO	DA	H	M	S	°	' N	°	' W	Q	MAG	DEPTH	LIST	D
1933	3	11	.01	54	07.80	33	37.00	117	58.00	1	6.3	.0	8	7
1933	3	11	.02	04	00.00	33	45.00	118	05.00	3	4.9	.0	8	23
1933	3	11	.02	05	00.00	33	45.00	118	05.00	3	4.3	.0	8	23
1933	3	11	.02	09	00.00	33	45.00	118	05.00	3	5.0	.0	8	23
1933	3	11	.02	10	00.00	33	45.00	118	05.00	3	4.6	.0	8	23
1933	3	11	.02	11	00.00	33	45.00	118	05.00	3	4.4	.0	8	23
1933	3	11	.02	16	00.00	33	45.00	118	05.00	3	4.8	.0	8	23
1933	3	11	.02	17	00.00	33	36.00	118	00.00	5	4.5	.0	8	35
1933	3	11	.02	22	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.02	27	00.00	33	45.00	118	05.00	3	4.6	.0	8	23
1933	3	11	.02	30	00.00	33	45.00	118	05.00	3	5.1	.0	8	23
1933	3	11	.02	31	00.00	33	36.00	118	00.00	5	4.4	.0	8	35
1933	3	11	.02	52	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.02	57	00.00	33	45.00	118	05.00	3	4.2	.0	8	23
1933	3	11	.02	58	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.02	59	00.00	33	45.00	118	05.00	3	4.6	.0	8	23
1933	3	11	.03	05	00.00	33	45.00	118	05.00	3	4.2	.0	8	23
1933	3	11	.03	09	00.00	33	45.00	118	05.00	3	4.4	.0	8	23
1933	3	11	.03	11	00.00	33	45.00	118	05.00	3	4.2	.0	8	23
1933	3	11	.03	23	00.00	33	36.00	118	00.00	5	4.2	.0	8	35
1933	3	11	.03	23	00.00	33	45.00	118	05.00	3	5.0	.0	8	23
1933	3	11	.03	36	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.03	39	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.03	47	00.00	33	45.00	118	05.00	3	4.1	.0	8	23
1933	3	11	.04	36	00.00	33	45.00	118	05.00	3	4.6	.0	8	23
1933	3	11	.04	39	00.00	33	45.00	118	05.00	3	4.9	.0	8	23
1933	3	11	.04	40	00.00	33	45.00	118	05.00	3	4.7	.0	8	23
1933	3	11	.05	10	22.00	33	42.00	118	04.00	3	5.1	.0	8	25
1933	3	11	.05	13	00.00	33	45.00	118	05.00	3	4.7	.0	8	23
1933	3	11	.05	15	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.05	18	04.00	33	34.50	117	59.00	3	5.2	.0	8	38
1933	3	11	.05	21	00.00	33	45.00	118	05.00	3	4.4	.0	8	23
1933	3	11	.05	24	00.00	33	45.00	118	05.00	3	4.2	.0	8	23
1933	3	11	.05	53	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.05	55	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.06	11	00.00	33	45.00	118	05.00	3	4.4	.0	8	23
1933	3	11	.06	18	00.00	33	45.00	118	05.00	3	4.2	.0	8	23
1933	3	11	.06	29	00.00	33	51.00	118	16.00	3	4.4	.0	8	13
1933	3	11	.06	35	00.00	33	45.00	118	05.00	3	4.2	.0	8	23
1933	3	11	.06	58	03.00	33	41.00	118	03.00	3	5.5	.0	8	27
1933	3	11	.07	51	00.00	33	45.00	118	05.00	3	4.2	.0	8	23
1933	3	11	.07	59	00.00	33	45.00	118	05.00	3	4.1	.0	8	23
1933	3	11	.08	08	00.00	33	45.00	118	05.00	3	4.5	.0	8	23
1933	3	11	.08	32	00.00	33	45.00	118	05.00	3	4.2	.0	8	23
1933	3	11	.08	37	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.08	54	57.00	33	42.00	118	04.00	3	5.1	.0	8	25
1933	3	11	.09	10	00.00	33	45.00	118	05.00	3	5.1	.0	8	23
1933	3	11	.09	11	00.00	33	45.00	118	05.00	3	4.4	.0	8	23
1933	3	11	.09	26	00.00	33	45.00	118	05.00	3	4.1	.0	8	23
1933	3	11	.10	25	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.10	45	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.11	00	00.00	33	45.00	118	05.00	3	4.0	.0	8	23
1933	3	11	.11	04	00.00	33	45.00	118	08.00	3	4.6	.0	8	18
1933	3	11	.11	29	00.00	33	45.00	118	05.00	3	4.0	.0	8	23

YEAR	MO	DA	H	M	S	°	' N	°	' W	Q	MAG	DEPTH	LIST	D
1933	3	11	.	11	. . 38	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	11	.	11	. . 41	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	11	.	11	. . 47	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.4	. .	.0	. . 8	23
1933	3	11	.	12	. . 50	. . 00.00	33	. . 41.00	118	. . 03.00	3	. . 4.4	. .	.0	. . 8	27
1933	3	11	.	13	. . 50	. . 00.00	33	. . 44.00	118	. . 06.00	3	. . 4.4	. .	.0	. . 8	22
1933	3	11	.	13	. . 57	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	11	.	14	. . 25	. . 00.00	33	. . 51.00	118	. . 16.00	3	. . 5.0	. .	.0	. . 8	13
1933	3	11	.	14	. . 47	. . 00.00	33	. . 44.00	118	. . 06.00	3	. . 4.4	. .	.0	. . 8	22
1933	3	11	.	14	. . 57	. . 00.00	33	. . 53.00	118	. . 19.00	3	. . 4.9	. .	.0	. . 8	15
1933	3	11	.	15	. . 09	. . 00.00	33	. . 44.00	118	. . 06.00	3	. . 4.4	. .	.0	. . 8	22
1933	3	11	.	15	. . 47	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	11	.	16	. . 53	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.8	. .	.0	. . 8	23
1933	3	11	.	19	. . 44	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	11	.	19	. . 56	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	11	.	22	. . 00	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.4	. .	.0	. . 8	23
1933	3	11	.	22	. . 31	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.4	. .	.0	. . 8	23
1933	3	11	.	22	. . 32	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	11	.	22	. . 40	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.4	. .	.0	. . 8	23
1933	3	11	.	23	. . 05	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	12	.	00	. . 27	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.4	. .	.0	. . 8	23
1933	3	12	.	00	. . 34	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	12	.	04	. . 48	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	12	.	05	. . 46	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.4	. .	.0	. . 8	23
1933	3	12	.	06	. . 01	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	12	.	06	. . 16	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.6	. .	.0	. . 8	23
1933	3	12	.	07	. . 40	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	12	.	08	. . 35	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	12	.	15	. . 02	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	12	.	16	. . 51	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	12	.	17	. . 38	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.5	. .	.0	. . 8	23
1933	3	12	.	18	. . 25	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	12	.	21	. . 28	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	12	.	23	. . 54	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.5	. .	.0	. . 8	23
1933	3	13	.	03	. . 43	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	13	.	04	. . 32	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.7	. .	.0	. . 8	23
1933	3	13	.	06	. . 17	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	13	.	13	. . 18	. . 28.00	33	. . 45.00	118	. . 05.00	3	. . 5.3	. .	.0	. . 8	23
1933	3	13	.	15	. . 32	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	13	.	19	. . 29	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	14	.	00	. . 36	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	14	.	12	. . 19	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.5	. .	.0	. . 8	23
1933	3	14	.	19	. . 01	. . 50.00	33	. . 37.00	118	. . 01.00	3	. . 5.1	. .	.0	. . 8	33
1933	3	14	.	22	. . 42	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	15	.	02	. . 08	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	15	.	04	. . 32	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	15	.	05	. . 40	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	15	.	11	. . 13	. . 32.00	33	. . 37.00	118	. . 01.00	3	. . 4.9	. .	.0	. . 8	33
1933	3	16	.	14	. . 56	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.0	. .	.0	. . 8	23
1933	3	16	.	15	. . 29	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	16	.	15	. . 30	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	17	.	16	. . 51	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.1	. .	.0	. . 8	23
1933	3	18	.	20	. . 52	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23
1933	3	19	.	21	. . 23	. . 00.00	33	. . 45.00	118	. . 05.00	3	. . 4.2	. .	.0	. . 8	23

YEAR	MO	DA	H	M	S	°	' N	°	' W	Q	MAG	DEPTH	LIST	D
1933	3	20	.13..	58..	00.00	33..	45.00	118..	05.00	3..	4.1..	.0..	8	23
1933	3	21	.03..	26..	00.00	33..	45.00	118..	05.00	3..	4.1..	.0..	8	23
1933	3	23	.08..	40..	00.00	33..	45.00	118..	05.00	3..	4.1..	.0..	8	23
1933	3	23	.18..	31..	00.00	33..	45.00	118..	05.00	3..	4.1..	.0..	8	23
1933	3	25	.13..	46..	00.00	33..	45.00	118..	05.00	3..	4.1..	.0..	8	23
1933	3	30	.12..	25..	00.00	33..	45.00	118..	05.00	3..	4.4..	.0..	8	23
1933	3	31	.10..	49..	00.00	33..	45.00	118..	05.00	3..	4.1..	.0..	8	23
1933	4	1	.06..	42..	00.00	33..	45.00	118..	05.00	3..	4.2..	.0..	8	23
1933	4	2	.08..	00..	00.00	33..	45.00	118..	05.00	3..	4.0..	.0..	8	23
1933	4	2	.15..	36..	00.00	33..	45.00	118..	05.00	3..	4.0..	.0..	8	23
1933	5	16	.20..	58..	55.00	33..	45.00	118..	10.00	3..	4.0..	.0..	8	15
1933	8	4	.04..	17..	48.00	33..	45.00	118..	11.00	3..	4.0..	.0..	8	14
1933	10	2	.09..	10..	17.60	33..	47.00	118..	08.00	1..	5.4..	.0..	8	19
1933	10	2	.13..	26..	01.00	33..	37.00	118..	01.00	3..	4.0..	.0..	8	33
1933	10	25	.07..	00..	46.00	33..	57.00	118..	08.00	3..	4.3..	.0..	8	29
1933	11	13	.21..	28..	00.00	33..	52.00	118..	12.00	3..	4.0..	.0..	8	18
1933	11	20	.10..	32..	00.00	33..	47.00	118..	08.00	2..	4.0..	.0..	8	19
1934	1	20	.21..	17..	00.00	33..	37.00	118..	07.00	2..	4.5..	.0..	9	25
1934	4	17	.18..	33..	00.00	33..	34.00	117..	59.00	3..	4.0..	.0..	9	38
1934	10	17	.09..	38..	00.00	33..	38.00	118..	24.00	2..	4.0..	.0..	9	14
1934	11	16	.21..	26..	00.00	33..	45.00	118..	00.00	2..	4.0..	.0..	9	31
1935	12	25	.17..	15..	00.00	33..	36.00	118..	01.00	2..	4.5..	.0..	9	34
1936	8	22	.05..	21..	00.00	33..	46.00	117..	49.00	2..	4.0..	.0..	9	48
1936	10	29	.22..	35..	00.00	33..	43.00	118..	42.00	3..	4.0..	.0..	9	34
1937	1	15	.18..	35..	00.00	33..	30.00	118..	15.00	2..	4.0..	.0..	9	29
1937	7	7	.11..	12..	00.00	33..	34.00	117..	59.00	2..	4.0..	.0..	9	38
1938	5	21	.09..	44..	00.00	33..	37.00	118..	02.00	2..	4.0..	.0..	9	31
1938	8	31	.03..	18..	00.00	33..	48.00	118..	14.00	2..	4.5..	.0..	9	11
1938	11	29	.19..	21..	00.00	33..	53.00	118..	28.00	2..	4.0..	.0..	9	19
1938	12	7	.03..	38..	00.00	34..	00.00	118..	25.00	2..	4.0..	.0..	9	29
1939	11	4	.21..	41..	00.00	33..	46.00	118..	07.00	2..	4.0..	.0..	9	20
1939	12	27	.19..	28..	49.00	33..	47.00	118..	08.00	2..	4.5..	.0..	9	19
1940	1	13	.07..	49..	00.00	33..	47.00	118..	08.00	2..	4.0..	.0..	9	19
1940	2	8	.16..	56..	17.00	33..	42.00	118..	04.00	2..	4.0..	.0..	9	25
1940	2	11	.19..	24..	10.00	33..	59.00	118..	18.00	2..	4.0..	.0..	9	26
1940	7	18	.04..	01..	13.00	33..	42.00	118..	04.00	2..	4.0..	.0..	9	25
1940	10	11	.05..	57..	13.00	33..	47.00	118..	25.00	2..	5.0..	.0..	9	9
1940	10	12	.00..	24..	00.00	33..	47.00	118..	25.00	2..	4.0..	.0..	9	9
1940	10	14	.20..	51..	11.00	33..	47.00	118..	25.00	2..	4.0..	.0..	9	9
1940	11	1	.07..	25..	03.00	33..	47.00	118..	25.00	2..	4.0..	.0..	9	9
1940	11	1	.20..	00..	46.00	33..	38.00	118..	12.00	2..	4.0..	.0..	9	18
1940	11	2	.02..	58..	26.00	33..	47.00	118..	25.00	2..	4.0..	.0..	9	9
1941	1	30	.01..	34..	47.00	33..	58.00	118..	03.00	1..	4.0..	.0..	9	35
1941	3	22	.08..	22..	40.00	33..	31.00	118..	06.00	2..	4.0..	.0..	9	34
1941	10	22	.06..	57..	18.00	33..	49.00	118..	13.00	1..	5.0..	.0..	9	13
1941	10	22	.10..	32..	20.00	33..	47.00	118..	12.00	2..	4.0..	.0..	9	13
1941	11	14	.08..	41..	36.00	33..	47.00	118..	15.00	1..	5.5..	.0..	9	9
1942	4	16	.07..	28..	00.00	33..	22.00	118..	09.00	3..	4.0..	.0..	9	46
1944	6	19	.00..	03..	33.00	33..	52.00	118..	13.00	2..	4.5..	.0..	9	17
1944	6	19	.03..	06..	07.00	33..	52.00	118..	13.00	3..	4.4..	.0..	9	17
1950	1	11	.21..	41..	35.00	33..	57.00	118..	12.00	2..	4.1..	.0..	9	25
1961	10	20	.19..	49..	50.50	33..	39.24	117..	59.65	2..	4.3..	4.6..	1	33
1961	10	20	.20..	07..	14.46	33..	39.57	117..	58.84	2..	4.0..	6.1..	1	34

YEAR	MO	DA	H	M	S	°	' N	°	' W	Q	MAG	DEPTH	LIST	D
1961	10	20	.21	.42	.40.74	33	.39.91	117	.58.77	2	.4.0	7.2	.1	34
1961	10	20	.22	.35	.34.21	33	.40.29	118	.00.75	2	.4.1	5.6	.1	31
1961	11	20	.08	.53	.34.66	33	.40.83	117	.59.57	2	.4.0	4.4	.1	22
1963	9	14	.03	.51	.16.24	33	.32.56	118	.20.41	2	.4.2	2.2	.1	23
1967	1	8	.07	.37	.30.40	33	.37.93	118	.28.03	2	.4.0	11.4	.1	18
1967	1	8	.07	.38	.05.34	33	.39.79	118	.24.80	3	.4.0	17.7	.1	12
1967	6	15	.04	.58	.05.52	33	.59.79	117	.58.49	2	.4.1	10.0	.1	43

CITY OF PALOS VERDES ESTATES, CALIFORNIA

SAFETY ELEMENT

OF THE GENERAL PLAN

SEPTEMBER

1 9 7 5

CITY OF PALOS VERDES ESTATES

DEPARTMENT OF
PUBLIC WORKS
(213) 378-0383

CITY OF PALOS VERDES ESTATES
INCORPORATED 1939
CALIFORNIA

CITY HALL
PALOS VERDES ESTATES
CALIFORNIA 90274

NEGATIVE DECLARATION

CITY OF PALOS VERDES ESTATES, CALIFORNIA

GENERAL PLAN SAFETY ELEMENT

Project Description

This project consists of the adoption of the Safety Element of the General Plan of the City of Palos Verdes Estates, California as required by the State of California Government Code Section 65302.

Findings

In view of the fact that the conclusions of the Safety Element do not propose any adverse alterations to the environment as defined under the California Environmental Quality Act it is hereby determined that this project will not have a significant effect on the environment.

Initial Study

The initial study for this project is the second draft of the proposed Safety Element prepared by George Taylor, Director of Public Works/Planning Director of the City of Palos Verdes Estates. Copies of the initial study can be obtained from the office of the Director of Public Works, 340 Palos Verdes Estates, California 90274.

Posted: May 25 1975
P.V. Library
City Hall
P.V. Country Club

SAFETY ELEMENT

CITY OF PALOS VERDES ESTATES, CALIFORNIA

INTRODUCTION

Authority for Safety Element

The Government Code of the State of California requires that each City prepare and adopt a Safety Element for the City's General Plan. Section 65302.1 reads in part as follows:

> A Safety Element for the protection of the community from fires and geologic hazards including features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road widths, clearance around structures, and geologic hazard mapping in areas of known geologic hazard.

DEFINITIONS

The State of California Guidelines for preparation of the safety element contain the following definitions:

Acceptable Risk: The level of risk below which no specific action by local government is deemed to be necessary.

Unacceptable Risk: Level of risk above which specific action by government is deemed to be necessary to protect life and property.

Avoidable Risk: Risk not necessary to take because individual or public goals can be achieved at the same or less total "cost" by other means without taking the risk.

SAFETY ELEMENT

TABLE OF CONTENTS

Additional efforts to control safety hazards from fire together with identification of these hazards are set forth in appendix A attached hereto. This appendix, prepared by the Fire Chief is supported by the City Council and they will continue to update the fire fighting ability of the City within its realistic ability to do so. The Council will also continue to review the water supply systems with California Water Company to assure proper fire fighting capacity.

In relation to the individual property owners protection, the Council encourages the implementation of smoke detection alarms and sprinkler systems for existing properties where appropriate.

SCOPE AND NATURE OF SAFETY ELEMENT

Palos Verdes Estates has prepared a safety element which takes into consideration the unique characteristics of the city and the adjoining environment.

General Policy

The City Council has voted that in order to retain the unique rural natural environment of the City, such as its large natural parkland areas with their heavy growth of natural brush and trees together with large stands of trees and foliage in the residential areas, and the unique ocean bluffs and beaches /that the level of related risks from fire and accidental injury are comprising a marine reserve, higher than in normal communities, but are considered acceptable. In addition, development of the city's streets and water supply due to the extremely steep terrain of the area does not permit street widths grades, and water pressure that are normally expected in other communities. Again these "deficiencies" together with their related hazards have in general been accepted by the community as acceptable risks.

Major disaster flood hazards for the community have been controlled by construction of storm drain systems both by the Los Angeles County Flood Control District and the City. Additional improvements are programmed and all developments, including single family construction are reviewed for potential flood problems.

Generally speaking the degree of review for each new development takes into consideration the possible safety hazards involved and where unccept-able safety risks are found specific action is taken to reduce the risk to acceptable levels.

SAFETY ELEMENT RELATIONSHIPS

Relationship With Other Elements of the General Plan

The safety element is closely related to the seismic safety element, the land use and circulation element, and the open space and conservation element.

Safety hazards can be a decisive factor in consideration of proposed development type and location.

The City's building code also provides basic guidelines for safe construction as does the City's fire code. In addition, the City has adopted a resolution of intention to update its grading ordinance which places strong emphasis on geologic protection.

Relationships With Other Agencies

The safety element and its implementation should be coordinated closely with the surrounding communities particularly in the area of disaster preparedness, mutual aid and fire response.

Other agencies of aid to the City include, but are not limited to:

1. The American Red Cross
2. The Federal Disaster Assistance Administration
3. California Office of Emergency Services
4. The California Division of Industrial Safety
5. State and County Health Departments

GEOLOGIC HAZARDS

Geologic hazards are defined in the Seismic Safety Element of the General Plan.

The community is free of known active faults and major slide areas. There have been in the past and probably will occur again in the future ocean bluff erosion and rock falls. All of the bluff areas are subject to this hazard and therefore prior to development in this area detailed geologic studies are required. If these studies indicate unacceptable risks are avoidable, it is required that the necessary steps be taken to eliminate the unacceptable risk.

LAND USE AND CIRCULATION RELATIONSHIP

The City's land use and circulation elements of the general plan have taken into account the concern for development of the City.

These elements together with the City Code limit remaining development of the City to residential uses and provide for control of fire and geologic hazards.

No additional controls are deemed necessary at this time.

EVACUATION ROUTES

The City, due to its terrain, has only three routes of total evacuation. These routes are Palos Verdes Drive West, Palos Verdes Drive North and Granvia Altamira. Depending on the type and location of the disaster, these routes should serve adequately.** Concern for organized evacuation has been expressed by the Chief of Police as shown in the attached Appendix B.

** In addition, 4 1/2 miles of undeveloped ocean front provides a secondary evacuation potential.

IMPLEMENTATION

General Comments

The implementation of the policies of the City of Palos Verdes Estates with respect to safety hazards can be accomplished by adherence to the existing regulation of the City relating to Environmental Impact Procedures, and Building and Fire Codes together with implementation of the Seismic Safety Element.

Periodic review and updating of the City's ordinances relating to safety should be made.

Conclusions

To provide for the protection of life and property the City should:

1. Support to the best of its ability the recommendations contained in Appendix A & B.
2. Continue the City's existing Building, Fire, and Environmental Ordinance restrictions on potential safety hazards.
3. Provide for the implementation of the City's Seismic Safety Element.
4. Work with all recognized safety agencies to develop and implement reasonable safety standards.

Relationship With Environmental Impact Report Procedures

The federal, state and local environmental impact regulations provide a key instrument for implementation of safety protection when any development within the City or surrounding areas is proposed.

It is therefore imperative that appropriate environmental impact reports be required for any project development or activity which might create a safety hazard or reduce present safety standards.

B. Evaluation of Existing and Potential Fire and Life Hazards

1. Well started brush fires may quickly overwhelm the city's fire suppression forces leading to loss of exposed homes. Particularly those homes having wood shingle roofs or situated on canyon rims and steep hillsides. Where heavy brush extends up to homes, those homes are also directly exposed to the flames. Mutual aid assistance from South Bay cities and the L. A. County Fire Protection District limits somewhat the hazards to destruction of homes, under normal climatic conditions. Unusual weather conditions such as Santa Ana winds blowing increase the destruction potential immensely. The canyons, hillsides and some other undeveloped areas are covered with heavy growths of the fastest burning, most dangerous vegetation in the world. Embers picked up by the wind may travel hundreds of feet and still remain capable of igniting wood shingle roofs and unburned brush.

   Green belts of fire resistant plantings and fire retardant coatings for wood shingle roofs are vital to provide an acceptable level of fire risk for the brush and tree areas. This will give our fire suppression forces a reasonable chance to control and extinguish such fast moving fires under normal conditions. Brush clearance from structures to a minimum of 30 feet, maintaining ornamental trees and shrubbery free of dead limbs and branches, maintaining a ten-foot clearance between trees and fireplace chimneys with no branches overhanging chimneys are essential to an acceptable level of risk.

2. Large undivided, unprotected and in many cases hidden attic spaces within commercial and institutional buildings in particular, allow fire to spread quickly and undetected. This characteristic may allow fire to involve more than one business within a building. Ventilating the fire through holes cut in the roof allows smoke and superheated gases (over 1,000° F), to escape vertically, tending to concentrate the fire towards the openings and generally reducing the lateral spread of the fire below. In turn, this permits firefighters to enter from below, locate, confine and extinguish the fire with the least possible damage to the building due to water use and flame spread.

   A moderate size fire in one of those buildings may quickly overtax the fire department's control of the fire, due to our inability to ventilate quickly and to the drain on manpower required to attack fires in more than one business occupancy, simultaneously. Even small diameter hoselines inside buildings require an absolute minimum of two men to handle. Mutual aid assistance will provide manpower sufficient to control the fire after perhaps a fifteen-minute delay in response time.

   The best solution to this fire problem would be installation of automatic sprinklers on a supervised system within all commercial buildings. Many years of experience shows that ninety-seven percent

APPENDIX A

CITY OF PALOS VERDES ESTATES

OFFICE OF
FIRE CHIEF
(213) 378-4275

CITY HALL
PALOS VERDES ESTATES
CALIFORNIA 90274

August 11, 1975

TO: George C. Taylor, Public Works Director/City Engineer

FROM: John S. Christopher, Fire Chief

SUBJECT: Safety Element Comments

A. Identify Existing Fire and Life Hazards

1. Large unbroken brush areas generally throughout the city, essentially in canyons and on steep hillsides. See map. Many homes on rims.

2. Large area of city is heavily grown with eucalyptus trees. Homes generally have wood shingle roofs, Valmonte/La Selva tree area. Generally in northern portion of city.

3. Many homes located throughout the city are over 2500 square feet in area, are multi-story with very high value contents and no smoke or fire detection warning devices.

4. Several four story equivalent buildings in commercial zones of city.

5. Large undivided and unprotected attic spaces, in older commercial buildings with multiple occupancies.

6. Large undivided and unprotected spaces within commercial and institutional occupancies throughout the city.

7. Ceramic tile roofs on commercial, institutional and many residences make ventilation of fires difficult.

8. Many areas in city are more than five minute response time from fire station.

9. Palos Verdes Players Theater, large groups of people, quantities of combustibles in Malaga Plaza.

10. Several miles of steep cliffs 200 ft. in height dropping to the ocean below, cover generally the westerly portions of the city.

at 20 pounds per square inch residual pressure should be the goal. These minimums should be graduated upwards in accordance with the ISO Grading Schedule required fire flows for more hazardous locations.

7. Narrow winding roads make response times excessive to much of the city. Forty percent of the homes are more than five minutes response time from the existing fire station. Almost all individuals will die within six minutes after breathing stops. Permanent brain damage can occur after four minutes without breathing.

   Flashover is a term used to describe the condition where the entire surface of a room bursts into flames at one time. Flashover can occur in a room when the temperature reaches 1,000° F. Results of many test fires conducted by the National Fire Association (NFPA), in ordinary combustibles and in typical residential type rooms indicate that that temperature may be reached within six minutes after ignition.

   Complete protection is impossible, of course, but a response time of five minutes or less can reasonably be assured if a second fire station and manpower are provided. In addition, smoke detectors in each home will make earliest detection of fire possible and give occupants time to escape.

8. Many homes and other buildings do not display street numbers that are easily visible from any position on the street. After dark, when a small fire occurs or on a rescue response and where no one is waiting to direct the fire department to the emergency, much additional time is wasted searching for the emergency location. This unnecessary delay in service could be eliminated if all lots were required to post street numbers in a position easily seen from the street, numbers at least four inches high, either lighted or in colors sharply contrasting with the background.

9. Efforts should be directed toward strengthening of mutual aid commitments. Automatic first alarm mutual aid agreements should be sought out with South Bay cities and the Los Angeles County Fire Protection District. Our fire department capability should be strengthened wherever needed to make such automatic aid beneficial to all parties involved. In any case, a reciprocal capability to provide mutual aid out is a reasonable and absolutely essential goal. A second fire station and small increase in manpower will permit this city to participate fully in such plans without a serious temporary decrease in fire suppression capability for Palos Verdes Estates.

10. Mobile Intensive Care Paramedic Service is not now available to our residents. Efforts should continue to be directed toward providing such service as soon as possible consistent with good planning.

Jack Christopher

JSP/ai

of all fires occurring in sprinklered buildings are extinguished or controlled by the automatic sprinklers. In this way only those buildings that cause unusual fire problems will have to pay for the above average costs for their own protection by installing and maintaining automatic sprinkler systems. In most cases, the money spent is recoverable in lower fire insurance premiums.

A secondary solution would include installation of a supervised smoke or heat detection warning system. Almost all fires if detected early enough, may be extinguished with a cup of water. A warning system that will alert the fire department immediately after a fire is detected will go a long way toward assuring control and extinguishment of the fire quickly, with the least amount of damage.

3. Large undivided and unprotected spaces within commercial, institutional and residential structures may permit undetected fires to extend quickly. The circumstances and solutions for this problem will be the same as in Item 2 on the preceding page.

4. The "tree area" in the northern part of the city is a potential conflagration breeder perhaps as dangerous as that of the brush areas. The solution to this problem will be the same as for Item 1 on the preceding page.

5. The Insurance Services Office (ISO), formerly the National Board of Fire Underwriters, schedule for grading a city's fire defenses, recommends that numbers of fire companies needed are directly related to the largest fire flow required within that city. For Palos Verdes Estates, our largest fire flow required is 3500 gallons per minute, for the Malaga Cove Plaza. The grading schedule recommends a minimum of three (3) engine companies and one (1) ladder truck company where the required fire flow is 3500 GPM. Properly located, two fire stations should reasonably meet that ISO recommendation, in this city. For fires occurring in single family residences minimum protection should be two engine companies and a truck company.

6. Several areas throughout the city do not have water distribution systems adequate for the large fire flows they may be called upon to deliver. Small diameter mains, poor gridding of mains, long dead end mains of small diameter all contribute to this problem. The California Water Services Company has for the last three years been successfully working to correct the worst of these areas. Efforts directed toward eliminating these deficiencies should be vigorously continued. Where the system is well gridded, six inch (6) diameter mains are the minimum size acceptable for fire hydrants. On dead end mains, eight inch (8) diameter is the minimum acceptable. Minimum fire hydrant flow capability of 1500 G

APPENDIX B

CITY OF PALOS VERDES ESTATES

POLICE DEPARTMENT

KMH704

JOHN E. DOLLARHIDE
CHIEF OF POLICE
(213) 378-5211

340 PALOS VERDES DRIVE WEST
PALOS VERDES ESTATES, CALIF. 90274

May 28, 1975

TO: George Taylor, Public Works Director

SUBJ: Preliminary Recommendations for General Plan Safety Element Report.

The main concern of the Police Department in the event of fires and Geologic Hazards appears to be the generalized systematic organizational evacuation of the immediate area of the catastrophy.

Being unique, in that no police personnel live in the city, and assuming that telephone lines would be either out completely, or at best strangled, general mobilization of police personnel would be next to impossible. A possible alternate might be the installation of a "PlecTron" type system to alert personnel to report for duty.

Parallel digital capability, would help, however this is probably impractical at this time due to budgetary limitations. A balanced policy contingency plan may be required in order to show a responsive reciprocal capability.

Systematized organizational management policies, may in the long run, prove to be the responsive third-generation time-phase projections required for this program.

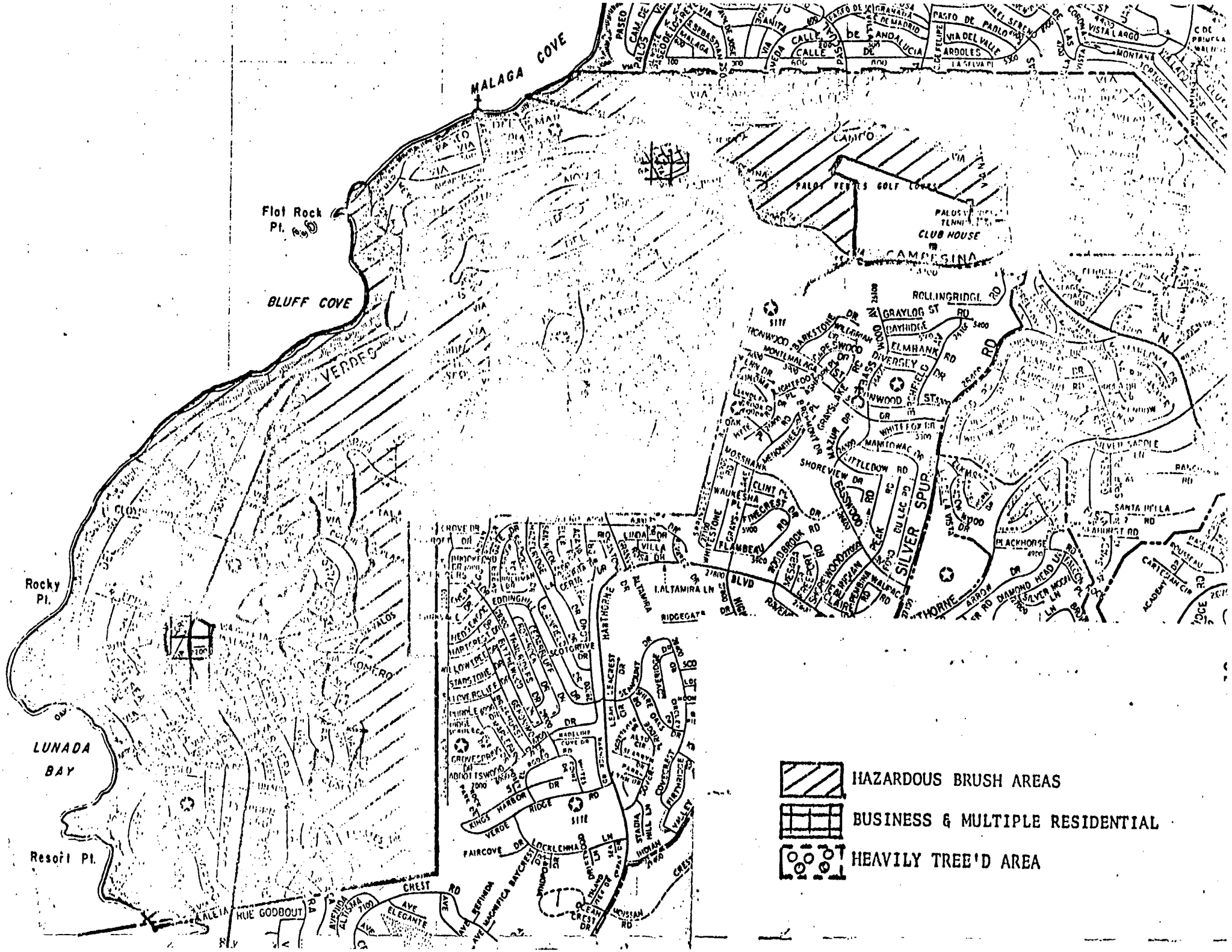
I hope this preliminary report will assist in preparing the final draft, which I understand, is required by September 1975. Your comments will be appreciated.

Sincerely,

JOHN E. DOLLARHIDE
Chief of Police

JED:dc

cc: City Manager


MALAGA COVE
Flat Rock Pt.
BLUFF COVE
PALOS VERDES GOLF COURSE
CLUB HOUSE
CAMPESINA
ROLLINGRIDGE RD
SILVER SPUR
SILVER SADDLE
SANTA MILLA
Rocky Pt.
LUNADA BAY
Resort Pt.
CREST RD
HAZARDOUS BRUSH AREAS
BUSINESS & MULTIPLE RESIDENTIAL
HEAVILY TREE'D AREA

CITY OF PALOS VERDES ESTATES, CALIFORNIA

NOISE ELEMENT

OF THE GENERAL PLAN

CITY OF PALOS VERDES ESTATES

DEPARTMENT OF
PUBLIC WORKS
(213) 378-0383

CITY HALL
PALOS VERDES ESTATES
CALIFORNIA 90274

NEGATIVE DECLARATION

CITY OF PALOS VERDES ESTATES, CALIFORNIA

GENERAL PLAN NOISE ELEMENT

Project Description

This project consists of the adoption of the Noise Element of the General Plan of the City of Palos Verdes Estates, California as required by the State of California Government Code Section 65302.

FINDINGS

In view of the fact that the conclusions of the Noise Element do not propose any adverse alterations to the environment as defined under the California Environmental Quality Act it is hereby determined that this project will not have a significant effect on the environment.

INITIAL STUDY

The initial study of this project is the second draft of the proposed Noise Element prepared by George Taylor, Director of Public Works/Planning Director of the City of Palos Verdes Estates. Copies of the initial study can be obtained from the office of the Director of Public Works, 340 Palos Verdes Drive West, Palos Verdes Estates, California 90274.

Posted: P.V. Library
7/31/75 City Hall
P.V. Country Club

NOISE ELEMENT

CITY OF PALOS VERDES ESTATES, CALIFORNIA

INTRODUCTION

Authority for Noise Element

The Government Code of the State of California requires that each city prepare and adopt a noise element of the city's general plan. Section 65302 (g) of the Code reads as follows:

> A noise element in quantitative, numerical terms, showing contours of present and projected noise levels associated with all existing and proposed major transportation elements. These include but are not limited to the following:
>
> 1. Highways and freeways,
> 2. Ground rapid transit systems,
> 3. Ground facilities associated with all airports operating under a permit from the State Department of Aeronautics.
>
> These noise contours may be expressed in any standard acoustical scale which includes both the magnitude of noise and frequency of its occurrence. The recommended scale is sound level A, as measured with A-weighting network of a standard sound level meter, with corrections added for the time duration per event and the total number of events per 24-hour period.
>
> Noise contours shall be shown in minimum increments of five decibels and shall be continued down to 65 dB(A). For regions involving hospitals, rest homes, long-term medical or mental care, or outdoor recreational areas, the contours shall be continued down to 45 dB(A).

NOISE ELEMENT

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SCOPE AND NATURE OF THE NOISE ELEMENT

Noise Policies of Palos Verdes Estates

It is the policy of the City of Palos Verdes Estates to prohibit unnecessary, excessive, and annoying noises from all sources subject to its police power. At certain levels noises are detrimental to the health and welfare of the citizenry. Therefore, in the public interests, such noise levels shall be systematically proscribed.

Ordinance No. 287 and 203 of the City of Palos Verdes Estates provides noise regulations with respect to time of day and land use, and the ordinance provides for penalties to be imposed for exceeding the limits as given.

Conclusions regarding appropriate site or route selection alternatives or noise impact upon compatible land uses shall be included in the general plan.

The federal, state, local, or private agency responsible for the construction or maintenance of such transportation facilities shall provide to the local agency producing the general plan, a statement of the present and projected noise levels of the facility, and any information which was used in the development of such levels.

Palos Verdes Estates has prepared a noise element which takes into consideration the characteristics of Palos Verdes Estates, as well as the characteristics of the geographical area in which the city is located.

The City Council has noted that there are adverse noise effects beyond the control of the City Council by scheduled commercial flights from Los Angeles International Airport and to a lesser frequency of private flights from the Torrance Airport.

As there are no existing or projected state highways or freeways through or within close proximity of the city there are no foreseeable effects on the community from these types of facilities. This also holds true for ground rapid transit facilities. In addition, the city has enacted ordinances which prohibit trucks in excess of 3 tons from using streets other than designated truck routes except for local delivery or pickup.

The major traffic arterials within the city are Palos Verdes Drive West and Palos Verdes Drive North. This arterial at its peak traffic location presently carries an average daily traffic volume of 25,100 vehicles with an estimated volume of 36,300 in 1990. This traffic volume is primarily resident-commuter traffic. In addition, at the location of the peak volume, residential uses are remote from the travel way. Due to these conditions the City Council believes that no adverse noise effects exist or will develop from normal vehicular traffic along the city's major streets. (See Appendix C for present and projected noise levels).

MAXIMUM NOISE LEVELS

The maximum noise levels anticipated within and in the adjoining areas of Palos Verdes Estates are normal residential development and use related noise. This is based on the fact that existing land use in the city is restricted by zoning and deed restrictions to residential use except for limited neighborhood shopping areas at Malaga Cove and Lunada Bay.

The adjoining areas are also predominently developed in residential use and no changes are foreseeable.

The ordinance also provides that it shall be unlawful for any person to willfully make or continue, or cause to be made and continued, any loud, unnecessary, and unusual noise which disturbs the peace or quiet of any neigborhood, or which causes discomfort or annoyance to residents of the area.

The standards which are considered in determining whether a violation of the provisions of these ordinances exists, may include, but not be limited to, the following:

(a) The level of the noise;

(b) Whether the nature of the noise is usual or unusual;

(c) Whether the noise carries beyond the premises to any other premises.

Noise Restrictions and Limitations

It may be stated that the City of Palos Verdes Estates desires to restrict objectionable noises from sources over which it has control to as great an extent as is possible within the framework of other city goals (as enumerated by other elements in the General Plan). Also, the city wishes to restrict objectionable noises from sources over which it has no direct control by having mutual agreements with the controlling agencies. The Council feels that none of the local schools are affected by adverse external noise. There are, however, non - recurring activities such as football games, field and track events, baseball games and similar activities which generate additional traffic and noise that may be annoying to surrounding properties. The school district administration works closely with the community and the city to minimize these annoyances and it is felt that no adverse effects are generated by these activities.

NOISE EMISSION FROM TRANSPORTATION FACILITIES

As discussed above there are no existing transportation facilities which emit noise of adverse effect on the City of Palos Verdes Estates environs.

To avoid future problems in this area the city will request notification of any proposed modifications of operations at Los Angeles International and Torrance Airports. The city will also review any proposed highway or freeway routing and mass transit programs.

Fixed Point Noise Sources

The Zoning Ordinance of the City of Palos Verdes Estates does not provide for any industrial use within the city. It also does not permit any type of use which could result in adverse noise effects in the commercially zoned districts. As an example, gasoline service stations are not permitted to do garage, mechanical, or battery repair work or tire rebuilding. Noise problems were a prime consideration in the establishment of these zoning regulations. Undoubtedly, the Planning Commission and City Council will continue to consider potential noise aspects in the review of any proposed changes to the zoning ordinance.

Neighborhood Noises

It has been found that the prime sources of noise in most residential neighborhoods within the city are children playing and the chattering or calls of birds. Noise levels are generally lower at sites removed from playgrounds and parks or in newer subdivisions where street trees and other vegetation have not matured to the point of drawing song birds.

Measured noise levels taken by the City of Lomita, a city located approximately one mile east, in their residential areas ranged from 43 to 65 decibels. They note, however, "intermittent construction and street maintenance projects were the principal noise sources in the upper range." It is felt that these results would apply in Palos Verdes Estates and that these levels are considered acceptable for residential areas.

NOISE ELEMENT RELATIONSHIPS

Relationships with Other Elements of the General Plan

The noise element is related closely to the circulation, land use and housing elements of the general plan which have already been adopted by Palos Verdes Estates. Noise level standards can be a decisive factor in locating or designing transportation facilities and construction projects in relation to existing or planned land use. Consideration has been given in Palos Verdes Estates's noise ordinance to the adverse effects of noise on activities taking place both in the out-of-doors and in structures not insulated against sound. The noise element also is closely related to the previously adopted open space element since noise can adversely affect the enjoyment of open space. Additionally, open space may be effectively used as a buffer against noise sources through distance and extensive tree planting.

With Other Agencies

The law requires that state, local or private agencies responsible for the construction and maintenance of major transportation facilities, provide present and projected noise levels for their facilities. This includes (but is not limited to):

State Department of Transportaion

Transit Agencies

Airport Facilities

Private Air Carriers

Private Freight Carriers

Railroad Companies

Commercial Air Carriers

Environmental Impact Report Procedures

Loud or excessive noise is socially disruptive, and may be physically and psychologically damaging. Also, excessive noise adversely affects property values and levels of productivity. Generally, the costs of excessive noise from manufacturing, commercial and transportation facilities have been passed on in the past to those in the vicinity rather than being borne by the producer of the nosie. However, environmental controls are now in order.

It is desirable, therefore, that an appropriate environmental impact report be required for any project, development or activity which might have a significant impact on noise levels in Palos Verdes Estates.

(This should include the general environmental aspects of commercial and private aircraft flights.)

IMPLEMENTATION

General Comments

The implementation of the policies of the City of Palos Verdes Estates with respect to noise abatement can be accomplished only through an awareness of and use of technological advances, and the willingness to act in an advisory capacity to other jurisdictions where appropriate authority has been preempted.

A periodic review and updating of the ordinance on noise regulations should be made.

Conclusions

Except for preempted regulations for motor vehicles and aircraft, the city's noise ordinances provide the legal background for controlling unnecessary noise in the City of Palos Verdes Estates. To supplement the provisions of these ordinances, the city should:

1. Continue the city's commitment to a residential community of limited density.
2. Require landscaping and design controls for noise on proposed commercial developments.
3. Continue the city's active open space program.
4. Work with adjacent jurisdictions to limit noise and noise producing sources affecting Palos Verdes Estates.
5. Continue the city's zoning ordiance restrictions on potential noise sources.

6. Work with transportation agencies to minimize the noise affects of their operations, both from an equipment standpoint and a location standpoint.

7. Require environmental impact reports to cover potential adverse effects from any proposed project or activity in the City of Palos Verdes Estates.

*8. Review, toward corrective action, preempting regulations for aircraft and motor vehicles which have a general significant deviation from the local acceptable noise element patterns.

* FAA (Federal Aviation Authority) has established fight patterns over Palos Verdes Estates and the general area. These FAA guidelines include limitations as to height proximity to the ground level to minimize ground level noise. If possible readings should be developed on these noise sources.

Appendix B

RESIDENTIAL NOISE LEVELS

Provided by City of Lomita, California

Eleven equally spaced residential noise level monitoring stations were selected in Lomita, and the ambient noise measured and recorded at different times of day and different weather conditions over a period of three months. The average readings obtained at these selected stations were as follows:

Location	Average Reading
1937 Via Solano	Less than 40 dB
26006 Pennsylvania Avenue	49.2 dB
26005 Oak Street	48.0 dB
25849 Appian Way	48.0 dB
2247 255th Street	48.6 dB
2442 251st Street	47.5 dB
25046 Woodward Avenue	48.5 dB
24308 Hendricks Avenue	46.8 dB
1903 247th Street	48.8 dB
2353 246th Street	46.3 dB
25429 Eshelman Avenue	49.5 dB

Appendix A

ACOUSTICAL SCALE

	dBA	
	-180-	
	-175-	
	-170-	
	-165-	
	-160-	
	-155-	
	-150-	
	-145-	
Sonic Boom	-140-	
	-135-	
	-130-	
Jet Takeoff at 200'	-125-	
	-120-	
	-115-	Discotheque
Motorcycle at 20'	-110-	
	-105-	Power Mower
Subway train at 20'	-100-	
Freight train at 50'	- 95-	Newspaper Press
Propeller plane fly-over at 1,000'	- 90-	Food Blender
	- 85-	Electric Mixer
Freeway traffic at 50'	- 80-	Washing Machine; Alarm Clock, Garbage Disposal; Electric Can Opener
	- 75-	Office with tabulating machines
Average traffic at 100'	- 70-	Vacuum Cleaner; Portable Fan
	- 65-	Electric Typewriter at 10'
	- 60-	Dishwasher rinse at 10'; air conditioning Unit
	- 55-	
	- 50-	Normal conversation at 12'
Light traffic at 100'	- 45-	Refrigerator
	- 40-	
	- 35-	Library
	- 30-	
	- 25-	
	- 20-	Motion Picture Studio
	- 15-	
	- 10-	Leaves Rustling
	- 5-	
	- 0-	

Source: County of Los Angeles Department of Regional Planning