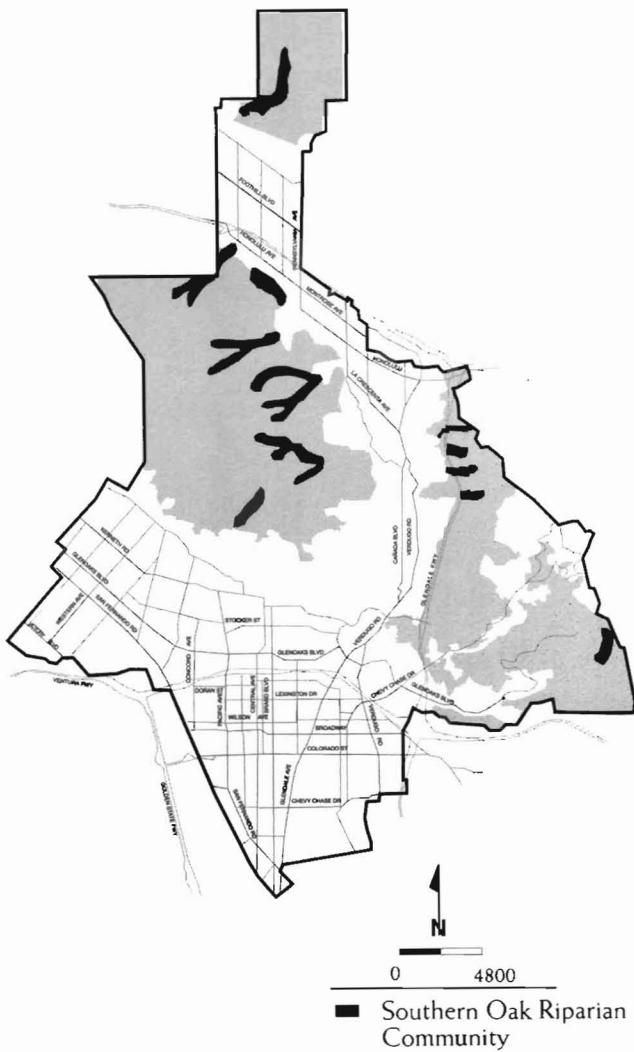


**TABLE 4-1 SUMMARY OF VEGETATION TYPES BY REGION**

Area	% Total Chaparral	% Total Oak Woodland	% Total Southern Oak Riparian	% Total Coastal Sage	% Total Alluvial Scrub	% Total Walnut Woodland	% Total Other
San Rafael Hills	37	22	26	0	0	0	83 (Disturbed)
Verdugo Mountains	62	78	74	50	0	0	0
San Gabriel Mountains	1	0	0	50	100	0	18 (Pseudostuga)

**MAP 4-13 SOUTHERN OAK RIPARIAN FOREST**

Source: U.S. Department of Fish and Game

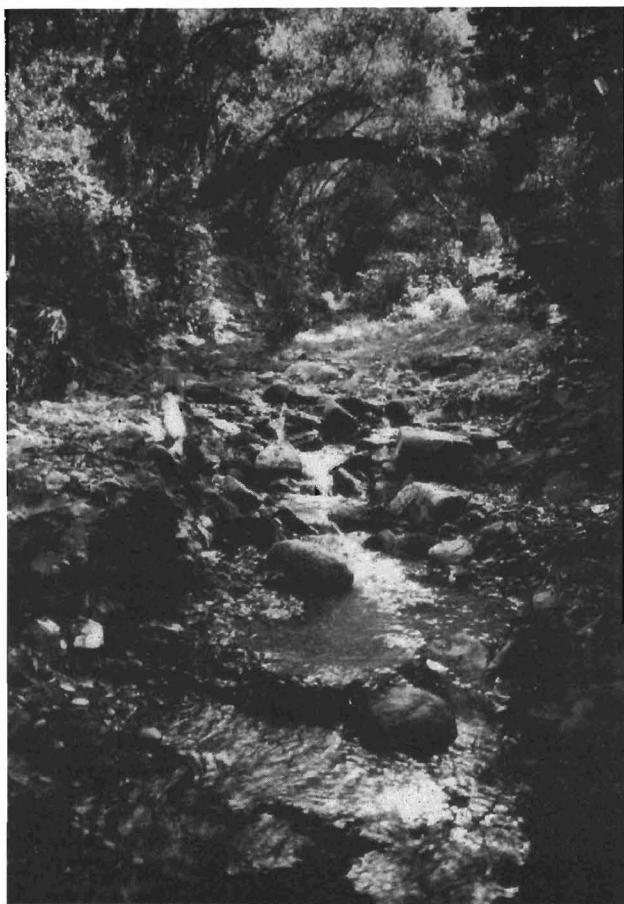
of which is observed in chamise (*Adenostoma fasciculatum*). The second regeneration strategy relies solely on resprouting. Species such as toyon (*Heteromeles arbutifolia*), holly-leaved cherry (*Prunus ilicifolia*), and buckthorn (*Rhamnus* sp.) use the second method and are usually restricted to northern or western exposures where water availability is increased relative to eastern or southern exposures. These species also occur in oak woodland understory. Chaparral covers the ridges and upper slopes of ridges in all areas studied.

**b. Southern Oak Woodland**

This community is named for the dominant species, the coast live oak (*Quercus agrifolia*). The understory of this community generally supports a number of annual species such as miner's lettuce (*Claytonia perfoliata*) and baby blue eyes (*Nama* sp.). In addition, bentgrass (*Agrostis stolonifera*) along with a number of introduced annual grasses occur in this community. Shrub species include those mentioned above in the chaparral community along with heart-leaved penstemon (*Keckiella cordifolia*). Southern oak woodland borders the uplands of drainages and in the San Rafaels and the Verdugos and often forms large expanses on north facing slopes. This community is perceived to be in decline in Los Angeles County largely due to urban expansion. Oak trees are protected by city ordinance.

**c. Southern Oak Riparian Woodland**

Southern oak woodland gives way to this community when water availability increases. In addition to coast live oaks, sycamores (*Platanus racemosa*), willows (*Salix* sp.), and mulefat (*Baccharis glutinosa*) can be found in this community, which lines most drainages having seasonal surface water. Because of the availability of water and the increased structural complexity resulting from a multi-layered canopy, this community contains a diversity of bird species. This community also forms a vital link for wildlife which remain in cover but seek water.



*One of Many Riparian Corridors in the Verdugo Mountains.*

#### d. Coastal Sage

Limited expanses of coastal sage are present in the areas studied. This community differs from chaparral in that characteristic species are dormant in summer. This is an alternative survival strategy to the deep-rooted tactic used by chaparral species to survive southern California's extended summer drought. Coastal sage species usually have leaves that are somewhat large and less thick than those of chaparral shrubs. Coastal sage occurs in a disturbed area above Oakmont Country Club in the Verdugos and in Dukemejian Park. Characteristic species include California sage (*Artemisia californica*), black sage (*Salvia mellifera*), and purple sage (*Salvia apiana*). Although California sage and black sage occur with chaparral species both in the Verdugos and the San Rafael Hills, chamise (*Adenostoma fasciculatum*), the most common chaparral shrub, is always part of the assemblage. As a result, this type of sub-assemblage, which often occurs on drier slopes such as southern exposures, has sometimes been classified as chaparral.

#### e. Alluvial Scrub

This community occurs in washes at the base of drainages where the streambed widens and the walls defining the canyon disappear. Characteristic species include mulefat (*Baccharis glutinosa*) and scale broom (*Lepidospartium squamatum*) as well as a number of species also found in other communities. The only naturally occurring community of this type in the study area is found at the base of Dunsmore Canyon in Dukemejian Park.

#### f. Walnut Woodland

Two small patches of this community occur within the chaparral matrix in the Verdugo Mountains just north and just south of the main east-west ridgeline. The dominant species is the California walnut (*Juglans californica*). In addition, California walnuts co-occur with coast live oaks in parts of the oak woodland in the larger privately held parcel adjacent to Glenoaks Boulevard. The range of this community is perceived to be declining in Southern California.

#### g. Big Cone Spruce (*Pseudostuga macrocarpa*)

A small patch of big cone spruce (*Pseudostuga macrocarpa*) occurs on the western wall of Cooks Canyon. Other patches probably also occur further upstream in both Cooks Canyon and Dunsmore Canyon. These majestic trees are characteristic of mid-to lower-elevation (2,000-6,000 foot) dry slopes within the San Gabriel Mountains (Munz, 1974). The individuals in Cooks Canyon are close to the lower elevation limit and are a welcome and unusual sight so close to an urban area.

### 2. Wildlife

Wildlife observed directly or indirectly include Audubon's cottontail, coyotes, deer, woodrats, western whiptails, San Diego horned lizards, western fence lizards, side-blotch lizards, gopher snakes, and western toad tadpoles. Wildlife expected to occur but not observed include mammals such as raccoons, skunks, opossums, and bobcats. There have been recent reports of mountain lions in the Verdugo Mountains; however, no tracks or scat were observed. Small mammals expected include the San Diego pocket mouse, brush mouse, deer mouse and to a limited extent, the Pacific kangaroo rat. A complete list of birds observed in all study areas is available in the Planning Division office. Reptiles expected but not observed include the southern Pacific rattlesnake, common kingsnake, striped racer, the southern alligator lizard and amphibians such as the Pacific tree frog. The majority of these species occur in all communities with

the exception of the toad and frog which are restricted to riparian areas. Most reptiles observed were seen basking at the edge of road cuts in the chaparral.

With the exception of the amphibians and most of the reptiles, the majority of these species move between the chaparral and woodland communities. Reptiles are largely associated with chaparral. Frogs and toads are restricted to the southern oak riparian community within drainages. Larger mammals move freely between chaparral and woodland in order to gain access to food resources and water. The small mammals listed are distributed throughout the chaparral and woodland communities.

### 3. Habitat Areas

The three mountain ranges within the City of Glendale were evaluated for their biological resources including an assessment of riparian habitats. Within each mountainous region are water-courses containing seasonal or year round surface water, which are also known as blue-line streams. A detailed discussion of water resources and the location of these blue-line streams are found in the Hydrology section of this document. The following sections discuss the general habitat characteristics of each mountainous region in the city. Table 4-2 summarizes the characteristics of the riparian areas.

#### San Rafael Hills

The San Rafael Hills are comprised of three parallel ridges oriented north to south. Between these ridges are drainages which are now urban areas; however, remnants of the original canyon vegetation remain as sycamore trees (*Platanus racemosa*) and coast live oaks (*Quercus agrifolia*). In southern California, southern oak woodland communities usually border canyon bottoms, and in the San Rafael Hills this typical arrangement of plant assemblages remains in areas that have not been built out, such as the west facing slopes of the eastern-most ridges bordering Glenoaks Boulevard and Chevy Chase Drive. In drainage bottoms with moderately high water tables, sycamore trees and mulefat (*Baccharis glutinosa*) co-occur with the coast live oaks. In drainages with higher water tables, mugwort (*Artemisia dracunculus*), California rose (*Rosa californica*), and willows (*Salix* sp.) occur along with the sycamores. Cattails were observed in drainage bottoms with permanent standing water. Remnants of these communities persist in Sycamore Canyon which runs parallel to Chevy Chase, and in side canyons that drain the ridges and are oriented east to west.

**TABLE 4-2 ANALYSIS OF  
BLUE-LINE STREAMS**

Parcel*	Ranking	USGS Canyon Name	Blue-Line Streams
SR 1	N/A		
SR 2	3	None	3
SR 3	1	None	1
SR 4	N/A		
SR 5	N/A		
SR 6	N/A		
SR 7	3		1
SR 8	N/A	None	
SR 9	N/A		
SR 10	N/A		
VER 1	3	None	1
VER 3	4	Hillcrest	1
VER 4	4	Idlewood	1
VER 5	N/A		
VER 6	3	Upper Deer Upper Elmwood Upper Childs	3
VER 7	1	Engleheard	
VER 8	2	None	2
VER 9	2	None	1
SNGB 1	N/A		1

#### Key to Parcel Abbreviations

SR = San Rafael Hills

VER = Verdugo Mountains

SNGB = San Gabriel Mountains

#### Key to Stream Rankings

1 = Presence of permanent standing water in drainage

2 = Evidence of permanent standing water in drainage

3 = Evidence of frequent periodic standing water in drainage

4 = Evidence of infrequent periodic standing water in drainage

\* See Maps 4-14, 4-15, and 4-16 for location of privately held properties.



Species composition of all communities within the San Rafael Hills was similar to that of the Verdugos; however, the total diversity of each community type was slightly reduced. For example, silk tassel (*Garrya* sp.) was not observed in the chaparral assemblages in the San Rafael Hills but was found in the Verdugos. The extensive fragmentation resulting from conversion of open space to housing in the San Rafael Hills has resulted in disturbance within the assemblages present. For example, much of the chaparral assemblage on southern or eastern exposures is a matrix of introduced grasses and chaparral shrubs. In addition, many of the southern oak riparian patches within the canyon bottoms support an understory of introduced grasses.

### **Verdugo Mountains**

The main ridgeline of the Verdugos is situated southeast to northwest. Side ridges oriented north to south extend from the main ridge. Like the San Raefael, the Verdugo Mountains are characterized by canyon bottoms which support southern oak riparian vegetation. Some of the riparian vegetation within the drainages is quite well developed and includes alder (*Alnus rhombifolia*) in addition to the oaks, sycamores and willows characteristic of this assemblage. These give way to southern oak woodland and then to chaparral as water availability decreases.

### **San Gabriel Mountains**

The portion of the San Gabriel mountains within the City of Glendale consists of a series of north-south oriented ridgelines which extend from a major east-west ridge. These ridges are bisected by two canyons which contain year-round water and support a lush and diverse riparian assemblage. A large section of this area makes up Dukemejian Wilderness Park. The chaparral is fairly diverse but lacks some species found in the Verdugos.

### **c. Open Space in Private Ownership**

In addition to mapping the vegetation of the Verdugo Mountains, San Rafael Hills and the portion of the San Gabriel Mountains within the City of Glendale, the biological study was concerned with characterizing privately held parcels. A set of criteria was developed to allow comparison of these various parcels. The parcels were ranked both in terms of vegetation characteristics and habitat value characters. Criteria included:

#### **Vegetation Characteristics**

1. The proportion (percentage) of each community type relative to the total amount of such vegetation within

the study area.

2. The number of different communities represented in a parcel.
3. The species diversity relative to overall species diversity in the study area.

#### **Habitat Character Values**

1. Degree of isolation of each parcel represented determined by the number of borders a parcel shared with continuous open space.
2. Parcel size.

The character values shown above are important factors in assessing habitat value since size determines the total number of individuals, both plants and animals, a given area can support, and the degree of isolation determines the probability that animal or plant individuals can move into or out of a parcel. This last point becomes particularly important when considering long term habitat value. If there are no "hallways" connecting a parcel with a larger expanse of open space (such as the San Gabriels), populations of plants and animals run a higher risk of localized extinction as a result of fire or other catastrophic event. In addition, isolated populations of plants and animals usually show lower levels of genetic diversity than their counterparts occupying larger areas. This is presumably due to the lack of genetic exchange which brings new genes into a population. In a study done in San Diego County, the likelihood of extinction of songbirds in habitat fragments was found to increase as fragment size decreases, and the likelihood of localized extinction increased overall with increasing fragmentation (Boulger et. al., 1991; Soule et. al., 1988). In addition, Alberts et. al. (1993) found that larger fragments of habitat in San Diego County supported increased numbers of native plant species and smaller fragments supported increased numbers of introduced weedy species.

The relative proportion within each sub-area of the total extent of coverage of each community type in all areas considered is given in Table 4-3. The majority of the coverage on each site is chaparral. The extent of the disturbed area is not provided in Table 4-3; however, it is approximately five percent of the total existing open space in the San Rafael Hills and less than one percent of the total existing open space in the Verdugo Mountains. The increased disturbance in the San Rafael Hills is the result of an increase in road cuts and urban/open space interfaces relative to the Verdugo Mountains. The majority of both southern oak woodland and southern oak riparian habitats occurs in the Verdugos. In ad-

**TABLE 4-3 VEGETATION CHARACTERISTICS OF PRIVATELY OWNED PARCELS IN THE AREAS STUDIED**

Parcel	% Oak Wood	% Total Oak Wood	% Sor Wood	% Total Sor Wood	% Chap	% Total Chap	% Rel Div	# Comtry Types	Rank
SR 1	26.47	6.22	0.00	0.00	73.52	2.42	3	2	7
SR 2	6.98	11.35	7.95	12.92	85.06	5.49	4	3	1
SR 3	0.00	0.00	10.75	2.08	89.24	0.72	3	2	4
SR 4	24.92	2.89	0.00	0.00	75.08	0.09	3	2	9
SR 5	0.00	0.00	41.12	1.52	58.87	1.52	2	2	6
SR 6	0.82	0.03	0.00	0.00	99.17	0.47	2	2	12
SR 7	0.00	0.00	16.73	2.29	83.39	0.47	3	2	5
SR 8	0.00	0.00	0.00	0.00	100	0.17	2	1	19
SR 9	0.00	0.00	0.00	0.00	100	0.22	2	1	18
SR 10	0.00	0.00	0.00	0.00	100	0.61	2	1	16
VER 1	17.13	2.12	0.00	0.00	82.86	0.42	2	1	11
VER 3	0.00	0.00	0.00	0.00	1.00	0.71	2	1	14
VER 4	0.00	0.00	0.00	0.00	1.00	0.77	2	1	13
VER 5	0.00	0.00	0.00	0.00	1.00	0.54	2	1	17
VER 6	34.78	2.50	0.00	0.00	65.21	0.19	3	2	8
VER 7	5.04	9.55	5.02	9.52	89.94	7.10	4	3	2
VER 8	20.42	2.36	0.00	0.00	79.57	0.38	3	2	10
VER 9	40.72	9.76	5.21	1.25	54.06	0.54	4	3	3
SNGB 1	0.00	0.00	0.00	0.00	100	2.68	2	1	20

**Key to Habitat Types**

Oak Wd = Southern Coast Live Oak Woodland

SOR Wd = Southern Oak Riparian Woodland

Chap = Chaparral

dition, the Verdugo Mountains support four streams with permanent water. These are located in Englehead Canyon, Henderson Canyon, Brand Canyon and Pomeroy Canyon. A fifth stream with permanent water is Deer Creek (see Map 4-14). Within the San Rafael Hills, only Sycamore Canyon and the Linda Vista area, and the series of drainages off Cascadia Drive (see Map 4-15) hold year-round water, although the drainages along the Pasadena border probably hold water for a majority of the

**Key to Diversity Ranking**

90-100% Possible Species = 4

70-89% Possible Species = 3

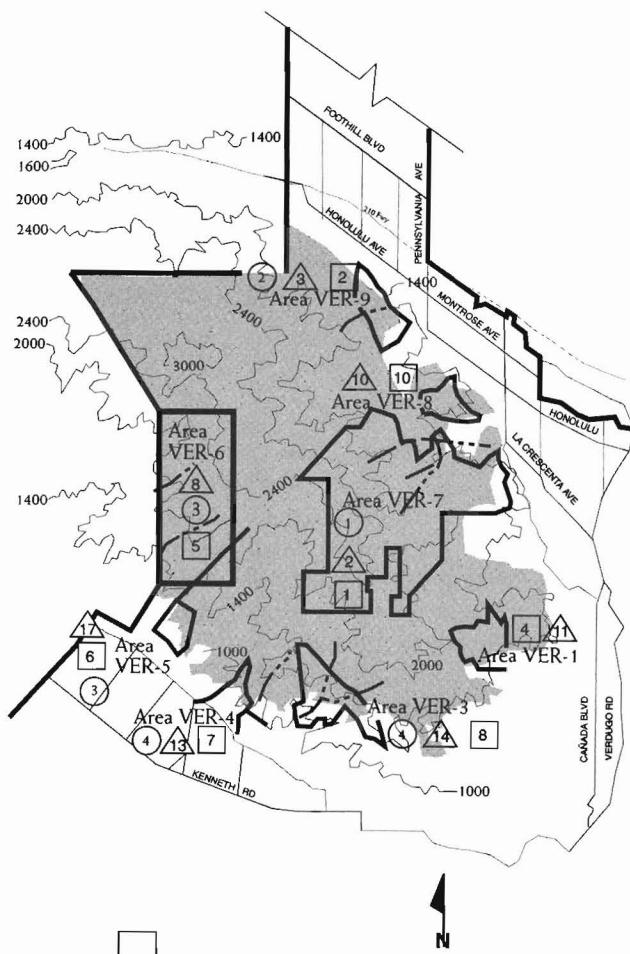
50-69% Possible Species = 2

>50% Possible Species = 1

year. Water availability in the drainages in the San Rafael Hills is increased substantially by run-off from urban areas; this type of water may pose a threat to wildlife since run-off often contains traces of pesticides, herbicides and petroleum products. Most of both Cooks Canyon and Dunsmore Canyon lie within the City of Glendale (see Map 4-16). These major drainages also hold year-round water.



**MAP 4-14    BIOLOGICAL RESOURCES OF  
PRIVATELY HELD PROPERTY  
VERDUGO MOUNTAINS**



Map Not To Scale

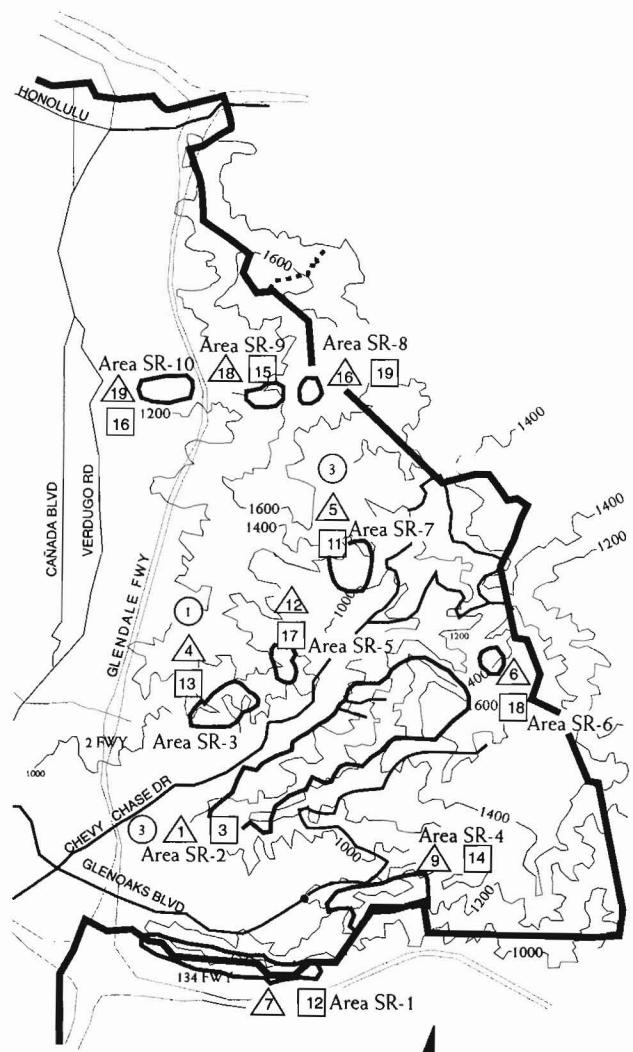
Study Area Value Rankings

- △ Vegetation Character (Privately Held Property)
- Habitat Character
- Blueline Streams

Note: See Tables 4-2, 4-3 and 4-4

Source: Adapted from field sheets of Dr. Cheryl Swift, Biological Consultant

**MAP 4-15    BIOLOGICAL RESOURCES OF  
PRIVATELY HELD PROPERTY  
SAN RAFAEL HILLS**



Map Not To Scale

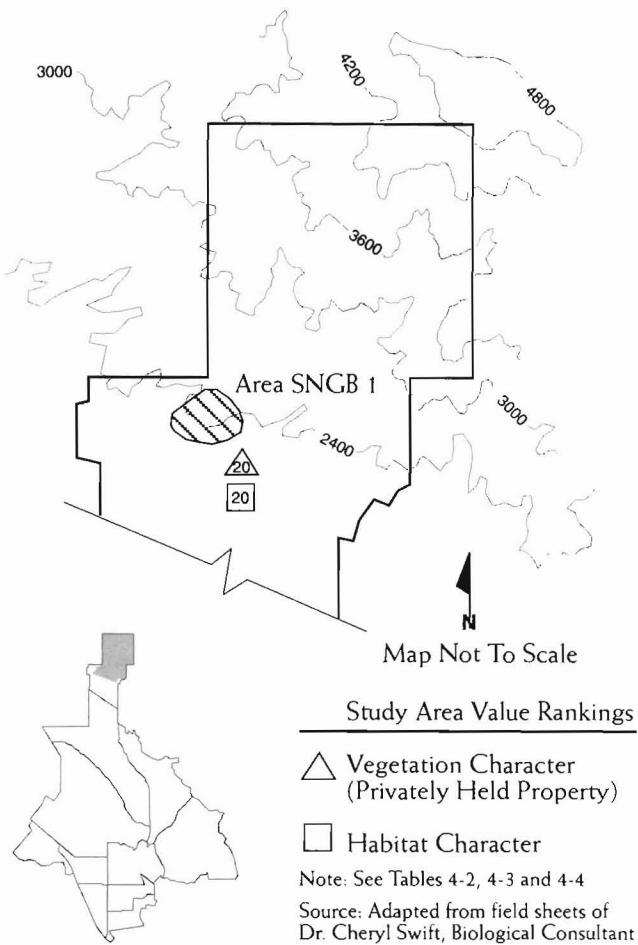
Study Area Value Rankings

- △ Vegetation Character (Privately Held Property)
- Habitat Character
- Blueline Streams

Note: See Tables 4-2, 4-3 and 4-4

Source: Adapted from field sheets of Dr. Cheryl Swift, Biological Consultant

**MAP 4-16      BIOLOGICAL RESOURCES OF  
PRIVATELY HELD PROPERTY  
SAN GABRIEL MOUNTAINS**



#### Vegetation "Value"

Vegetation characteristics of each parcel under consideration are also given in Table 4-3. The rankings in Table 4-3 are based on the number of communities present, the percent of total coverage of southern oak woodland and oak woodland in the areas studied and the species diversity ranking. In general, species diversity closely parallels the number of communities present. Little or no difference exists between the parcels evaluated in terms of diversity within community type except that the longer drainages examined in the Verdugos generally had a higher species diversity than the shorter drainages in the San Rafael Hills. However, these differences are a matter of two or three species out of 30 to 40 species. The largest parcel in the San Rafael Hills, parcel #2, ranked highest with respect to these criteria largely because it represented a higher percentage of total oak woodland and southern oak woodland than the large

parcel in the Verdugos, parcel #7, which ranked highest. The third and fourth ranked parcels occurred in the Verdugos and San Rafael Hills respectively. The Verdugo parcel #9 ranked slightly higher because of the increased number of communities present. San Rafael parcels #7 and #5 were ranked fifth and sixth respectively as a result of denser southern oak woodland coverage than San Rafael parcel #1. Southern oak woodland was afforded slightly higher "value" because it indicates a drainage which probably has water available for part of the year and may act as a corridor for wildlife. San Rafael parcels #1 and #4 ranked seventh and eighth ahead of Verdugo parcel #6 on the basis of the extent of southern oak woodland coverage. Verdugo parcels #6 and #8 ranked ninth and tenth.

#### Habitat "Value"

The rankings for habitat value were derived by including size and relative isolation of the parcels as factors in the vegetation analysis (Table 4-4). The large Verdugo parcel #7 ranks first and the large San Rafael parcel #2 ranks third. This is primarily due to the larger size and increased contiguity with the open space of Verdugo parcel #7. Although the size, community representation, and extent of southern oak woodland and southern riparian woodland merit preservation of San Rafael parcel #2, the value of this parcel as an isolated expanse within a highly fragmented area must be taken into consideration. Verdugo parcel #9 ranks second with respect to these criteria because it is relatively large, diverse and is continuous with open space on two sides. In fact, most of the parcels in the Verdugos ranked much higher than the San Rafael parcels because of the high degree of fragmentation in the San Rafael Hills resulting from urban expansion. In addition, although deer, bobcat, and coyotes are presently found in the San Rafael Hills, as fragmentation continues populations occupying these parcels will be reduced or eliminated, especially in the event of a catastrophic event such as a fire. The lack of a clear corridor of open space with appropriate resources into these isolated parcels will impede re-colonization. Although animals may be moving from the San Gabriel Mountains through the Arroyo Seco and into the San Rafael Hills, there are few records of road kills of large animals moving in these areas. This suggests that the number of animals moving may be small (Swift and Collins, 1992).

In summary, while vegetation features of the larger parcels in the San Rafael Hills, particularly parcels SR #1, #2 and #3 merit preservation, the better habitat overall exists in the Verdugo Mountains. Verdugo parcel #7 is by far the most attractive, with respect to both habitat value and vegetation value, of the parcels studied.



**TABLE 4-4 HABITAT VALUE OF PRIVATELY OWNED PARCELS IN THE SAN RAFAEL HILLS / VERDUGO MOUNTAINS / SAN GABRIEL MOUNTAINS**

Parcel	% Oak Wood	% Total Oak Wood	% SOR Wood	% Total SOR Wood	% Chap	% Total Chap	% Rel Div	# Comuty Types	Rank
SR 1	26.47	6.22	0.00	0.00	73.52	2.42	3	2	12
SR 2	6.98	11.35	7.95	12.92	85.06	5.49	4	3	3
SR 3	0.00	0.00	10.75	2.08	89.24	0.72	3	2	13
SR 4	27.92	2.89	0.00	0.00	75.08	0.09	3	2	14
SR 5	0.00	0.00	41.12	1.52	58.87	1.52	2	2	18
SR 6	0.82	0.03	0.00	0.00	99.17	0.47	2	2	17
SR 7	0.00	0.00	16.73	2.29	83.39	0.47	3	2	11
SR 8	0.00	0.00	0.00	0.00	100.00	0.17	2	1	16
SR 9	0.00	0.00	0.00	0.00	100.00	0.22	2	1	15
SR 10	0.00	0.00	0.00	0.00	100.00	0.61	2	1	19
VER 1	17.13	2.12	0.00	0.00	82.86	0.42	2	2	4
VER 3	0.00	0.00	0.00	0.00	1.00	0.71	2	1	8
VER 4	0.00	0.00	0.00	0.00	1.00	0.77	2	1	7
VER 5	0.00	0.00	0.00	0.00	1.00	0.54	2	1	6
VER 6	34.78	2.50	0.00	0.00	65.21	0.196	3	2	5
VER 7	5.04	9.55	5.02	9.52	89.94	7.10	4	3	1
VER 8	20.42	2.36	0.00	0.00	79.57	0.28	3	2	10
VER 9	40.72	9.76	5.21	1.25	54.06	0.54	4	3	2
SNGB 1	0.00	0.00	0.00	0.00	100.00	2.62	2	1	20

#### Key to Habitat Types

Oak Wd = Southern Coast Live Oak Woodland

SOR Wd = Southern Oak Riparian Woodland

Chap = Chaparral

#### Key to Diversity Ranking

90-100% Possible Species = 4

70-89% Possible Species = 3

50-69% Possible Species = 2

>50% Possible Species = 1

#### d. Rare and Endangered Species

The locations of plant assemblages were mapped in 1992 in the field using topographic maps at a 1:400 scale. Areas of different vegetation types were determined for each parcel under consideration and for the remainder of the area under investigation. The percentage cover

of total cover in all three areas (Verdugo Mountains, San Rafael Hills and San Gabriel Mountains) of each plant assemblage, the size of the parcel, and the relative species diversity were calculated for each parcel.

The characteristic species composition of all plant assemblages identified was determined in the field. A species diversity ranking was developed and provides an assessment of the relative species diversity of each parcel based on field observations and the number of community types present in each parcel (see Table 4-4).

The Natural Diversity Data Base maintained by the California Department of Fish and Game provided information about possible rare species present in the areas under investigation. In addition, the California Native Plant Society Inventory of Rare and Endangered Vascular Plants was consulted to identify plant species potentially occurring that are not yet listed by the State or Federal governments. The following section includes an annotated list of species which are reported from nearby areas and for which habitat exists within the study area.

## 1. Flora

### Great's Aster (*Aster greatai*)

This species is reported from the Verdugos and from the San Gabriels and is likely to occur in southern oak woodland or southern oak riparian woodland

### • Nevin's Barberry (*Mahonia nevini*)

The species is reported from the Arroyo Seco and prefers sandy, gravelly places within the chaparral community on the edges of washes. Appropriate habitat for this species is present in the Verdugos and Dukemejian Park. This species is listed as endangered by the state of California and is a candidate for federal listing.

### • Nevin's Bricklebush (*Brickellia nevini*)

This species was observed in the San Gabriel Mountains study area and prefers drier areas, particular road cuts or dry canyon walls. It is on a watch list of plants maintained by the California Native Plant Society because populations within California are perceived to be in decline.

### • Braunton's Rattleweed (*Astragalus brauntonii*)

This California endemic prefers recently burned areas and has been reported from the Mt. Wilson area; however, it is unlikely to occur at this time in the study area. It is listed by the California Native Plant Society as 1B, which indicates that the species is considered rare enough to warrant listing. However, it is not listed by the Federal government at this time.

### • Davidson's Bush Mallow (*Malacothamnus davidsonii*)

This species is a candidate for Federal listing, and it is found primarily in washes in the area. Appropriate habitat exists for this species in the San Gabriel Mountain study area and on the south slope of the Verdugo Mountains at the bases of the larger streams. This species was not observed during field surveys.

### • San Gabriel Mountains Dudleya (*Dudleya densiflora*)

This species is a candidate for Federal listing, but has not been reported from the area. It is primarily found on canyon walls. Appropriate habitat exists in Cooks Canyon in the San Gabriel Mountains study area.

### • Slender Horned Centrostegia (*Centrostegia leptoceras*)

This species is listed by both State and Federal agencies and is fully protected. A population was recently discovered in Tujunga Wash. The species appears to prefer the benches above the washes. There is limited potential habitat for this species in the San Gabriel Mountains area of study and on the south slope of the Verdugos.

### • San Fernando Valley Spineflower (*Chorizanthe parryi fernandina*)

This species was reported in the vicinity, but is now presumed extirpated in these areas. It is a candidate for federal listing. It prefers sandy, gravelly places at the edges of washes. Limited appropriate habitat is present on the south slope of the Verdugos and in the San Gabriel Mountains area of the study.

## 2. Fauna

### • California Gnatcatcher (*Polioptila californica*)

This small bird prefers coastal sage scrub with a high coverage of California sage (*Artemesia californica*).

There is a small patch of appropriate habitat at the southern edge of Dukemejian Park. However, it is unlikely that this area supports a population of these birds as a result of limited size and degree of isolation.

### • Least Bell's Vireo (*Vireo bellii pusillus*)

This bird requires dense willow thickets, which are not present in the study area, for nesting and is not reported from the area.



- Golden Eagle (*Aquila chrysaetos*)

This species is fully protected and is likely to occur within the study area although it was not observed.

- Cooper's Hawk (*Accipiter cooperi*)

This species is on a list of species considered threatened and declining in number in California. It is usually associated with riparian habitat and was observed in the Verdugo Hills.

- Southwestern Pond Turtle (*Clemmys marmota pallida*)

This species is reported from the immediate area, and appropriate habitat exists in the Verdugos. In an effort to eliminate illegal collecting, exact locations of pond turtle populations are not available from the California Department of Fish and Game. Illegal collection of these turtles is a secondary factor influencing abundance of the species. These animals require large standing pools with basking areas.

- San Diego Horned Lizard (*Phrynosoma coronatum blainvelli*)

This species was observed on the ridge which forms the western wall of Henderson Canyon. This lizard is a candidate for Federal listing, and is reported from the immediate vicinity. Appropriate habitat exists all along the major ridges in the Verdugos where vegetation is less dense.

### 3. Sensitive Plant Communities

#### a. Riversidian Alluvial Fan Sage Scrub

The Haines Canyon expanse of this sensitive community is listed by the Natural Diversity Data Base.

#### b. Southern Oak Riparian Forest/Southern Sycamore Alder Riparian Woodland

These community types are both referred to as southern oak riparian forest in this study. A number of locations within the study area are reported by the Natural Diversity Data Base including Engleheard Canyon, Deer Creek, Sheep Corral Canyon, Henderson Canyon, Dead Horse Canyon, Cooks Canyon, Sycamore Canyon (only San Rafael occurrence), Pomeroy Canyon, Wildwood Canyon, Stough Canyon and Sunset Canyon. Maps 4-13 show sensitive native plant communities in the Verdugo Mountains, the San Rafael Hills and the San Gabriel Mountains.

### c. Significant Ecological Areas

In the mid 1970s, as part of its mandate to revise the Environmental Development Guide (the 1970 Los Angeles County General Plan), the Los Angeles County Regional Planning Department conducted a survey of the County's biotic resources. Environmental Research Systems Incorporated (ERSI) in conjunction with Englund and Nelson were contracted to complete this survey and subsequently submitted a background report to the County. In 1976 a General Plan technical supplement was produced which identified Special Management Areas. The 1980 Countywide General Plan identified 61 of these as Significant Ecological Areas (SEAs).

The Significant Ecological Areas were not intended to be a barrier to development. Rather, they provide a guide for prudent development within potentially sensitive areas. Furthermore, because natural habitats establish the SEA boundaries, several SEAs encroach into incorporated territory. This was the case throughout Los Angeles County in 1980, and, numerous annexations and incorporations by cities countywide since 1980 have further contributed to this situation. Los Angeles County has jurisdiction over those portions of SEAs within unincorporated areas. Documentation on SEAs, in whole or in part, lying within incorporated municipalities is offered as information only.

A portion of one SEA is within the city limits of Glendale. Significant Ecological Area 40, Verdugo Mountains, (see Map 4-12) contains chaparral, coastal sage scrub and riparian habitats. The County identified medium intensity recreational uses as compatible development.

### 4. Geologic Resources and Seismology

#### a. Soils and Geology

The City of Glendale includes portions of six geomorphic and geologic units: 1) the central part of the City is adjacent to the San Fernando Valley and Los Angeles River Basin; 2) the Verdugo Mountains bound the central part of the City on the north; 3) the San Rafael Hills bound the City on the east; 4) the northwestern portion of the Repetto Hills extend into the southeastern portion of the City; 5) a portion of the Crescenta Valley is in the northern part of the City; and, 6) the San Gabriel Mountains occupy the northernmost portion of the City and its boundary.

The mountainous areas are underlain by relatively hard types of igneous and metamorphic bedrock including quartz diorite, granodiorite and gneiss. Their composi-

tion dates from original sedimentary deposits, initial fault development and related upthrusting of rock formations and subsequent erosion and secondary fault activity. The older metamorphosed sedimentary rock (metasediments), known as the Placerita Formation, dates from the ancient ocean floor which existed in this area prior to the subsidence of the water and rising of the younger rock formation. This material was altered and shaped by a long history of lifting, deformation, fracture and erosion. This dynamic process has resulted in the upward thrusted fault blocks which give the Verdugo, San Rafael and San Gabriel systems much of their characteristic ruggedness. Some parts of these features are relatively distinct, others have been fractured and broken by secondary joints and are, consequently, difficult to discern or map. Although some surficial material is easily eroded where fractured and broken, slopes are considered stable against landslides.

Top soil on the steeper slopes is generally absent or extremely thin with greater depth occurring in those areas which are less steep and where the roots of vegetation provide retention. In the canyons, bedrock is overlain by alluvium consisting of unconsolidated rocks, gravel and sand.

The small area of the Repetto Hills lying within the southeastern portion of the City is an exception to the composition of the other mountainous areas within the City in that they are primarily composed of conglomerate, sandstone and siltstone of the Topanga Formation with some granitic rocks present in the Forest Lawn area. The only known area of moderate slope instability within the City is located in a portion of the Forest Lawn Cemetery.

The central part of the City is underlain by the alluvium of the eastern San Fernando Valley with thicknesses varying from zero along the edge of the valley up to about 1,000 feet in the area near City Hall. This alluvium is underlain by tertiary materials similar to those in the Repetto Hills.

The Crescenta Valley lies principally on alluvial fan surfaces originating from the San Gabriel Mountains, sloping southeasterly toward and down Verdugo Canyon. The thickness varies from zero at the edges of the valley to about 500 feet along the northeast flank of the Verdugo Mountains near the head of Verdugo Canyon. The alluvium is underlain by granitic and metamorphic rocks similar to those in the Verdugo and San Gabriel Mountains (see Map 4-17).

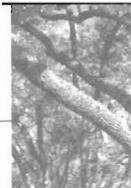
## b. Seismicity

The City of Glendale is located in a seismically active area. The most important fault within the City is the active Sierra Madre fault. The fault, located near the base of the San Gabriel Mountains in the extreme northern part of the City, is the eastward extension of the fault on which the 1971 San Fernando earthquake originated. Other faults of importance in Glendale are as follows: the Verdugo fault located near the southwest edge of the Verdugo Mountains, and its branches to the east (potentially active), the Sycamore Canyon fault (potentially active); the Verdugo Canyon fault (inactive); Scholl Canyon fault (inactive); the Eagle Rock fault (inactive); and the San Rafael fault (inactive). The York Boulevard fault also is important in that it may be a western extension of the Raymond Hill fault for which there is evidence of activity. Map 4-18 describes the seismic hazard zones within the City.

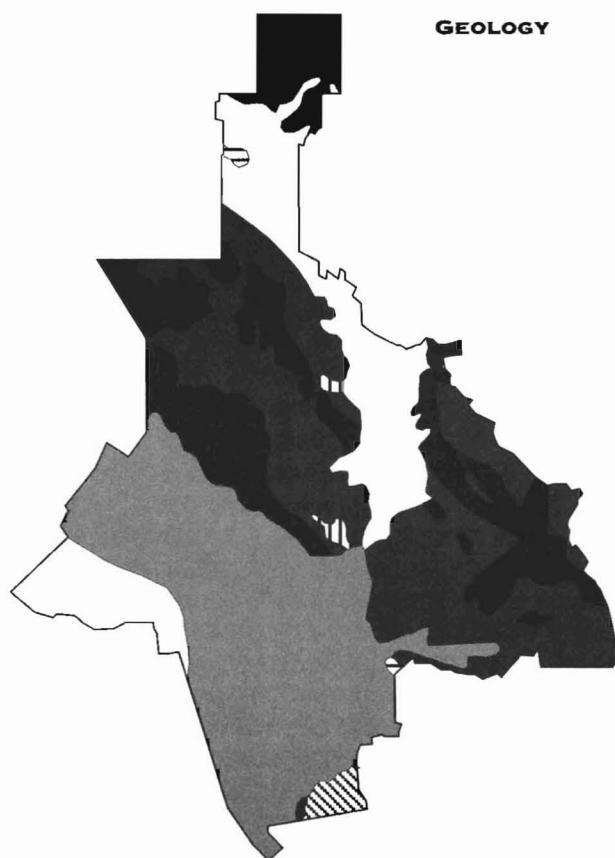
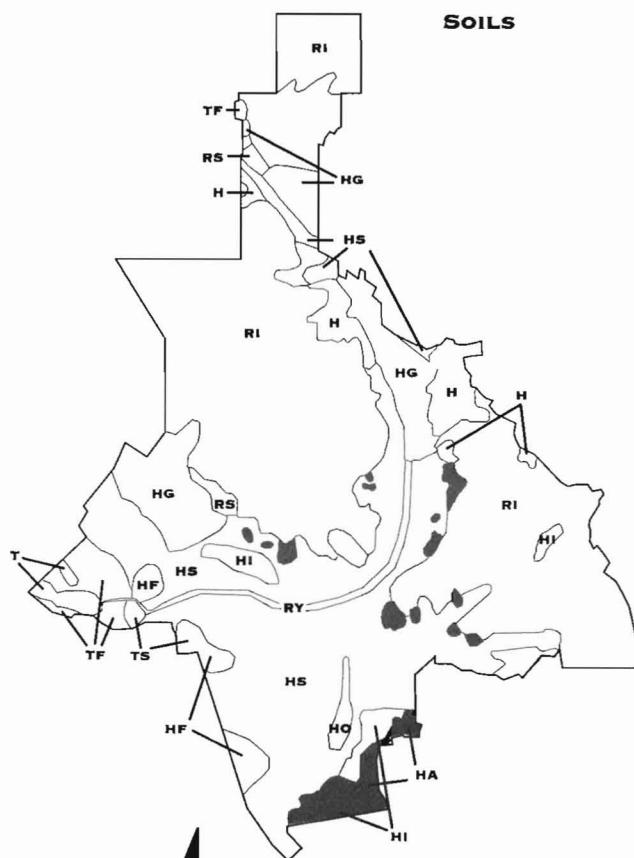
The San Andreas fault, located 22 miles northwest of the City, is a hazard in Glendale as a potential source of strong earthquake shaking and is interpreted as presenting a greater hazard than any of the faults located within the City's corporate limits. The area of particular interest is that segment of the fault between San Bernardino and Parkfield. Since the Parkfield break of 1857, this area has not moved and has been storing energy. There is probably enough energy stored in this segment of the San Andreas fault to generate an 8.5 earthquake at any time. This is the reason for the often quoted prediction of a "great earthquake" on the San Andreas fault during this century. Recent seismic activity from the Lander's quake in 1992 is also thought to have increased stress on the San Andreas fault in the San Bernardino area.

There are two major conclusions concerning faulting that can be drawn from the technical report of the Seismic Element: the primary seismic hazards to the City are the Sierra Madre, San Andreas and Raymond Hill faults; available data indicate that surface rupture associated with fault movement can be anticipated on the Sierra Madre, Verdugo and Sycamore Canyon fault zones.

With respect to open space planning, the Seismic Safety Element states "Areas which should be considered for open space zoning include lands designated as active landslides as well as active traces of the Sierra Madre, Verdugo and Sycamore Canyon Faults." With respect to housing, the element recommends restrictions on housing construction in at least the areas of moderate slope instability as well as astride or atop traces of the Sierra Madre, Verdugo and Sycamore Canyon Faults.



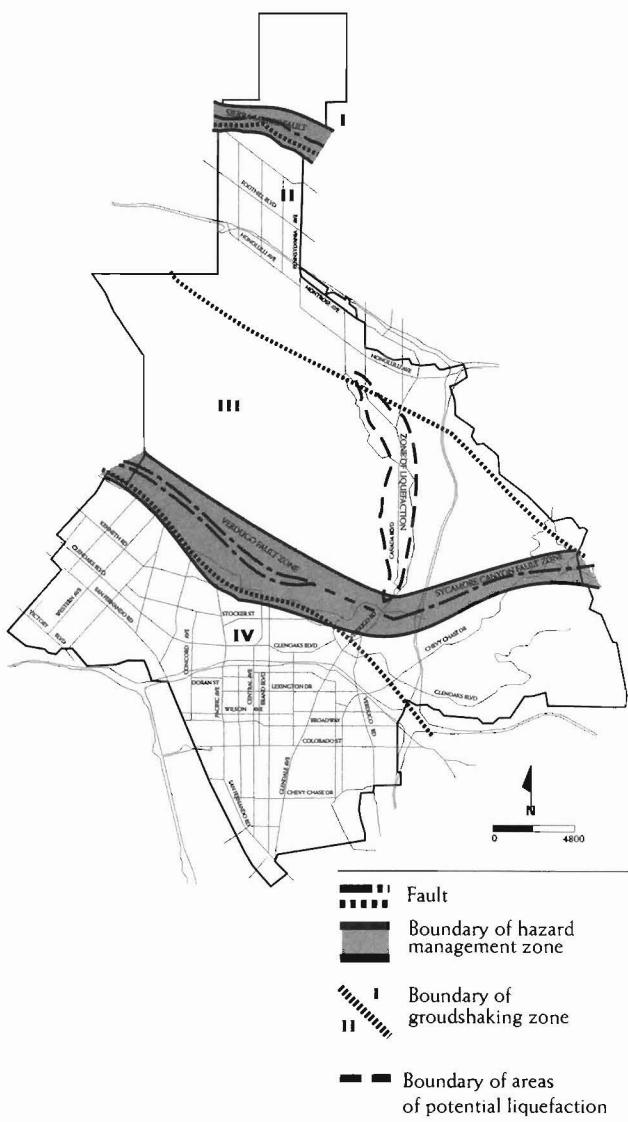
## MAP 4-17 SOILS AND GEOLOGY



Source: California Division of Mines and Geology

Source: John W. Byer City of Glendale, 1969

## MAP 4-18 SEISMIC HAZARDS



Olive View Hospital, February 9, 1971 San Fernando Earthquake

The only known area of moderate slope instability within the City of Glendale is located in a portion of the Forest Lawn Cemetery area where no housing exists. The cemetery land itself represents a quasi-open space use.

### c. Special Study Zones

In 1972, the State of California enacted the Alquist-Priolo Act which was intended to provide policies and criteria to assist City, County and State agencies in the exercise of their responsibilities to provide for public safety in hazardous fault zones. This legislation requires the State Geologist to delineate appropriate study zones to encompass all potentially and recent active faults. The only Special Study Zone in Glendale is along the Markridge Road area at the extreme northerly portion

of the City. The State Geologist has not completely mapped the Sierra Madre Fault within the City boundary, therefore, the Alquist-Priolo Act is applicable to only a portion of the City. This particular area is zoned R1 and is nearly completely developed. The City complies with all aspects of the Alquist-Priolo Act with regard to requirements for geologic reports, improved building requirements, and the establishment of special setback areas for active faults in new subdivisions.

## 5. Hazards

### a. Introduction

The California Government Code suggests that open space planning assess the use of open space for public

health and safety including, but not limited to, areas which require special management or regulation because of hazardous or special conditions such as earthquake faults, unstable soil areas, flood plains, watersheds, areas containing high fire risk, areas required for the protection of water quality, and enhancement of air quality. The purpose of this section, therefore, is to assess the presence of these hazards within the City of Glendale.

#### b. Fire

The Safety Element of the General Plan provides for a detailed assessment of natural and urban fire hazards within the City. Several factors govern the potential hazards from wildland fires. The primary determinants are vegetation, wind direction and strength, slopes, human proximity and access. Glendale contains a variety of vegetation types, all of which are relatively flammable. However, the chamise-chaparral plant community is the most hazardous since these plants contain a large percentage of volatile oil within their tissues which can ignite very quickly. Although Glendale has a predominantly westerly breeze flow, the bulk of local fire outbreaks accompany the warm, off-shore, dry wind conditions commonly termed "Santa Anas." As a result, location is important in the assessment of fire risk. Finally, slope, human proximity and access are other factors which influence the degree of fire hazard.

Map 4-19 shows the brush areas within the city with the highest fire risk. The classification system utilized for the preparation of this map is included in Table 4-5.

The most fire prone area for the City is in the Verdugo Mountains due to the abundant availability of fuel in the form of chamise-chaparral and steep topography. High and medium fire risks also occur in the San Rafael Hills and the San Gabriel Mountains.

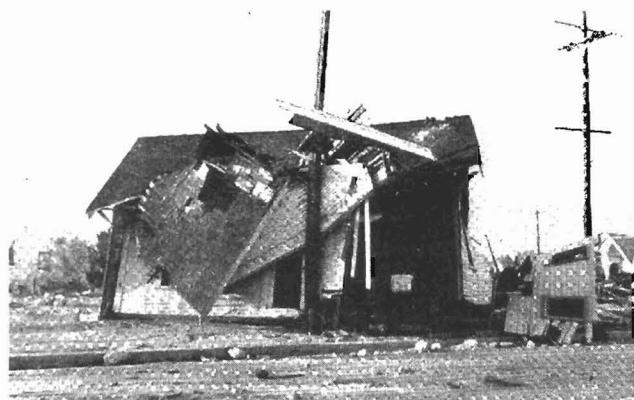
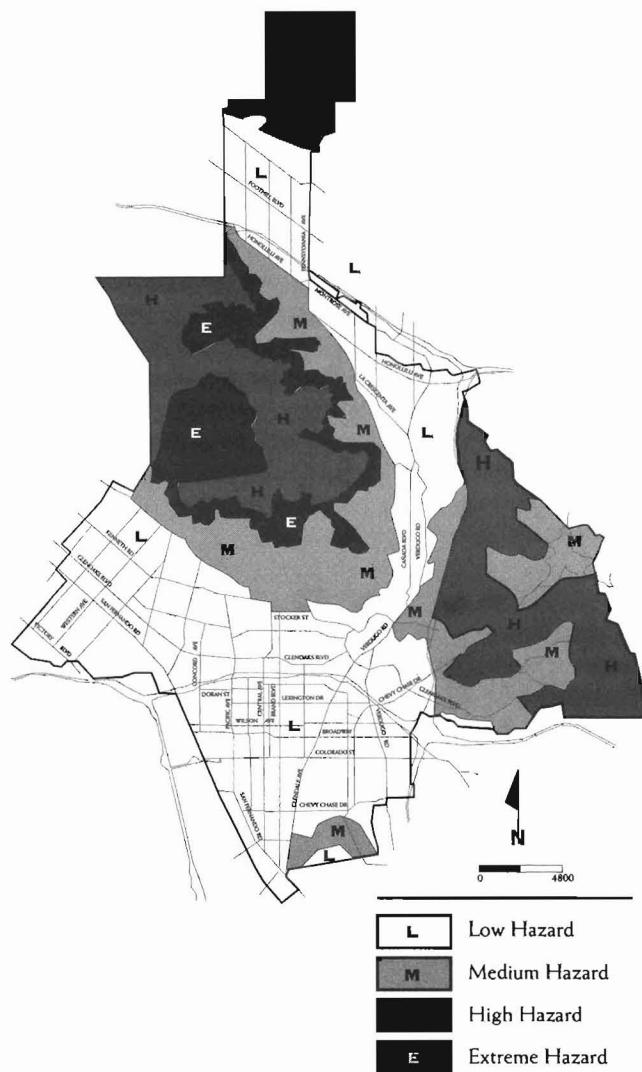
#### c. Flood Inundation

Flood hazards due to heavy precipitation can result in inundation of developed areas due to overflow of nearby stream courses or from inadequate local storm drain facilities. The City of Glendale is fortunate that a flood control system has been developed and has provided protection for its residents. The United States Department of Housing and Urban Development has not mapped any flood hazards for the City of Glendale.

#### d. Dam Inundation

Dam inundation hazards will result if a major structural failure occurs such as from seismic events or slope instability. Due to the various elevations which require wa-

**MAP 4-19 BRUSH AREA FIRE HAZARD CLASSIFICATION MAP**



*Flooding was a problem before a flood control system was developed  
(La Crescenta area, 1934)*

**TABLE 4-5 FIRE HAZARD  
CLASSIFICATION SYSTEM**

Hazardous Classification	Environmental Characteristics
Extreme Risk	Vegetation: Chamise Costal Chapparal Proximity: Fronting developed areas and/or west of fire prone vegetation communities Access: Very limited, topography extremely variable Slope: Very steep (40%+)
High Risk	Vegetation: Costal Chapparal, coastal sagewoodland Proximity: Near developed areas Access: Somewhat limited Slope: Steep (20% to 40%)
Medium Risk	Vegetation: Lesser developed scrub Proximity: Developed areas lying near wildlands Access: Available Slope: Gentle to moderate (0% to 20%)
Low Risk	Vegetation: Vacant lots and landscaping Proximity: Urban areas Access: Available Slope: Gentle (0% to 10%)



*Home and garage near Legion Hall on Rosemont Avenue (1934).*

#### e. Mud and Debris Flows

Mud and debris flows are potential hazards to lives and property in hilly portions of the City of Glendale. The removal of vegetation by fire lowers the stability of exposed soils and lessens the water holding capability of the local watershed. Because of the speed with which they move, mud flows can be quite destructive, especially along the bottom and at mouths of canyons. Although efforts to control flow has greatly mitigated the potential of mud flow hazards, Glendale is still susceptible to minor mud flows particularly for developments which were built under previous engineering design standards.

#### f. Noise

The Noise Element of the General Plan provides a noise assessment for the City. This element identifies major noise sources throughout the community and establishes policies and standards for a healthful noise environment. As related to open space planning, the Noise Element establishes an exterior noise level requirement of 60 Ldn for usable areas for housing. The element suggests that the normally acceptable range for playgrounds and neighborhood parks be established at less than 70 decibels. Major noise sources in the community include freeways, roadways and railroads. Open space can be utilized to buffer residential uses from major noise sources. The recent purchase of surplus freeway properties has helped reduce exposure of noise to future residents. Consideration, however, must also be given to the development of parks and active recreational facilities to ensure that an enjoyable noise environment is experienced by those users.

ter service in the City of Glendale (from elevations of 430 feet to more than 2,400 feet above sea level), the Public Service Division maintains a number of water storage reservoirs in hillside areas as part of its water supply system. Table 4-6 lists the largest reservoirs which are also classified as dams by the State of California. In addition to the seven reservoirs listed, the City also maintains 20 smaller water reservoirs for both domestic service and fire protection in hillside areas. The total capacity of all the reservoirs in the City is 540 acre feet.

The City of Glendale Public Service Division has completed, for the Office of Emergency Services (OEC), an inundation map of all reservoirs in the City. Should a structural failure occur in any of the reservoirs, the extent of potential inundation is recognized and evacuation limits have been established.



### **g. Composite Hazards**

Composite hazards provide a risk to residents whenever one or more of the individual hazards occurs in one location. Usually this is associated with some type of disaster such as during a seismic event where risk is associated with numerous hazards such as liquefaction, landslides, fire, etc. It is very difficult to predict the extent of composite hazards that may occur in the City. However, to provide for the safety of residents, the City has established a comprehensive emergency operations program. The City maintains an Emergency Operations Center on a full time basis and has contracted with numerous other public agencies to provide mutual aid in the event of a disaster. No specific recommendations with regard to open space lands can be identified with this particular hazard.

## **6. Hydrology and Water Resources**

### **a. Introduction**

Because water resources contribute significantly to the environmental quality of natural areas and the community as a whole, the California Government Code requires that all cities include in their General Plan a Conservation Element and an Open Space Element that specifically address issues of identification and conservation of water resources. The water resource issues and requirements of the Conservation Element are:

- The protection, use and development of water courses and reservoirs,
- The analysis of the type and intensity of development in or adjacent to water bodies or courses,
- The protection of and development in watersheds and aquifer recharge areas,
- The protection or improvement of water quality, and
- The conservation of ground water.

For the Open Space Element the issues are:

- The designation of open space for the preservation of streams, stream banks and watershed lands,
- The acquisition of areas required for the recharge of aquifers and ground water basins,
- Access to streams and stream banks and their linkage to other recreation and open space areas, and

- The management of watersheds and water reservoirs requiring management for the public health and safety.

The open space areas of the City include many drainage courses and tributary streams. These natural water systems normally flow during the winter rainy season and for a short time in the spring. They are the source for both permanent streams and water areas and, via percolation into the permeable soils and fractured bedrock areas, the water table in general. Perennial springs in the deep canyon bottoms are fed by the water, which accumulate in the fractured rock and is slowly released into natural water courses.

Much of this natural water system has been altered at lower elevations and in canyon mouths by development. As a consequence, preservation and management efforts need to focus on maintaining or improving the conditions that allow these water resources to function. New development should continue to be evaluated in light of its impact on the natural flow of water. Enhancement of existing water management programs can ensure the long-term viability of plant and wildlife communities and the total water system.

### **b. Precipitation**

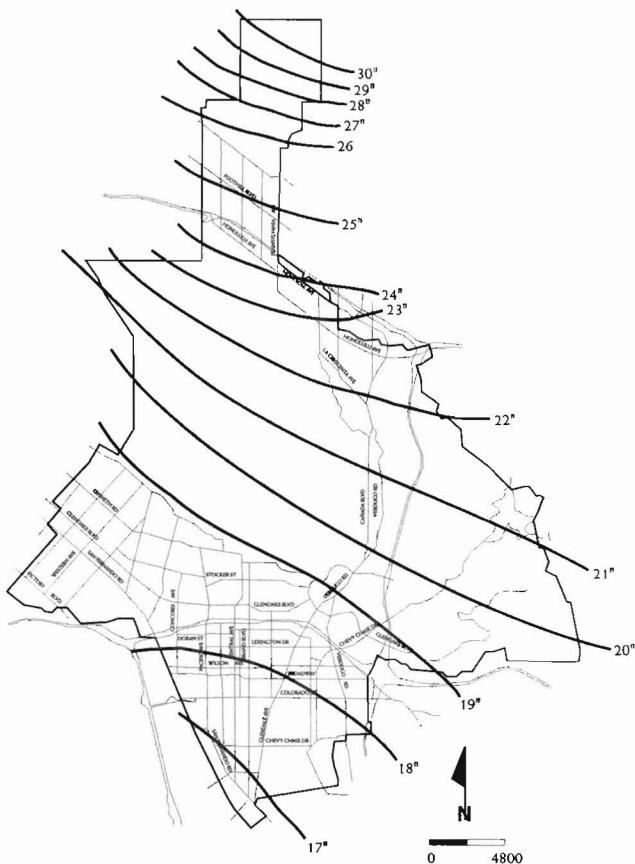
The variation of topography and elevation in the Los Angeles region influences the movement of rain clouds and resultant precipitation amounts. As shown on Map 4-20 annual rainfall generally increases with distance from the ocean and with proximity to the mountains. The average annual precipitation in Glendale ranges from 17.3 inches in the southern part of the city to 23.3 inches in the north. This range is primarily due to the change in elevation near the mountains. Rainfall is seasonal with the greatest amounts occurring during January and February. Eighty-five percent of Glendale's rainfall occurs from November through March.

### **c. Natural Water**

#### **1. Watersheds**

The north and easterly facing slopes of the Verdugo Mountains drain into the Arroyo Verdugo drainage basin and directly feed aquifers, underground water basins and wells reserved exclusively for Glendale. The south-facing slopes of these mountains drain into the Los Angeles River basin which feed aquifers, ground water basins and wells shared by Glendale, Burbank and the City of Los Angeles.

**MAP 4-20 AVERAGE ANNUAL PRECIPITATION (IN INCHES)**



The watersheds of the San Rafael Hills drain into Chevy Chase Canyon, Glenoaks Canyon and Verdugo Canyon in Glendale. The easternmost and southernmost ridges drain to Pasadena and Eagle Rock, respectively.

The San Gabriel Mountains watershed drains into Glendale and the Arroyo Verdugo ground water basins. Groundwater basins recharged from the San Gabriels are shared by Glendale and the Crescenta Valley County Water District.

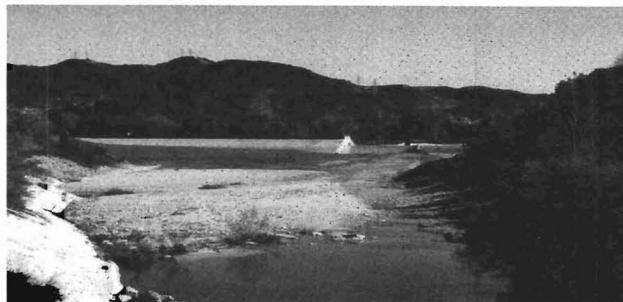
The distribution of annual runoff in the City varies between 0.5 inches in the southern part of the community to over 2.5 inches in the higher elevations including the San Gabriel Mountains and the Verdugo Mountains. Protection of these watersheds through conservation and open space measures are vital for the maintenance of Glendale's dwindling natural water resources.

## 2. Water courses

### a. Natural stream channels

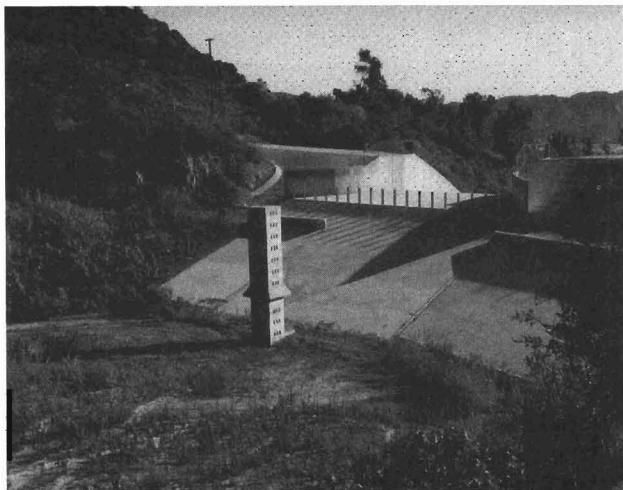
Stream channels shown on maps prepared by the U.S. Geological Survey as perennial or intermittent are referred to as "blue-line" streams. Any modifications to these blue-line streams are regulated by the State of California Department of Fish and Game. The U.S. Army Corps of Engineers also may have regulatory control of these channels. In Glendale, these streams (see Maps 4-25, 4-26, 4-27) are designated in most of the major canyons and stream channels whether or not they contain year-round water. These streams should be protected for their value as natural habitat as well as for their ability to absorb surface or spring waters for the ground water recharging process.

### b. Flood Control Channels



*Verdugo Basin near the Oakmont Country Club.*

As the result of major floods that occurred in Glendale during the 1930s, a network of flood control channels were constructed. The channels funnel run off from the San Gabriel mountains and across the flat areas of the city to the Los Angeles River. The Arroyo Verdugo channel is the main channel carrying storm and run-off water through Glendale. This major channel begins near Lowell Avenue in north Glendale and leaves Glendale at the Los Angeles River near San Fernando Road and the Ventura Freeway. In the western part of the city near Paula Avenue and the Golden State Freeway, a portion of the Los Angeles River passes through Glendale. The Cooks Canyon, Blanchard Canyon, Dunsmore Canyon, Eagle Canyon, Goss Canyon, Pickens Canyon, Shields Canyon, Ward Canyon and Halls Canyon channels feed into the Arroyo Verdugo from the San Gabriel Mountains in the northern portion of Glendale. The flood control channels and the numerous debris basins and dams in the City of Glendale are maintained by the Los Angeles County Flood Control District and are shown in Maps 4-21 and 4-22.



*Brand Park Basin in the Verdugo Mountains.*

#### c. Flood Hazard Management Zones

The United States Department of Housing and Urban Development has established a nationwide program for the identification of flood hazards. This agency prepares specific maps for use by the public for the disclosure of flood hazards and for flood hazard insurance purposes. The Department of Housing and Urban Development has not mapped any flood hazards for property within the corporate boundary of the City of Glendale.

#### d. Ground Water

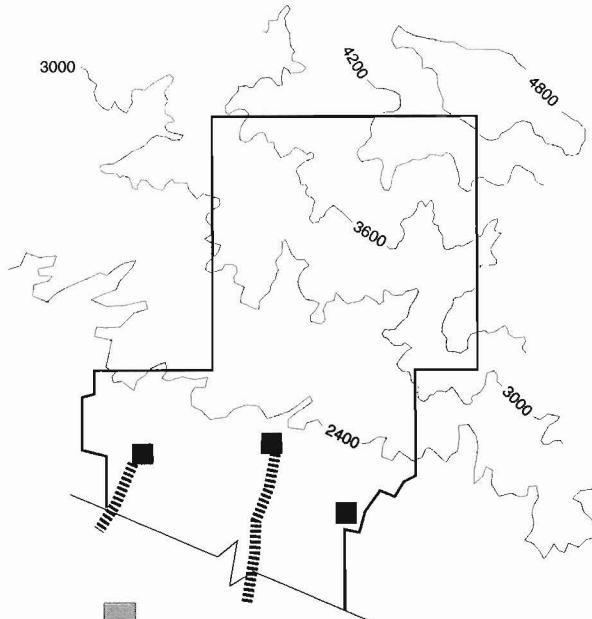
##### 1. Water Basins

###### a. Location

The sandy porous soils of Glendale's unlined flood control basins act as aquifers to replenish the ground water table. The largest flood control basin and aquifer is the Verdugo basin located adjacent to the Oakmont Country Club in the northern portion of Glendale. Maps 4-21 and 4-22 show this and other basins. Some of the more important basins include Verdugo, Dunsmuir, Golf Club Drive, Linda Vista Drive, Beaudry, Hillcrest, Cooks, Child's, Brand, and Greenbriar.

Equally important to the recharge capability of Glendale's groundwater basins are stream channels in canyon bottoms and the porous fractured materials of Glendale's watersheds. The fractured condition of the rock understructure provides seepage which replenishes many springs at the upper elevations of stream channels. Map 4-27 shows there are nearly 30 such springs in the Verdugo Mountains that provide year round water flow to many stream channels. In turn, the porous gravel and sand of the stream bottom contribute to the recharge of ground water basins.

#### MAP 4-21 DAMS AND DEBRIS BASINS IN THE SAN GABRIEL MOUNTAINS



*Map Not To Scale*

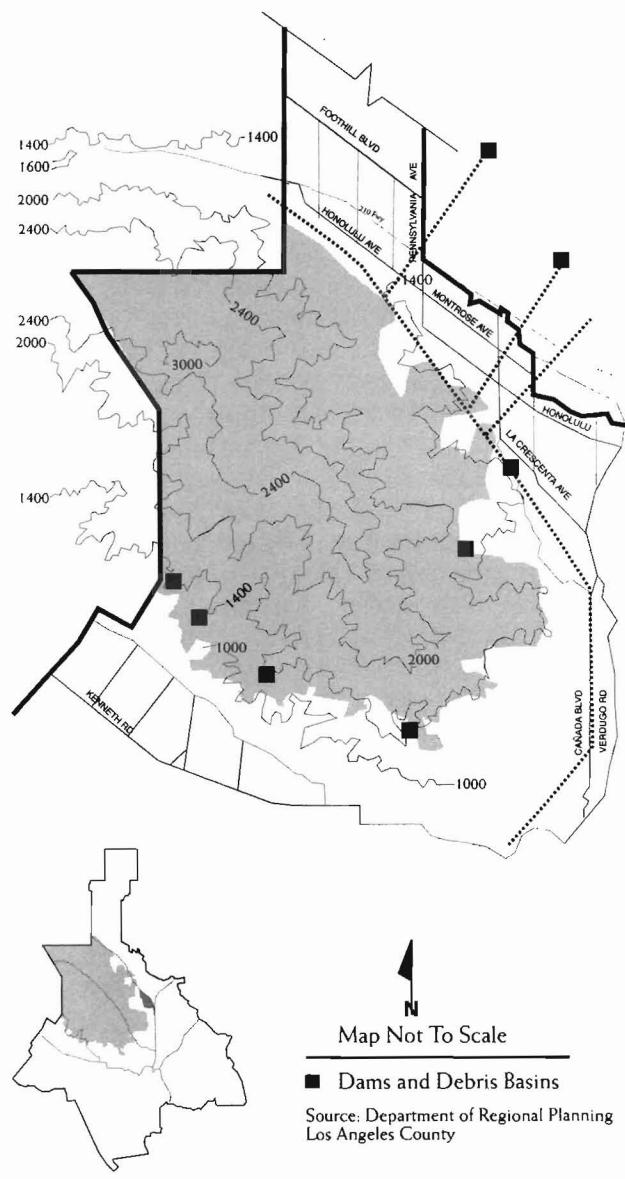
Dams and Debris Basins

||||| Flood Control Channels

###### b. Open Space for Water Recharge

Ground water recharge is a complex process beginning in the upper reaches of watersheds, where water filters through the porous underlying fractured rock into springs and streams, is absorbed into stream channel bottoms and aquifers in the various flood control basins and dams, and, ultimately, into the underground water basins themselves. It is therefore important that these recharge areas be protected and preserved to ensure Glendale's water resources for the present and future. The use of open space preserves for ground water recharge should focus on the watershed surfaces of the upper canyon areas, stream channel bottoms, banks of streams, mouths of streams and aquifer basins.

**MAP 4-22 DAMS AND DEBRIS BASINS IN THE VERDUGO MOUNTAINS**



e. Water Management

1. Domestic Water Distribution System

a. Reservoirs and Dams

The City of Glendale furnishes water for domestic consumption, irrigation and fire protection purposes. The City operates its own wells, reservoirs and storage tanks, pump stations, treatment plants and distribution systems. Table 4-6 describes the location of these facilities and

the capacities of the City's domestic and fire protection supplies.

The City's water distribution system is comprised of underground pipes, reservoirs and above ground tanks. There are no open reservoirs or lakes which provide the opportunity for recreation or which function as a habitat resource. The City has developed traditional parks above or on many of its underground reservoirs. The visual impacts of many of the recently constructed water supply tanks to serve hillside development have become a significant community concern.

Approximately 85 percent of the City's water needs are met with water from the Metropolitan Water District (MWD) of Southern California. This water is imported via the Colorado River Aqueduct or the California Aqueduct. The remaining 15 percent of the City's water demand is supplied by the City's Grandview Wells in the San Fernando groundwater basin and from the Glorieta Wells in the Verdugo Basin. The implementation of the Central Arizona Project on the Colorado River in 1985

**TABLE 4-6 WATER RESERVOIRS**

Reservoir	Elevation (in feet)	Gallons (in millions)
Markridge	1,993	3.5
New York	1,666	2.9
Verdugo	1,666	3.9
Park Department	1570	0.5
Chevy Chase West*	1,290	5.4
Rossmoyne	1,290	7.5
Park Manor	1,200	3.5
Brand Park*	968	10.2
Cevy Chase*	968	14.5
Glenoaks*	968	9.1
Glorietta*	968	35.7
Melwood	968	1.8
Diederich*	724	57.0
Western*	724	15.0

\*Reservoirs Classified as Dams by the State of California



resulted in more water being delivered to Arizona and less to California. In response to this event, MWD customers now receive additional supplies from the State Water Project. Currently, and notwithstanding the short term effects of the existing drought, there are no problems in meeting the City's water requirements. Future water supplies to the City will continue to be provided by the MWD, with augmentation from local groundwater wells. The City's system is capable of serving every household and business and a projected population of 225,000 people.

The impacts of future growth on Glendale's water supplies are, however, of concern in terms of total numbers and reference to the geographical distribution of that growth. Growth, in general, places additional demands upon water supplies and other natural resources. However, future growth in hillside areas of the city may have the effect of diminishing open space areas, which will in turn reduce percolation areas and the City's potential water supply.

#### f. Water Quality

In order to provide its residents with a safe and potable water supply and to meet all State water quality standards, the City has enacted an Urban Water Management Plan in compliance with Sections 10610-10656 of the California Water Code. The City also plans to increase the use of local supplies in the San Fernando and Verdugo ground water basins. This will reduce the City's demand on Metropolitan Water District (MWD) supplies.

The City's water supply consistently meets or exceeds the water quality standards established by State agencies and by the County Department of Health. Water quality is continuously monitored by the City and tested by private and County Health Department laboratories.

##### 1. Sources of Pollution and Pollution Control

Traditionally the City's major source of ground water pollution has come in the form of nitrates from unsewered areas in the La Crescenta and La Canada Flintridge valleys. However, with the installation of sewer systems in this area during the 1980s, this pollution source is now under control. Other sources of pollution include direct ground water contamination from industrial and commercial uses as well as contaminants from paved surfaces and from construction site storm water runoff.

In late 1979, as a result of the passage of Assembly Bill 1803, the California Department of Health Services required all water agencies using groundwater to conduct

tests for the presence of certain industrial solvents. These tests indicated that substances such as trichloreethylene and perchloroethylene were present in the San Fernando Basin in concentrations exceeding State Maximum Contaminant Levels. As a result, the City decided to limit its use of local supplies and rely more heavily on imported supplies pending the decontamination of these water resources. Efforts are now underway to decontaminate the basin under Federal Superfund law.

In the Verdugo Basin, high nitrate levels were found. This, however, did not limit groundwater production in the Basin, since its water supplies are blended with water from the Metropolitan water delivery system. This blending provides water to the consumer that meets all state and federal drinking water quality standards.

The City is actively working with federal, state, and local agencies to correct the water quality problems in the San Fernando and Verdugo Basins. It is anticipated that, within the next few years, water treatment facilities will be constructed to remove contaminants from the groundwater. The water from this source will then meet federal and state drinking standards and be delivered to Glendale for use by its residents.

The City maintains an inspection staff to monitor the potential sources of ground water pollution. Storm water runoff is monitored through application of the National Pollutant Discharge Elimination System (NPDES) permit process as administered by the City of Glendale and the County of Los Angeles in accord with the guidelines of the California State Water Resources Control Board (SWRCB). The NPDES permit process applies to runoff from construction sites of five or more acres as well as businesses and industrial uses. The implementation of the permit system is an evolving process and involves the use and on-going revision of the best management practices (BMP) to control water pollution from these varied sources.

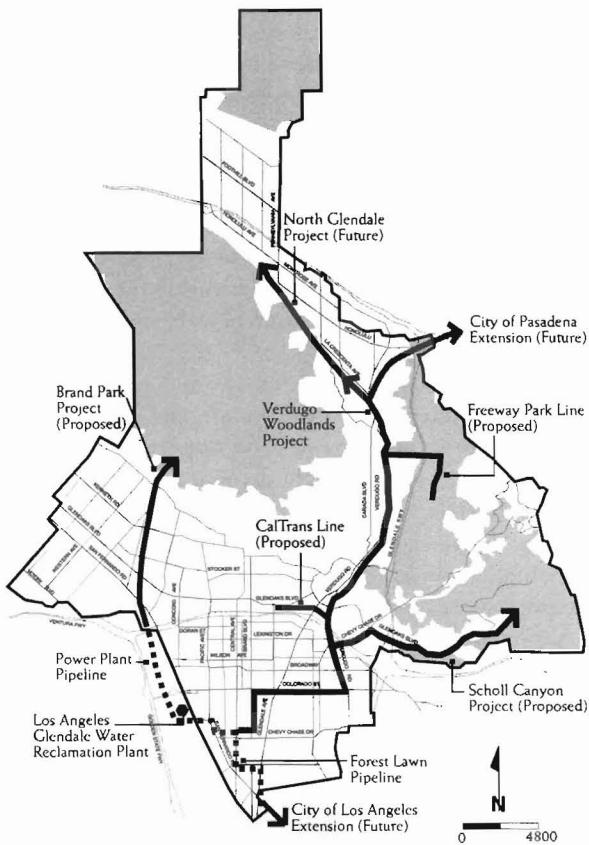
The City operates a hazardous materials collection facility. This program provides the opportunity for residents and businesses to safely dispose of toxic and hazardous materials. This program minimizes the illegal dumping or disposal of these hazardous materials in landfills, which provides protection against their introduction into underground water supplies. The City has also incorporated the County Hazardous Waste Management Plan into its Safety Element, setting policy for the proper siting and design of private and public hazardous waste facilities. The availability of sites locally would help reduce illegal disposal and the resulting groundwater pollution. A separate Household Hazardous Waste Element of the County Integrated Waste Management Plan

is under development by the Fire Division to provide a comprehensive approach to the proper separation and handling of household hazardous waste.

#### g. Water Reclamation

Glendale has become a leader in water reclamation and maintains a major water treatment and reclamation facility in partnership with the City of Los Angeles. The City has been delivering reclaimed waste water from the Los Angeles/Glendale Water Reclamation Plant to the Glendale Power Plant for use in the cooling towers and to Forest Lawn Memorial Park and CalTrans for irrigation. The City has a \$16 million program to construct a "back-bone" reclaimed water system to deliver reclaimed water to many other use sites in the City for irrigation of landscaped areas. By using reclaimed water for irrigation, there will be a reduction in demands on the drinking water supplies. By the year 2000, the City anticipates meeting 10 percent of its water demand through the use of reclaimed water. This program plus other local water resource programs are designed to reduce the City's dependence on imported water to improve the reliability of water supplies, and to reduce the extent of future water rate increases. Map 4-23 shows the City's reclaimed water system.

**MAP 4-23 RECLAIMED WATER DELIVERY SYSTEM**



#### h. Water Conservation

The City has implemented a broad range of water conservation and distribution management programs in co-ordination with programs at Federal, State and regional levels. These include the dissemination of information to consumers by means of a speaker's bureau, audio-visual presentations, literature handouts, newsletters, billing inserts and messages, exhibits, workshops, tours, advertising and coordination with local nurseries. In addition, the City encourages the use of drought tolerant vegetation and native gardens and has established a drought tolerant demonstration garden.

Water consumption also has been reduced by means of conservation audits to multi- and single-family residential as well as commercial customers, the distribution of conservation kits and the encouragement of the use of low-water use shower heads and plumbing fixtures. Lastly, the City is attempting to reduce system losses by means of leak detection, water main replacement, water meter testing, installation of pressure regulators and valve maintenance.

#### i. Water Programs Coordinated with Other Water Agencies

Much of Glendale's water comes from the Colorado River through participation in the Southern California Metropolitan Water District (MWD). This major water supply agency provides water to most southern California cities. Glendale is a charter member of this agency and enjoys continued use of its resources for domestic needs.

The Crescenta Valley County Water District provides some limited resources to selected areas of north Glendale. This district is also a member of the MWD. Its water resources are the Colorado River and springs in the San Gabriel Mountains. Its maintenance facilities are located in the Verdugo City area of Glendale.

### 7. Visual and Scenic Resources

#### a. Scenic Resources

##### 1. Introduction

The characteristics of scenic or aesthetic resources can be categorized into a variety of components or functions. Some of the important aesthetic functions of open space are as follows:

- Scenic beauty, such as landscapes that contain lush or colorful vegetation or other features that are visually attractive on the basis of their appearance.



- Prominent stature, such as topographical relief features that are bold, highly visible or distinctive.
- Uniqueness such as physical features that are unusual or uncommon.
- Contrast or symmetry, such as landscapes with component features of high diversification or a consistently occurring pattern with an interesting visual effect.
- Identity and form, such as neighborhoods and historic resources, reflecting a sense of time and place within the history of the community.

## 2. Existing Urban Conditions

Glendale contains numerous landscaped medians, parkways, neighborhood open space and historic and cultural resources which contribute to the City's identity and character. In addition to these aesthetic resources, Glendale contains numerous park lands. The landscape treatment in these parks includes a variety of both introduced and exotic species as well as California native plants. Crescenta Valley Park and Verdugo Park are examples of facilities which display native plant species in their natural environment. In addition to publicly owned properties containing significant aesthetic resources, specimen trees are also found on private property. The City has established an indigenous tree protection ordinance which provides regulation of oaks and sycamores and other native species. It is important, however, to consider other significant trees for inclusion in this ordinance to ensure their protection. Examples of important specimen trees may include Moreton Bay figs and several varieties of non-indigenous palms found in both public parkways and on private property. As a result of Glendale's streetscape efforts, the City has been recognized as a "Tree City USA."

In summary, Glendale contains numerous important aesthetic and scenic resources in the developed portion of the community. These resources provide visual relief to Glendale's residents from urban activity and help link the built environment to Glendale's natural resources. It is important to encourage the retention of these features and to ensure that development is compatible with these resources. The City should continue to implement its streetscape program, design review program, create additional park facilities and recognize the importance of urban plazas and other open space features within the built environment.

## b. Landforms/Topographical Resources

### 1. Introduction

The rugged ridges and canyons of the Verdugo Mountains, the San Rafael Hills and the San Gabriel Mountains are significant physiographical features within the City of Glendale. Encircled by an urban environment, these mountains provide islands of substantially untouched scenic landscape of near wilderness character. These landforms are important in that they create a dominant visual and physical resource that can be seen throughout the community. These open spaces provide a dramatic scenic backdrop for the community, helping to contribute to the city's image, character and identity. In addition, these expanses of open space contain important ecologically sensitive habitats also recognized as important resources to the community.

The City of Glendale, with the aid of other agencies, continues to recognize the importance of these resources as reflected in the accomplishment of an effective acquisition program. This commitment has also been made by the surrounding communities of Burbank, Los Angeles, and La Canada Flintridge. The Santa Monica Mountains Conservancy, established in 1980 and expanded in 1983 to include the Verdugo Mountains, San Rafael Hills and the San Gabriel Mountains as part of their planning jurisdiction, recognizes the scenic and recreational opportunities that these land forms provide the area. This organization, in concert with the National Park Service, is committed to fulfill its mandate to preserve the open space resources of the region. Los Angeles County also recognizes the Verdugo Mountains as an important resource through its identification of this area as a Significant Ecological Area (SEA). The California Department of Fish and Game also has identified these mountainous areas as containing significant biological resources and lists them in their Natural Diversity Data Base program.

Table 4-7 summarizes the amount of open space in Glendale which has been acquired by the City. More than 5,800 acres of land are now in public ownership. Only 1,540 acres remain in private ownership, available for future development (see Map 4-24). Although a substantial effort has been made to acquire and protect these lands, the remaining private properties are highly visible and contain sensitive ecological habitats including important stream channels and ridgeline areas. The biological investigation prepared for this report further stresses the importance of these remaining areas particularly in terms of their regional value to the overall ecological environment of the mountain system that surrounds the Los Angeles urban area.

**TABLE 4-7 OPEN SPACE ACQUIRED BY CITY**

Open Space Acreage	
Developed Park Land	246 acres
Undeveloped Park Land	4,565 acres
Undeveloped Non-City Owned Open Space	1,296 acres
Undeveloped Privately Owned Open Space	1,540 acres
Total	7,647 acres

## 2. Existing Conditions

The Verdugo Mountains are a northwest-southwest trending lens-shaped series of ridges approximately nine miles long and varying from three to four miles in width. The mountains are separated on the north and northeast from the main body of the San Gabriel Mountains by extensive alluvial fans of the Sunland-Tujunga and La Crescenta areas. Bordering the Verdugo Mountains on the north is Big Tujunga Wash; on the south-southwest, the San Fernando Valley. On the east, the Verdugo Wash separates the Verdugo Mountains from the San Rafael Hills.

The San Rafael Hills are located east of the Verdugo Mountains and are bordered on the west by Verdugo Canyon and on the east by the Arroyo Seco. The alluvial fans of the La Canada Flintridge area separate the San Rafael Hills from the San Gabriel Mountains. The San Rafael Hills are approximately three and one-half miles wide and are nearly four and one-half miles long on their north-south axis. These hills are dissected by two distinct canyon areas: Scholl and Sycamore canyons. The Route 2 Freeway was constructed along the westerly edge of the San Rafael Hills. Development in the San Rafael Hills has been more extensive than that which has occurred in the Verdugo Mountains.

The City of Glendale includes approximately one square mile of land on the south face of the San Gabriel Mountains. This mountain range creates a dramatic backdrop for the entire Los Angeles region and is primarily occupied by National Forest lands. The City of Glendale boundary extends to just below Mount Lukens, which has an elevation of 5,074 feet.

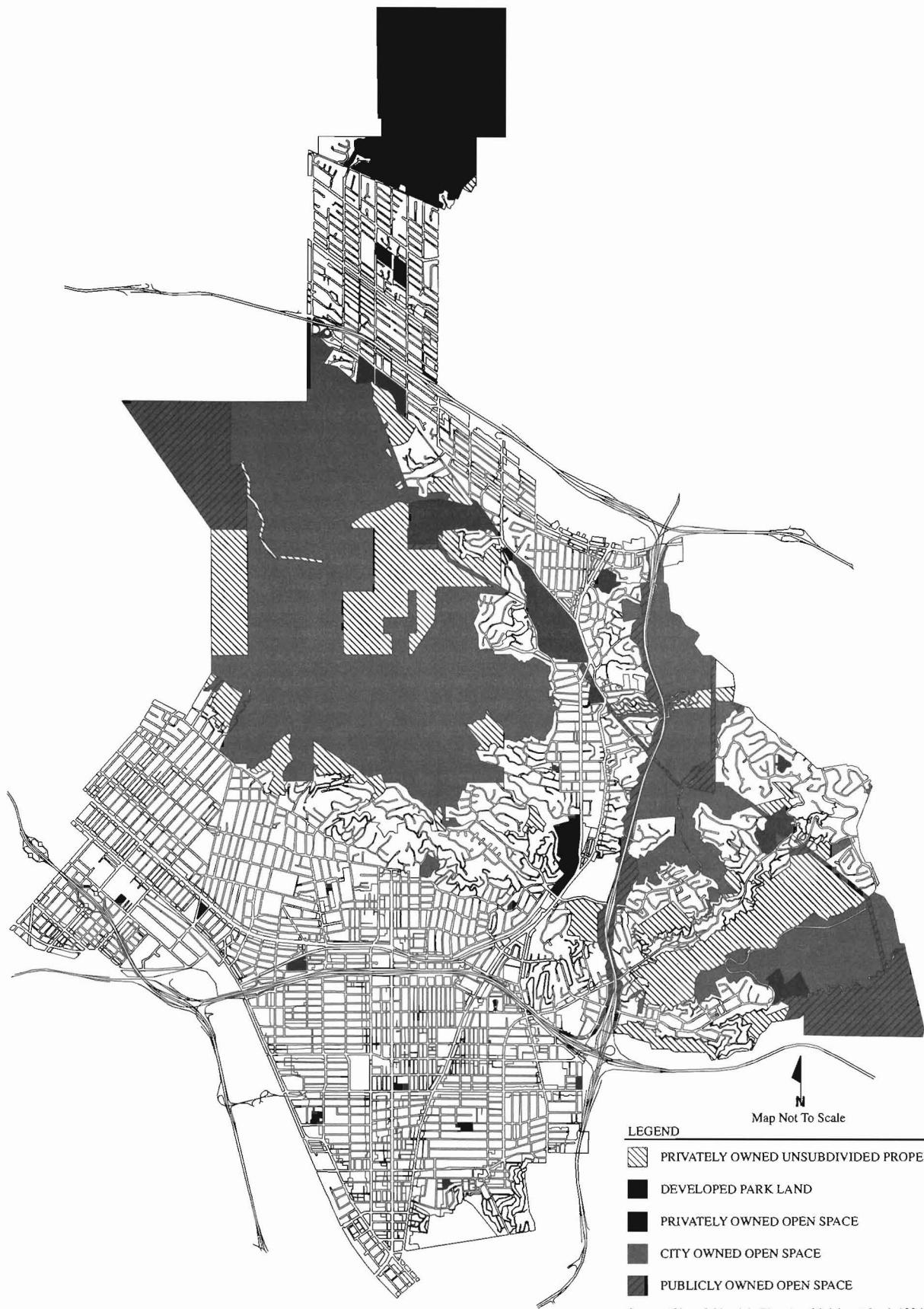
The topography of these mountainous areas is steep and well dissected by intermittent stream channels. The lowest elevation of these mountainous areas range from approximately 700 feet on the southerly portion to approximately 1,200 to 2,000 feet on the alluvial fan surfaces in the La Crescenta area. In the Verdugo Mountains, the highest elevation is Mount Verdugo (3,126 feet). Flint Peak rises to 1,887 feet, the highest elevation in the San Rafael Hills. The highest elevation of the portion of the San Gabriel Mountains located within the city is 4,774 feet above sea level. These wide ranges in elevation produce landforms that are unique in both variety and relief.

The most prominent physical features associated with these mountainous landforms are the ridgelines. These features provide a significant backdrop to the urban form and create an unique identity for the community. Ridgelines, by definition, are simply boundaries between drainage basins. They separate the direction of water flow during and following rain storms. They function, on a smaller scale, the same as continental divides which separate water sheds for large regions. In analyzing ridgelines it is important to establish a classification system that takes into account the degree of significance of each ridgeline. In the Verdugo Mountains the primary ridge and corresponding secondary ridges can be easily identified along the northwest-southeast trending axis. This, in a fundamental sense, represents the primary ridgeline feature of this landform. This ridgeline separates the water shed boundary of the San Fernando Valley from that of the La Crescenta Valley. This mountain range, however, is composed of numerous other ridgelines which provide separation between water sheds on smaller scales. The hydrologic section of the element provides further detail concerning the water resources of this area.

In the San Rafael Hills the overall ridgeline form is less definitive in that it is separated by numerous, well developed canyon areas such as Scholl Canyon and Sycamore Canyon. Within this area, however, the ridgelines can be readily identified. In the San Gabriel Mountains the primary trend of the landform is east-west and is located just outside the city boundary. Each of the major landform features within the City of Glendale portion are north-south trending ridgelines stemming from this main overall feature.

## 3. Ridgeline Definition

Ridgelines are the linear tops or crests of major hills that form a continuous horizon line against the sky or against other hillside features. The visual resources of ridgelines are represented by the aesthetic quality of these areas as



Source: City of Glendale Planning Division, March 1996

a component of the region's viewshed as seen from off-site locations.

The major ridgelines can be further classified as either primary or secondary, as follows:

**Primary Ridgeline:** The highest undeveloped and visually dominant ridgeline in a viewshed, recognized by the continuous horizon line formed against the sky.

**Secondary Ridgeline:** Lower "branches" or "fingers" of the primary ridgelines which extend in different directions, or separate lower ridgelines that provide a visual foreground feature for primary ridgelines or form the boundary of a watershed.

Terrain, in general, can also be categorized based upon its visual sensitivity as follows:

- **Areas of low visual sensitivity** are defined as those areas screened or nearly screened from view from vantage points and/or without features of special visual interest. These areas are generally located in the low-lying interior of the city, in canyons and watersheds where local east-west and north-south ridges or existing development blocks views.
- **Areas of moderate visual sensitivity** include areas where local views are partially blocked by secondary ridgelines, middle and distant views are unobstructed and there are points of some visual interest. Such areas include foothill areas and steep slopes within watersheds and ridge faces.
- **Areas of high visual sensitivity** include areas that are in plain view of local, middle and distant viewsheds audiences. A majority of the areas included in the undeveloped areas of the City are within this sensitivity classification due to the high elevations of the mountains and hills. These areas are identified as major peaks, primary and secondary ridgelines and upper slopes.

#### 4. Methodology

The visual resources of the mountainous areas were assessed through field investigation, topographical map review, and photographic interpretation analysis including low and high oblique aerial photography and at grade photography. These processes led to identification of site views, off-site viewsheds, and on-site points of visual interest. Various other resources were also reviewed including the biological investigation report and materials prepared by State, regional and other regulatory and planning agencies.

#### 5. History of Ridgeline Preservation

In 1981, the City of Glendale established a ridgeline preservation ordinance (Ord. 4533) which prohibited development in conjunction with subdivisions on significant ridgelines. Maps 4-25, 4-26, 4-27 identify the generalized location of these ridgelines. The ordinance regulates development within these areas and provides an exception for public roadways and utilities subject to adoption of findings at a public hearing by City Council if found necessary for project implementation. Since 1981, numerous subdivisions have been developed involving landforms not identified by this ordinance. The community has indicated, during the processing of these subdivisions, that there is a need to recognize additional landform features in the community.

#### 6. Proposed Ridgeline Identification

Maps 4-25, 4-26, and 4-27 identify the conclusions of the ridgeline analysis prepared by the Planning Division. Primary ridges are those that were previously identified and protected by City Council in 1981. The extensions of these ridgelines are classified as secondary ridgelines.

The areas identified within this ridgeline analysis represent important visual resources for the City of Glendale. The majority of this property is within public ownership and will be preserved in the future. There are areas, however, which contain privately held unsubdivided property and some subdivided property (see Map 4-24). Within those areas it is important that development proposals recognize these significant features and promote their preservation.

#### 8. Mineral Resources and Aggregate Resources

##### a. SMARA Compliance

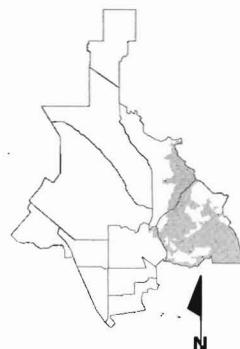
The Conservation Element is required to provide for the conservation, development and utilization of mineral resources. In addition, under the State's Surface Mining



Ridgelines of the Verdugo Mountains as seen from MarkRidge Development

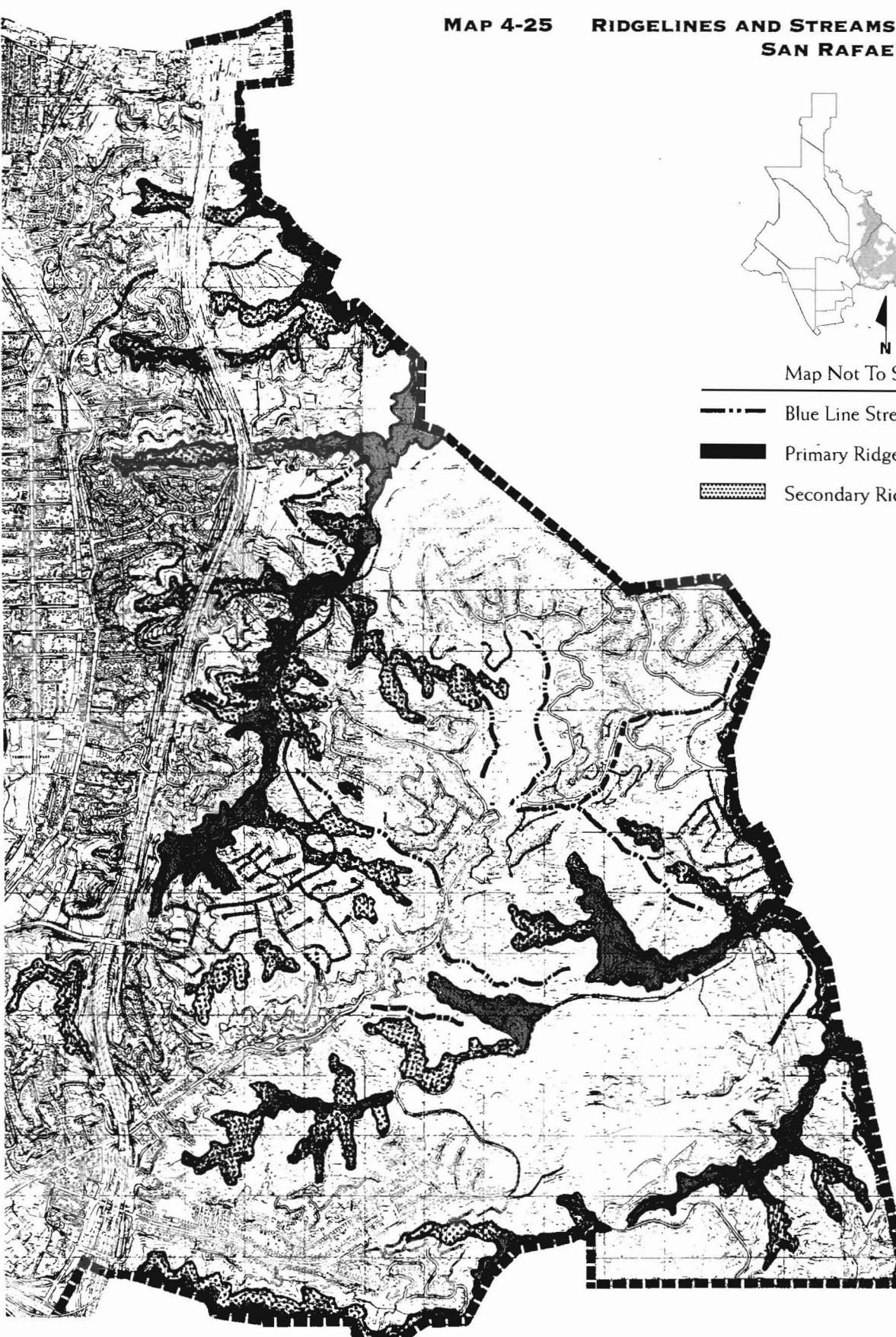


**MAP 4-25 RIDGELINES AND STREAMS OF THE SAN RAFAEL HILLS**



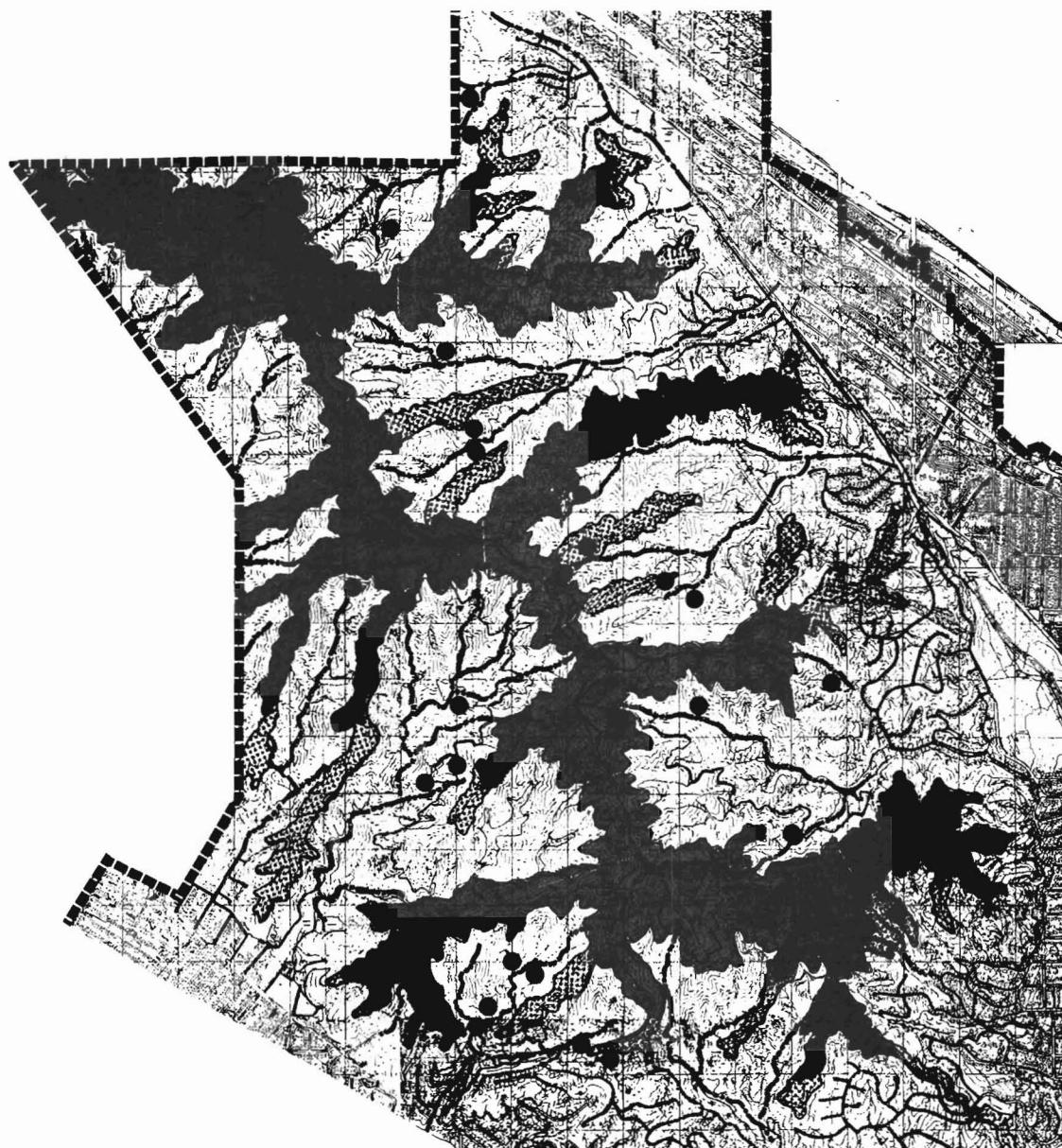
Map Not To Scale

- Blue Line Streams
- Primary Ridgelines
- ▨ Secondary Ridgelines



**MAP 4-26**

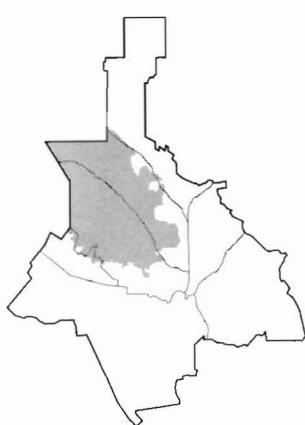
**RIDGELINES, STREAMS, AND SPRINGS OF THE  
VERDUGO MOUNTAINS**



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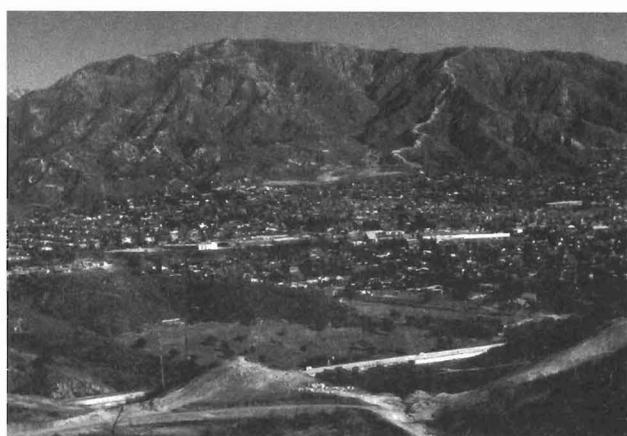
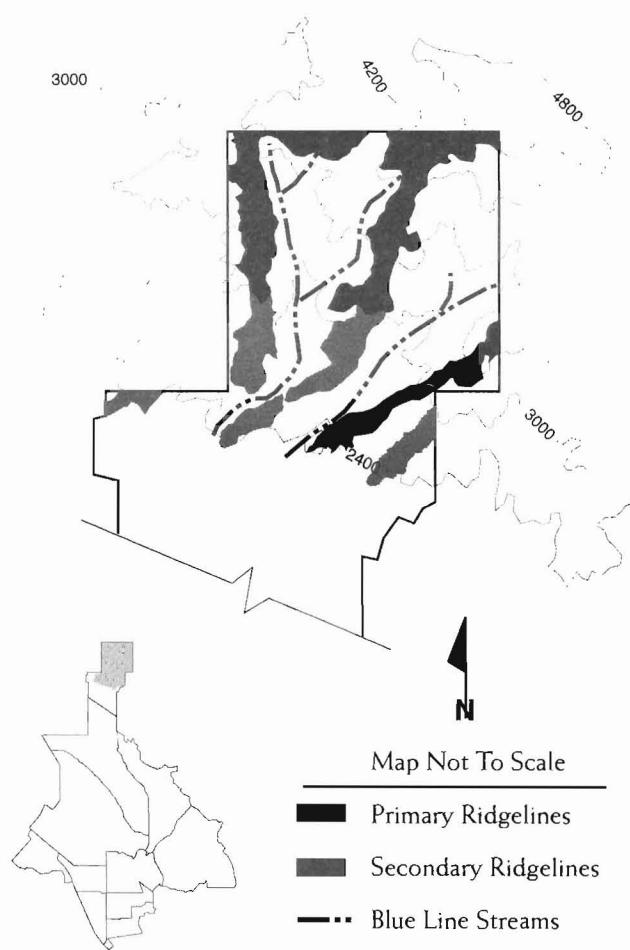
Map Not To Scale

- Blue Line Streams
- Springs
- Primary Ridgelines
- Secondary Ridgelines





**MAP 4-27 RIDGELINES AND STREAMS  
OF THE SAN GABRIELS  
MOUNTAINS**



Ridgelines of the San Gabriel Mountains



Ridgelines of the San Rafael Hills



Ridgelines of the Verdugo Mountains

and Reclamation Act of 1975 (SMARA), each local agency is required to establish mineral resource management policies to be incorporated in its General Plan which will:

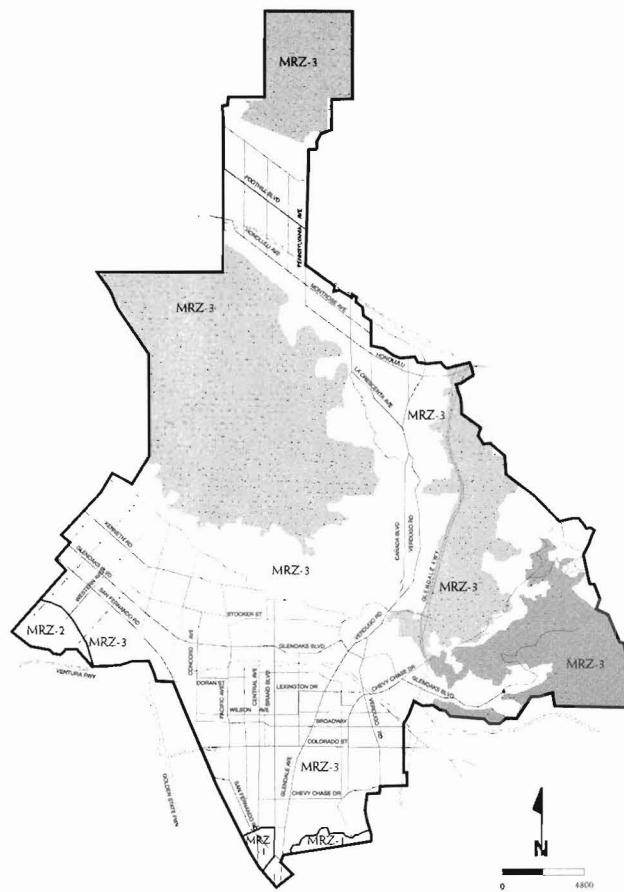
- (1) Recognize mineral information classified by the State Geologist and transmitted by the State Mining and Geology Board.
- (2) Assist in the management of land use which affects areas with mineral deposits of statewide and regional significance.
- (3) Emphasize the conservation and development of identified mineral deposits.

A mineral is defined in Public Resources Code Section 2005 as any naturally occurring chemical element or compound, or groups of elements and compounds, formed in inorganic processes and organic substances, including, but not limited to, coal, peat and bituminous rock, but excluding geothermal resources, natural gas and petroleum. Gold, sand, gravel, clay, crushed stone, limestone, diatomite, salt, borate, potash, etc. are examples of minerals.

The State Geologist has mapped the Glendale area for aggregate resources. Aggregate includes rock, sand and gravel. It is primarily used for construction and the manufacturing of concrete. Map 4-28 indicates mineral resource zones within Glendale as mapped by the State. As shown, no mineral resource zones in Glendale are of statewide or regional significance. An area along the Los Angeles River flood plain has been identified as containing a high likelihood for the presence of aggregate resources. The remainder of the City has not had sufficient information developed to determine the significance of any aggregate deposits.

Map 4-28 also shows the designated urbanized and urbanizing boundaries under SMARA. The area in Glendale with a high likelihood of aggregate resources is urbanized, thereby precluding resource development. Most other parts of Glendale are also urbanized. Aggregate resource development in areas of the City which are not urbanized or urbanizing would be visually detrimental. It would also be incompatible with the goals of the Open Space Element and the Land Use Element of the City's General Plan, which call for preservation of the visual character of Glendale's hillsides. Since aggregate is readily available and currently mined nearby in Lake View Terrace, Sun Valley and Irwindale, it does not appear likely that Glendale will have a need to develop its potential mineral resources.

**MAP 4-28 AGGREGATE RESOURCES**



**Legend**

- |       |   |
|-------|---|
| MRZ-1 | Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence |
| MRZ-2 | Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood of their presence exist       |
| MRZ-3 | Areas containing mineral deposits the significance of which cannot be evaluated from available data   |

Source: California Division of Mines and Geology,  
Mineral Land Classification of the Greater Los Angeles Area  
Special Report 143, 1979

## 9. Source Reduction and Recycling

Two solid waste landfills are located within Glendale; Scholl Canyon Sanitary Landfill and Brand Park Landfill. The City owns 90 percent of Scholl Canyon Landfill with the remaining 10 percent owned by Los Angeles County. The landfill currently accepts approximately 2,300 tons of Class III (non-hazardous) refuse daily. It is expected to reach capacity by the year 2010. Cities and unincorporated areas that use the landfill for mu-



nicipal waste disposal include Glendale, Pasadena, South Pasadena, Sierra Madre, La Canada Flintridge, San Marino, East Pasadena, Altadena and Montrose.

Brand Park Landfill is owned and operated by the City of Glendale. It accepts about 70 tons per day of asphalt, concrete, dirt, forestry and gardening waste, and street cleaning debris all from City operations. It is expected to reach capacity by 1995, unless the site is expanded as planned.

In an effort to extend the life of its landfills and comply with State law, the City adopted a Source Reduction and Recycling Element as part of the Los Angeles County Integrated Waste Management Plan. The element lists programs necessary to reduce solid waste by 25 percent by the year 1995 and by 50 percent by the year 2000. The programs include household and commercial refuse separation, materials recovery facilities, composting and other programs to meet the goals of the element. The Source Reduction and Recycling Element has been endorsed by the County. It awaits review and approval by the State Integrated Waste Management Board. This will take place when all cities within the County and the County have completed their individual elements and a Countywide Siting Element has been prepared.





# IMPLEMENTATION PLAN

## A. INTRODUCTION

The purpose of this chapter is to provide strategies for the implementation of the goals and objectives of this element. Implementation strategies are essentially a refinement of the general policies identified in Chapter III and reflects the findings of the Open Space and Conservation Plan. These measures provide a basis or means for City Council, Planning Commission and staff to achieve the objectives of the element. While implementation of each of the strategies contained in this chapter would be desirable, it is recognized that there are competing demands for preservation, development and conservation of resources and that the city's economic resources are limited. Therefore, it may be necessary to prioritize or utilize alternative means to effectively accomplish many of the desired objectives. The implementation section of this document has been organized into the following sections:

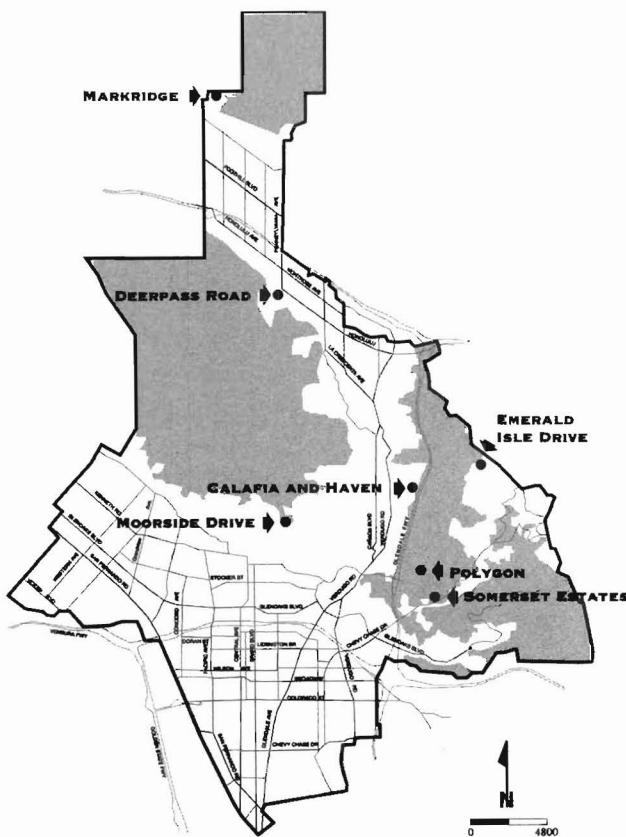
- Acquisition of Natural Resources
- Preservation of Natural Resources
- Conservation of Resources
- Management and Utilization of Natural Resources
- Public Participation

## B. ACQUISITION OF NATURAL RESOURCES

Acquisition of undeveloped land provides an effective means to protect open space resources within the community. It offers the greatest degree of assurance that these resources will be protected in the future. The City of Glendale has been successful in utilizing this approach for the use of open space and recreational opportunities. Section C of Chapter IV provides an overview of the

city's acquisition efforts in mountainous areas. The total amount of public open space in the city is more than 5,860 acres. Only 1,540 acres remain in private ownership. Glendale's strategies for acquisition have included the direct purchase of private property, tax delinquent property and surplus state freeway properties as well as acceptance of land as gifts. Glendale also has been successful in obtaining public ownership of open space land through the dedication of property during the subdivision process (see Map 5-1). Glendale has been aided in

#### **MAP 5-1    OPEN SPACE PRESERVED THROUGH SUBDIVISION DESIGN CONDITIONS**



its efforts by a variety of state and federal programs including State Land and Water Conservation Grants, Santa Monica Mountains Conservancy funds, and other public programs. Acquisition of open space land should be prioritized according to its environmental sensitivity, ecological, historic or cultural value, impact on surrounding areas, development potential, traffic impacts and its uniqueness or relationship to other open space areas. Map 5-2 has been developed to summarize the location of primary resources analyzed in this element. While this figure identifies where composite resources

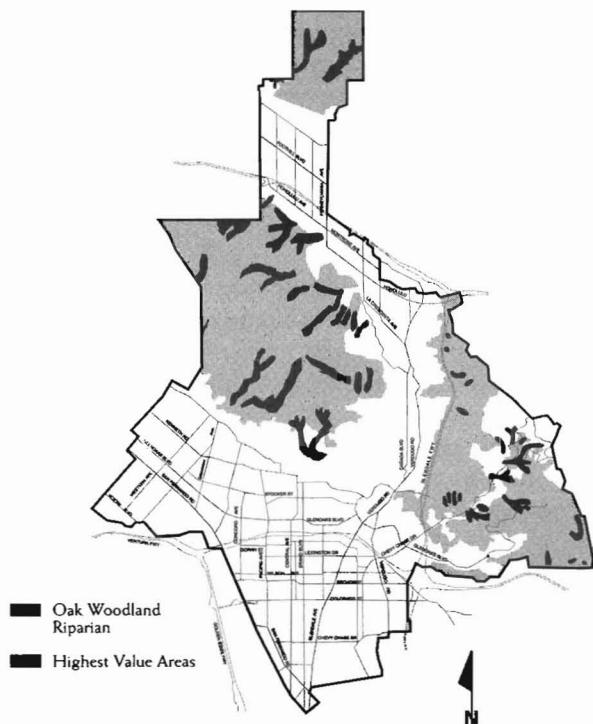
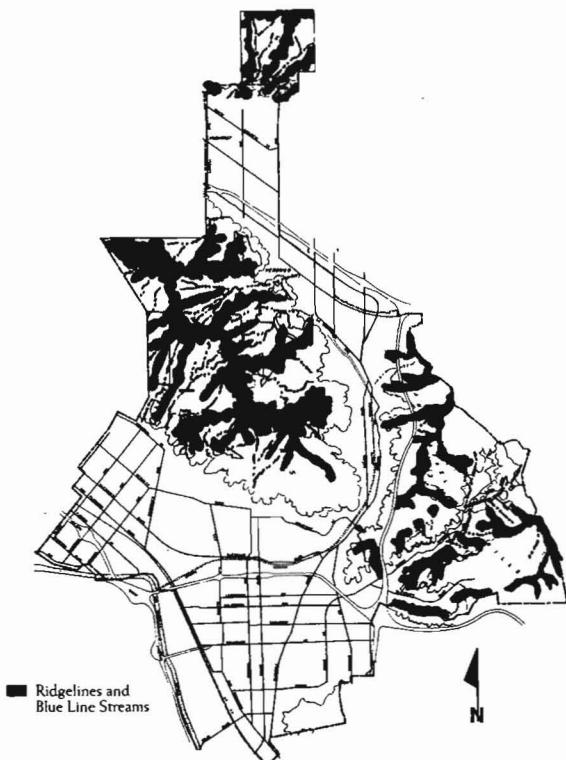
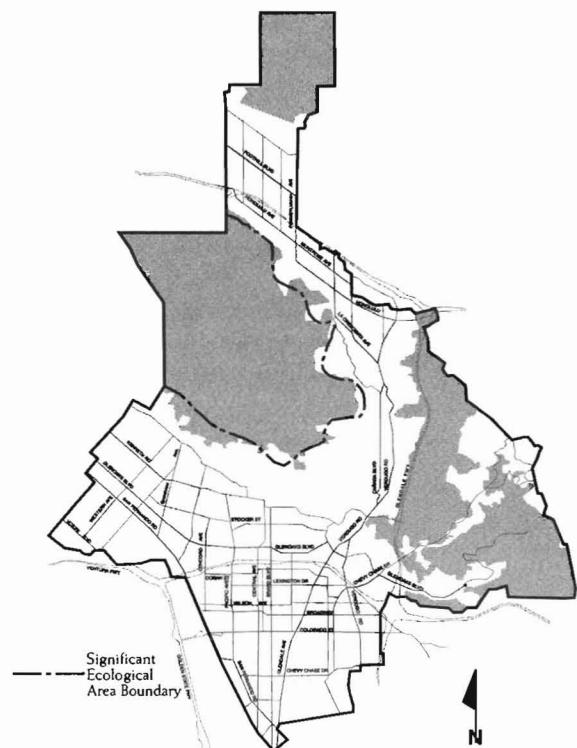
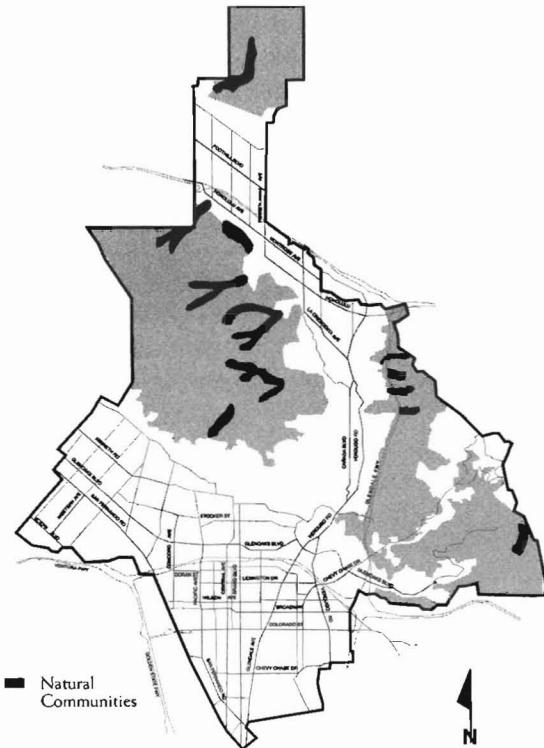
occur, it must not necessarily be assumed that a single resource area is less valuable than multiple resource areas. The findings contained in each individual section can serve as a guide to aid in the assessment of the importance of each parcel. However it should be recognized that acquisitions are highly dependent upon available funding, willingness of owners to sell and other factors. Specific actions and programs for the acquisition of natural resources can be summarized as follows:

- Pursue acquisition of property as available on the basis of environmental sensitivity, ecological, historic or cultural value and potential environmental impacts if developed.
- Continue to pursue all available public and private funding programs involving grants, loans, donations, and other forms of financial support from Land and Water Conservation funds, Santa Monica Mountains Conservancy programs, the Trust for Public funds as well as other sources.
- Adopt a development fee ordinance in order to provide a source of funding for open space acquisition and the development of recreational facilities.
- Continue to review tax delinquent property lists and pursue their acquisition as appropriate.
- Encourage the use of conservation easements and promote their tax benefits.
- Encourage user fees where appropriate.
- Consider supporting a bond program for voter consideration.

#### **C. PRESERVATION OF NATURAL RESOURCES**

In order to provide for the preservation of Glendale's natural resources the following implementation programs are offered:

- Develop an ordinance that protects primary and secondary ridgelines and blue-line streams from development. Such an ordinance may, by exception, permit limited development within the identified ridgelines and blue-line streams when specific findings are made.
- Revise Glendale's grading ordinance in order to minimize the adverse physical effect of development in environmentally sensitive areas.


**MAP 5-2 COMPOSITE RESOURCES MAP**
**BIOLOGICAL RESOURCES**

**RIDGELINES**

**SIGNIFICANT ECOLOGICAL AREAS**

**NATURAL COMMUNITIES**


- Prepare design guidelines for subdivision and in-fill properties in order to promote sensitive hillside design.
- Prepare landscape guidelines in order to more effectively treat manufactured slopes and provide compatible transitions to natural terrain.
- Amend Glendale's subdivision ordinance to establish standards that minimize the impact of development in hillside areas.
- Amend Glendale's zoning ordinance to address density, architecture, urban design and related standards for hillside development.
- Continue the architectural review of structures through the design review process.
- Continue plan review in the SR zone to ensure compatible development in mountainous areas.
- Utilize the environmental review process to ensure that development in hillside areas is consistent with the goals and objectives expressed in this element and provides mitigation measures and monitoring for identified impacts.
- Where acquisition of open space land is impractical, ensure that subsequent development incorporates desirable configurations of open space through careful environmental analysis, site planning and other strategies.
- Assess the habitat quality of Glendale's open space areas, particularly those identified in the California Department of Fish and Game Natural Diversity Data Base, and those sensitive habitats containing rare and endangered species as identified in this element's biological assessment report, through consultation with a qualified biologist at regular intervals.
- Establish a revegetation program to naturalize disturbed areas and to prevent the invasion of non-native plant material.
- Preserve natural stream channel systems and water courses important to groundwater recharge, particularly those identified by the California Department of Fish and Game, as permitted by law.
- Continue to prohibit the commercial extraction of mineral resources in designated open space areas.
- Continue the City's Urban Forestry and Streetscape programs to visually enhance Glendale's neighborhoods and to provide linkages to open space areas.
- Identify important bikeways, trails, parks, vista points, recreational facilities, historic and cultural sites and scenic roadways through appropriate signage and information programs.
- Revise and update the Historic Preservation Element of the Comprehensive General Plan of the City of Glendale and conduct inventories of buildings and sites to determine their historic, cultural, archaeological, architectural and aesthetic value.
- Continue to implement regulations designed to minimize fire risks through standards pertaining to roof materials, sprinkler systems, eave overhang construction, building materials and structure design.
- Review development plans to ensure the safety of residents through adequate emergency vehicle access, the spacing of hydrants and the availability of water pressure.
- Continue Glendale's enforcement efforts through brush clearance, fuel modification zones and education of residents adjacent to wildland areas.
- Continue to support the efforts of the Los Angeles County Department of Public Works in maintaining and improving Glendale's flood control systems and to continue improvements to Glendale's flood control systems by allocating funds through the Capital Improvement Program.

## **D. CONSERVATION OF RESOURCES**

- Restrict public access through appropriate signage, barriers and other means to protect sensitive land and habitats from unauthorized use and entry.
- Prohibit off-road motor vehicle usage through continued use of police surveillance.
- Prohibit littering or dumping of trash, debris or disposal of hazardous waste material through the continuation of the hazardous material program and the provision of waste bins to minimize illegal dumping.
- Prohibit incompatible recreational activities, over-utilization or conflicting recreational pursuits, which may damage sensitive open space areas or may diminish the enjoyment of the open space resources, through effective open space/park management.



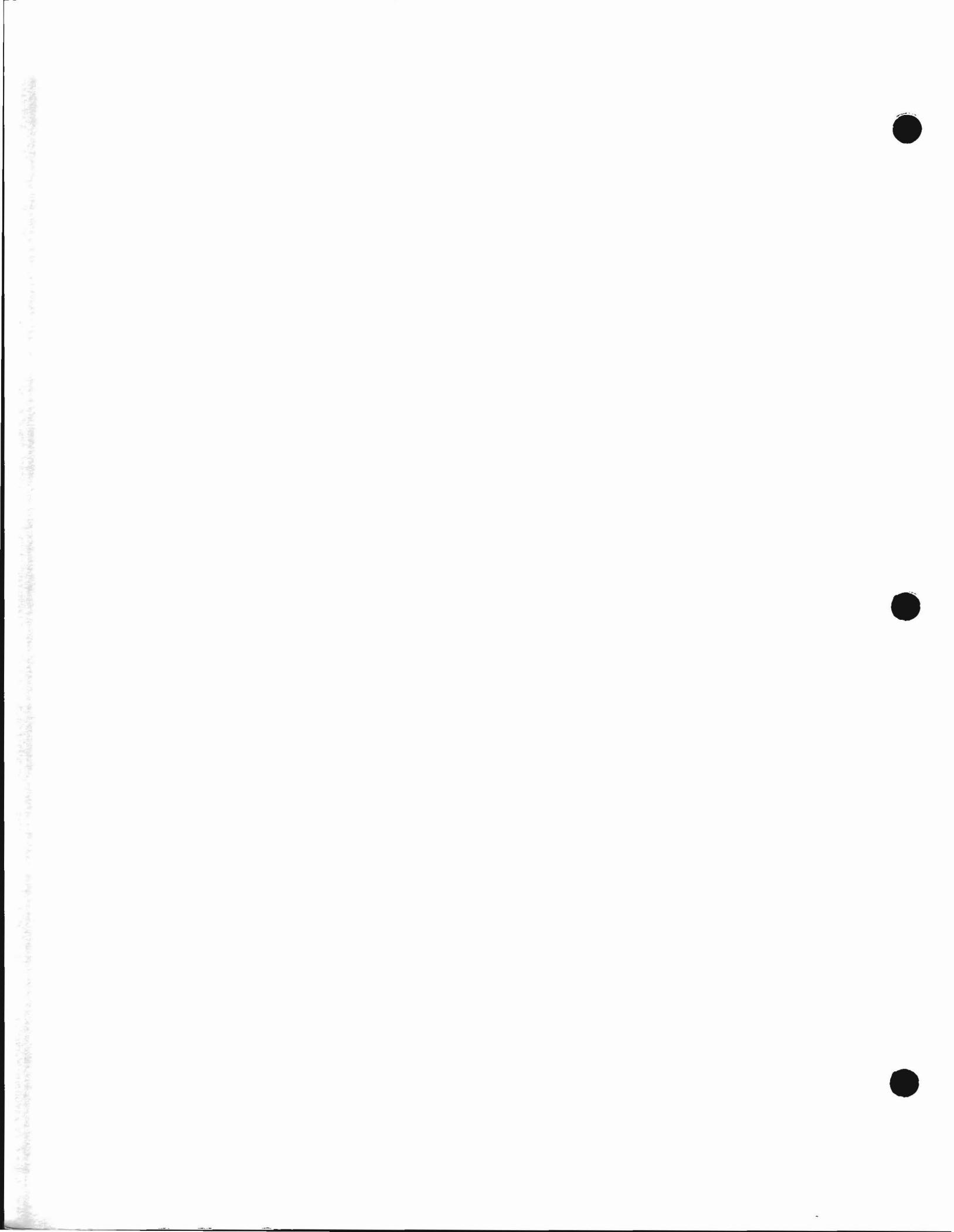
- Review development proposals to ensure protection against mud slide damage.
- Identify noise sources and mitigate, where necessary, to ensure compliance with Glendale's Noise Element through project development review and the environmental review process.
- Adopt an Air Quality Element as part of the Comprehensive General Plan following the requirements of the South Coast Air Quality Management District (SCAQMD).
- Continue the use and encourage the expansion of the City's alternative fuel vehicles.
- Continue Glendale's water reclamation program and consider its expansion.
- Continue to require sewer connections for all development within the corporate limits and encourage sewer connections in other areas that are part of Glendale's ground water basins.
- Continue Glendale's water conservation program through public awareness efforts.
- Consider water needs in the review of landscaping plans and encourage the use of drought tolerant landscaping materials.
- Comply with the National Pollutant Discharge Elimination System (NPDES) permit requirements to ensure surface water quality and to minimize the introduction of pollutants into drainage courses.
- Continue Glendale's hazardous materials collection program to minimize the potential introduction of toxics into groundwater basins and landfills.
- Identify existing trails and develop new trails that respect the integrity of open space lands and provide linkages between important resources.
- Evaluate and monitor the impacts of public access on habitat through scheduled surveys and investigations.
- Integrate a trail system with the scenic roadway and bikeway plans as specified in the Circulation and Scenic Highways Element of the Comprehensive General Plan.
- Develop a multi-functional path and trail system in open space or wilderness areas recognizing natural resource conservation constraints.
- Expand the existing hiking trail system, providing for trailheads, trail improvements, rest stops, picnic areas, view areas and path demarcation, paying particular attention to scenic resources, recreational opportunities and the impact of accessways on sensitive habitats through property acquisition and the attainment of easements through use of grants and subsidies.
- Encourage maintenance of trails by recreational, educational or other organizations.
- Coordinate, with adjacent jurisdictions including the Santa Monica Mountains Conservancy, the connection of Glendale's hiking and equestrian trails with other local or regional systems.
- Provide access to trailheads and other recreational opportunities through the coordination of transportation systems identified in the Circulation and Scenic Highways Element of the Comprehensive General Plan.
- Continue the City's Park Ranger Program to provide assistance to the open space user.

## **E. MANAGEMENT AND UTILIZATION OF NATURAL RESOURCES**

- Provide access for recreational and educational opportunities for all segments of the population through co-ordination with non-profit organizations for the development of docent, park and public school programs in an effort to provide outdoor educational experiences for the public and consider use of existing facilities, development of new facilities, and subsidies to ensure wide scale use of such programs.

## **F. PUBLIC PARTICIPATION**

- Involve concerned community groups in the identification, acquisition and management of natural resource areas, recreational facilities, historic and cultural sites, aesthetics and beautification programs.
- Facilitate a continuing program of environmental resource presentations, surveys and workshops to educate and inform the public and to ensure maximum public participation and input for all aspects of environmental resource planning and implementation.



*City of Glendale*



## **RECREATION ELEMENT**

*of the General Plan*

Planning Division  
April 1996

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Photographed by: Hrach Lukassian

*City of Glendale*

## **CITY COUNCIL**

Sheldon Baker, Mayor	
Eileen Givens	Mary Ann Plumley
R. M. "Rick" Reyes	Larry Zarian

## **PLANNING COMMISSION**

Claudia Culling	
Paul Burkhard	Robert McCormick
Jack Hilts	Ted K. Osborn

## **PARKS, RECREATION AND COMMUNITY SERVICES COMMISSION**

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## RESOLUTION NO. 96-54

**A RESOLUTION OF THE CITY COUNCIL  
OF THE CITY OF GLENDALE, CALIFORNIA,  
AMENDING THE RECREATION ELEMENT  
OF THE GENERAL PLAN  
(GENERAL PLAN AMENDMENT NO. 95-2)**

**WHEREAS**, The Council has conducted noticed public hearings pursuant to the provisions of Sections 2.68.130 of the Glendale Municipal Code and Chapter 3, Title 7 of the Government Code of the State of California; and

**WHEREAS**, the State of California Government Code allows cities to adopt optional elements into their General Plan; and

**WHEREAS**, the Council has received and accepted the proposed General Plan Amendment 95-2: Recreation Element, prepared by the Planning Division; and

**WHEREAS**, the Parks, Recreation and Community Services Commission reviewed the draft Recreation Element at a noticed public hearing on April 10, 1996 and has recommended adoption thereof to the City Council; and

**WHEREAS**, the Planning Commission of the City of Glendale held a noticed public hearing on the Recreation Element on April 10, 1996 and has recommended adoption thereof to the City Council; and

**WHEREAS**, the Council has found that General Plan Amendment No. 95-2 promotes and protects the public health, safety, comfort, convenience, and general welfare of the citizens of Glendale;

**NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY GLENDALE, that General Plan Amendment No. 95-2, being a revised and updated Recreation Element of the General Plan, is hereby approved and adopted to meet State General Plan requirements, to assess the City's recreation needs, to update the policies to guide in the acquisition and development of recreational facilities, and to supersede the City's previous Open Space and Conservation and Recreation Element of the General Plan.**

This resolution shall become effective 30 days after the date of adoption.

Adopted this 23 day of April, 1996.

Mayor

# **RECREATION ELEMENT**

## **APRIL 1996**

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# EXECUTIVE SUMMARY

## 1.1 INTRODUCTION

The current deficiency of park land is the cumulative result of residential growth without a corresponding provision of park land throughout the 90 year history of the city. This deficit can not be corrected quickly. The Recreation Element represents a significant step toward assuring the preservation of Glendale's quality of life by setting out a framework of park needs for residential development and for the acquisition and development of the community's recreational resources. Implementation requires a significant commitment of human and financial resources. Community leaders will need to step forward with a strong voice to advocate on behalf of Element implementation. Financial resources must be appropriated and invested in the community's recreation infrastructure to keep pace with community growth and diversity.

Glendale has a fiscally conservative reputation. It is precisely for this reason that the city has remained financial stable during difficult economic times. Ironically, it is this same fiscally conservative attitude that has led to an under investment in the recreational infrastructure of the city. The problem was compounded during strong economic periods when property values and construction costs escalated uncontrollably driven by infla-

tion and market demand. Had the city aggressively invested in park land earlier, costs would have been less.

## 1.2 DESCRIPTION AND PURPOSE

California State law requires each city to prepare a Comprehensive General Plan to address community policies and objectives for growth and development. The City of Glendale's General Plan establishes the policies and procedures for the use and protection of resources to meet community needs. Glendale's General Plan contains nine sections. These sections, called elements, are published separately. They address the seven topics (land use, circulation, housing, conservation, open space, noise and safety) mandated by state law and four additional topics (air quality, community facilities, recreation and historic preservation) recommended, but not required, by state law. Glendale's first Recreation Element was prepared in 1972 as the Open Space, Conservation and Recreation Element. The Recreation Element addresses planning for parks, recreational land, and associated improvements. It provides a broad overview of existing conditions, community needs, issues and opportunities and suggests a comprehensive approach for the development and management of public recreational resources.

### **1.3 FORMAT OF THE RECREATION ELEMENT**

The Recreation Element is a component of Glendale's General Plan and consists of tables, maps and accompanying text. The text is organized to recognize the interrelationships among issues and to respond directly to the problems facing the city's decision-makers. The text supports the mission of the city's Strategic Plan and provides a framework to meet the present and future recreation needs of Glendale.

This document is consistent with the goals of the Greater Downtown Strategic Plan, the Youth Coalition, and the Neighborhood Task Force's Model Neighborhood Program. The Element has served as a guide to recreational planning in these individual plans and is designed to complement and support the implementation of them.

Chapter 3 contains the goals, objectives and policies that will guide the city's actions during the life of the Element. The goals, objectives and policies can be considered to be the heart of the Element. In following these directives, the city will chart the development and acquisition of parks and other recreation facilities which will shape the future character of Glendale.

Chapter 4 provides an inventory of existing recreational and specialized facilities within the City of Glendale. The inventory includes a definition of park classifications, a brief description of each park site and identification of park amenities. In addition to public parks, this chapter identifies open space resources, public school facilities, private recreation opportunities and major recreation opportunities within the region. The classification system conforms to the standards established by the National Recreation and Parks Association (NRPA).

Chapter 5 addresses park assessment standards and establishes 11 Recreation Planning Areas. These areas were designed to follow existing census tracts and incorporate both natural and man made geographical boundaries.

Chapter 6 contains the demand and needs assessment for recreation facilities in the City of Glendale. Demand is measured by analyzing the demographic and physical characteristics of a population area and determining what recreation facilities are required to satisfy this demand. The NRPA standards provide one measure of demand that is easily related to a geographic area in terms of acres of park land per 1000 residents. As an additional indicator of demand, the Planning Division conducted a comprehensive public outreach effort to gather public input on the opinions, attitudes, and desires of the general public.

This included:

- 1) Two public workshops;
- 2) A telephone survey of over 1000 households;
- 3) A survey sent to over 100 organizations; and,
- 4) On going participation from both the Planning Commission and Parks Recreation and Community Services Commission.

Demand and need can be viewed as complementary. Survey data tells us that multiple family residential neighborhoods have a high demand for recreation facilities, which translates into an increased need for facilities. Demand is an analysis of the amount or quantity of recreation facilities required to serve a population. Need for recreation facilities can be measured by a comparison of the existing supply of recreation facilities to the projected demand. Thus an area with a high demand for recreation facilities that is well served by surrounding parks may have little need for additional recreation facilities.

Chapter 7 presents implementation tools and strategies that are available for the acquisition and funding of park land. Included in this chapter is a discussion of options that can augment the existing supply of park land through shared use concepts. Rather than recommending a preferred strategy it is suggested that a variety of funding and acquisition options be used on a consistent basis insuring that there is a mechanism to provide for the continued acquisition of park land. This Chapter recognizes that park deficits have existed in Glendale for many years and that a long term commitment of both fiscal and staff resources is necessary in order to meet recreation needs.

### **1.4 RECREATION MANDATES AND OPPORTUNITIES**

The primary objective of a Recreation Element is to develop a comprehensive plan for the identification of park and recreational needs, the management of existing recreational resources and the development of additional facilities to meet identified needs. This encourages public agencies to inventory their recreational resources and develop policies for responsible utilization and stewardship. Although the Recreation Element is directed primarily at resources and management policies within the City of Glendale, it provides the opportunity to assess the available resources within a regional context. It develops policies and park land acquisition strategies. These are directed toward the development of additional recreational facilities. Policies and park land acquisition tools also address achieving equilibrium between economic



development and providing for the community's recreational needs.

The National Recreation and Park Association (NRPA) has developed area standards which have been traditionally applied to assess demand for park land in cities. The most recent NRPA standards published in 1979 recommended a range of 6 to 10.5 acres of developed park land per every 1000 residents. In addition to the area standards, the NRPA has established a classification system for the type of park (i.e. neighborhood or community) and a recommended service radius for these facilities.

These standards have been adopted by most cities across the United States and are designed to allow for an equitable distribution of park resources. These standards are easy to apply and have been tested in the courts. The minimum recommended standard for an urban area is 6 acres per 1000 residents. Applying this minimum to Glendale would require a total of roughly 1100 acres of developed park land. Glendale presently has approximately 284 acres of developed park land which indicates that the city has a deficit of approximately 800 acres of developed park land.

Glendale refines this standard of 6 acres per 1000 residents by dividing this acreage into neighborhood parks and community parks. A neighborhood park is generally anywhere from 2 to 10 acres in size, serves a population within a one-half mile radius, and should be centrally located within the neighborhood it serves. Neighborhood parks should be developed at a minimum of 1 acre per every 1000 residents. Community parks are generally 10 to 30 acres in size and tend to be utilized on a city-wide basis. The minimum population service standard for community parks is 5 acres of park land per 1000 residents. The greatest difference between neighborhood parks and community parks is that neighborhood parks are designed to serve a pedestrian population while a community park attracts users from all over the city.

Additional park classifications used in Glendale are community centers, mini-parks, and specialized facilities. Mini-parks have recently been developed in the more dense multiple family neighborhoods as a way to provide immediate recreation opportunities in these areas that lack neighborhood parks. Specialized facilities such as the Scholl Canyon athletic fields provide for sports fields that have been previously sited at community parks. These specialized facilities are designed to lessen the demand for athletic fields at the community parks and may be sited at existing parks or at a specialized facility such as the Scholl Canyon athletic facility. Community centers are also special use facilities that often cater to seniors and offer indoor space for community activities

such as recreational fitness classes.

## 1.5 RECREATION FINDINGS

Glendale has an extreme deficit of both community and neighborhood park facilities. At the city-wide level, community parks are often overcrowded and, therefore, many sports organizations do not have adequate availability to practice or game fields. This has forced many organizations to practice later into the evening causing increased wear on the existing fields. In the southern portion of Glendale there is a shortage of both community park and neighborhood park facilities. The neighborhood park shortage is extreme and has been exacerbated by the increase in residential density in many of its neighborhoods.

If park facilities were considered an essential supporting infrastructure in the same sense as either sewer or roadway systems, it would be clear that many of the multiple family neighborhoods in southern Glendale are completely over the carrying capacity of the existing parks. Following this argument to its logical conclusion, based on existing neighborhood park supply, it would be difficult to permit any additional residential development. However, presently there is no mechanism to insure that the acquisition and development of new park land keeps pace with the rapid growth of southern Glendale.

Both a telephone survey and a written survey have indicated that Glendale has an extreme shortage of athletic fields which are traditionally located in community parks. These surveys also point out that there is a great need for additional neighborhood park facilities in the southern portion of the city. Many of the neighborhoods in southern Glendale have little or no park space in their immediate vicinity. On a positive note, the surveys indicate that the facilities that do exist are rated highly for both appearance and use.

In order to meet the minimum National Recreation and Park Association standards would require the city to develop approximately 800 additional acres of park land. This additional park land would require a large commitment of financial resources that are not presently available. The majority of the city is developed and the creation of any additional park sites may require the relocation of existing residents and businesses. Recognizing that Glendale is a "built-out" city, with little available land for additional parks, the element suggests alternative methods to meet recreational needs. These include the opportunity for the shared use of public school sites through joint partnerships between the Glendale Unified School District and the city.





# INTRODUCTION

## 2.1 BACKGROUND

Originally platted as a township in 1887 and incorporated in 1906, Glendale now has a population of more than 190,000 and an area of more than 30 square miles. The city encompasses diverse physical features, development patterns and population characteristics. Such variety provides both constraints and opportunities for the provision and management of recreational facilities.

Glendale's pattern of growth has been shaped and defined by its geographic character. Variations in terrain have resulted in intense development in some areas and an absence of development in others. The most significant physical landmarks within the community are the Verdugo Mountains and the San Rafael Hills. These two geologic features flank the central portion of the city. They are divided by a narrow valley, Verdugo Canyon, which connects Glendale's two major flat land areas. A segment of the Crescenta Valley, together with a section of the San Gabriel Mountains beyond, forms the northern boundary of this connection and of the city itself. At its opposite end, Verdugo Canyon opens into a broad alluvial valley that extends to the city's eastern and western boundaries and to the Repetto Hills on the south.

The two valleys have been the focus of Glendale's growth. The large southerly area contained the site of the original city. It still forms the urban core of the community,

incorporating high density residential, industrial and local and regionally-oriented commercial uses. Development in the Crescenta Valley is suburban with low and medium-density housing and supportive commercial uses. Some residential development extends into the hillsides and the lower elevations of the canyon areas in the Verdugo Mountains and the San Rafael Hills. However, the majority of the ridge lines and rugged upper reaches of these land masses have remained open and undeveloped.

The 1990 Census counted Glendale's population at 180,038 persons. Projections for the future indicate that the city's population will increase to more than 197,492 by the year 2000 (Southern California Association of Governments 1994 Population Projections). This trend is consistent with the goal of the Land Use Element of the General Plan to "effectuate a moderate growth policy for the City of Glendale consistent with community needs, available services, and the environment."

In Glendale, the population changes that have occurred are both distributional and quantitative. Staff research as well as 1970 and 1980 Census data document population changes during the 1960s and 1970s. During those years the number of children under 14 declined both in real numbers and as a percentage of the total population, while the number of elderly persons stabilized at a con-

sistent share of the total population (approximately 28 percent). During the same period, the number of young adults (age 15 to 24) increased substantially, the number of married persons and average household size declined, and the relative percentage of males and females was stable.

However, the 1990 Census and staff research indicate that in the 1980s Glendale experienced even more profound changes. The Census data show that during those years, the number of children under 14 increased both in real numbers and as a total percentage of the population, the number of elderly persons increased by 1.3 percent, the number of young adults (age 15 to 24) decreased by 2.4 percent, the number of married persons stabilized at a consistent share of the total population (approximately 51 percent), the average household size increased and the relative percentage of males and females changed by 1.1 percent with the number of males increasing and the number of females decreasing.

In addition to changes in the distribution of population in Glendale by age and gender, the city has experienced dramatic changes in its ethnic distribution. Between 1980 and 1990, the White population decreased by more than 11 percent, the Asian or Pacific Islander population increased by more than 7 percent and the Hispanic population increased 3 percent. Within the White population, an ethnic shift occurred with a decrease in residents of Northern European ancestry and an increase of 26 percent in residents of Middle Eastern origin. Associated with these ethnic and racial changes, the city has also seen an increase in average household size and an increase in the number of persons living in extended family arrangements.

The changing population patterns within Glendale are reflected and reinforced through adjustments in land use as well. Although the boundaries between developed and undeveloped land remains essentially intact, some urban and suburban neighborhoods of the community are experiencing profound shifts in density and intensity of uses. An example of this is found in southern Glendale. The South Glendale Task Force Report (1983) noted that a substantial percentage (72%) of the owner-occupied housing in this area was built before 1950. Indications of deferred maintenance and absentee ownership were also noted.

This information coincides with data in the 1989 Housing Element and the South Brand Boulevard Specific Plan (1992) which identify areas of under-utilization according to current zoning designations. The combination of housing age, condition and an underlying low density has led to an increase in the number of multiple family

units constructed in the area. Among the many impacts that are associated with such building activity, increased density can place growing demand on city services and facilities, including recreational resources and open space areas. The southern Glendale area is just one area of the city experiencing growth, and just one area in which the need for additional recreational resources has been identified.

Growth trends have increased the pressure for development in the undeveloped hillside areas of the city and have left little available land in urbanized areas for parks and other recreational facilities.

## **2.2 PURPOSE AND FUNCTION**

The focus of the Recreation Element is to develop a comprehensive plan for the identification of park and recreation needs, the management of existing recreational resources and the development of additional facilities to meet identified needs. This plan has utilized the input of citizens, elected officials, park and recreation staff, planning staff and standards developed by the National Recreation and Parks Association (NRPA). Incorporated into the Element are goals, objectives and policies. These goals and objectives are statements of intent which will provide guidance in all decisions and activities involved in the development and management of park sites, recreational facilities and open space areas in the City of Glendale.

In addition to goals, objectives and policies, the Element presents an inventory of existing parks, an analysis of demand, a needs assessment and an inventory of implementation tools and strategies for the acquisition of park land.

Based upon research conducted by Planning Division staff and standards developed by the National Recreation and Parks Association (NRPA), a ratio of one acre of neighborhood park land for every 1000 residents and 5 acres of community park land for every 1000 residents has been established as a goal for the city to strive towards. Glendale currently has 284.32 acres of developed park land. Using the ratio of a total 6 acres neighborhood and community park land per 1000 residents, it is estimated that Glendale is in need of an additional 778 acres of developed park land. Chapter 5 discusses this issue and Chapter 6 identifies the neighborhoods with the greatest need.

In addition to developed park land and recreational facilities, recreational land can take the form of natural open space. Glendale is fortunate to have a major natural