feasibility study
new area
january 1980

RIDGELANDS
CALIFORNIA

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NEW AREA
FEASIBILITY STUDY

RIDGELANDS, CALIFORNIA
January 1980

United States Department of the Interior/National Park Service
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INTRODUCTION

Summary

"Ridgeland" is the term used to refer to that portion of the California coast range east and south of San Francisco Bay in Contra Costa, Alameda and Santa Clara counties. These hills and ridges, situated next to an extensive urbanized area, remain largely in open space. Traditional use of these ridgelands has been for grazing, watershed and recreation.

Today, nearly three quarters of the more than 1300 square miles of the ridgelands is in private ownership, mostly in large tracts utilized for grazing beef cattle. Most landowners have elected to place their grazing lands in Williamson Act contracts which calls for them to be maintained in open space uses for a minimum of ten years in return for lowered assessments on property taxes. In addition, the three counties have zoned the great preponderance of the ridgelands in various agricultural categories.

Despite these and other measures by local government, development has not been precluded in the ridgelands. As the San Francisco Bay metropolitan area continues to grow, there are ever increasing pressures on local government to allow use of more of the ridgelands for residential housing. These pressures have prompted certain individuals and citizen groups, interested in trying to maintain the open space character of the ridgelands, to try to forestall any additional development there. These efforts have been directed toward having government play a larger role in
ridgelands land use decisions. Ridgelands landowners, however, see any further actions by government in this direction as an infringement on their individual property rights.

It is the purpose of this Congressionally mandated study to determine whether or not there is a role for the Federal government to play in open space preservation of the ridgelands. This determination is to include whether or not it is feasible to establish a unit of the National Park System in the ridgelands.

In order to make this determination, the natural, cultural and recreational resources of the ridgelands were identified and assessed. As a result of this assessment, it has been concluded that the natural and cultural resources of the ridgelands are not nationally significant. Also, most are located on public lands where resource protection is a primary management goal. These two facts essentially serve to eliminate the justification or necessity for establishing a unit of the National Park System in the ridgelands for resource protection purposes. Similarly, the recreation resources of the ridgelands are less than nationally significant. Moreover, their recreation potential, to a great degree, has been already been recognized. Consequently, the establishment of a national recreation area in the ridgelands also cannot be justified.

While the ridgelands are of limited significance in terms of their natural, cultural and recreation resources, they do play an extremely important role in terms of providing regional open space
for the San Francisco Bay Area. The ridgelands comprise the entire eastern flank of the great greenbelt which extends around the cities of the Bay Area. As noted, portions of this significant open space resource are being threatened by development. These threats have been judged to be of a long-term nature whose cumulative effect will be to change the present open space character of the ridgelands and also reduce the economic viability of grazing. Based on the nature and extent of this threat, options have been formulated in this report for additional actions which can be taken to preserve open space in the ridgelands. These options are based on the local land use decision-makers recognizing and treating the ridgelands as a single resource of regional significance rather than a collection of locally significant resources. Additionally, option implementation is dependent on the presence of both a willingness and a commitment by local governments.

Option 1 calls for local general and special purpose governments joining together to form a permanent ridgelands organization which, through utilization of existing land use controls, would have as its primary purpose the retention of the open space nature of the ridgelands. The organization would be set up to define the regional interest, develop a comprehensive multi-jurisdictional land use plan and provide a continuing forum for regional review of land use issues. Membership could include representatives from appropriate state and Federal agencies, as well as representatives of all private interests in the ridgelands.
Option 2 calls for the establishment by the California Legislature of a permanent agency with planning and permit powers for the ridgelands area to ensure the protection of its open space value.

Option 3 calls for the development of a locally prepared comprehensive land use management plan which would form the basis, upon plan approval by the Federal government, for the granting of Federal funds. These funds would be used for planning and the acquisition of key parcels of land. The Federal government would ensure that all of its activities in the planning area are consistent with the plan.

Of the three options, it is felt that a full implementation of the first would effectively deal with present threats to the ridgelands. This option would also serve to test whether or not local governments, through the marshalling of existing regulatory powers and financial resources, can deal with the preservation of a regional open space resource. The success, or failure, of this option would help determine whether or not other levels of government are necessary and need to be involved to protect the ridgelands.

Consultation and Coordination

During the preparation of this study report, the National Park Service consulted with local government agencies, special districts and associations, State and Federal agencies, public utilities, citizen groups and landowners. Local jurisdictions include: planning and recreation staff of Santa Clara County,
and the cities of San Jose, Oakland, Walnut Creek and Concord; planning staff of Alameda and Contra Costa counties, and the cities and towns of Hayward, Fremont, Walnut Creek, Concord, Martinez, Moraga, Lafayette, Milpitas, Morgan Hill, Gilroy and Clayton; the East Bay Regional Park District; the Livermore Area Recreation and Park District; the East Bay Municipal Utility District, the San Francisco Water Department and the Santa Clara Valley Water District; and the Association of Bay Area Governments. State agencies include the Department of Parks and Recreation, the Department of Fish and Game, and the Division of Mines and Geology. The Corps of Engineers, South Pacific Division and the Soil Conservation Service of the Department of Agriculture were among the Federal agencies consulted. The study team met also with the Pacific Gas and Electric Company. In addition, citizen organizations such as People for Open Space, the Preserve Area Ridgeland Committee, the Ridgeland Coalition and others were consulted with during the study. Finally, several meetings were held with property owners in the study area.
RIDGELANDS AND THE SAN FRANCISCO BAY AREA

Regional Context

A great bay, the cities rimming the bay and the largely undeveloped grass and tree covered ridges which surround them—this unique combination of natural and cultural features help form the remarkable physical setting that is the San Francisco Bay Area, home for nearly five million people.

Lying above the cities of the East Bay plain south to San Jose and the Santa Clara Valley, are the beginnings of a series of northwest-southeast running ridges. Except for a level area of varying width from Suisun Bay south to Livermore, these ridges extend eastward until they merge with the Great Central Valley. The ridges, still largely undeveloped, are a portion of California's coast range. Franklin, Las Trampas, Sobrante and San Pablo in the north; Sunol, Valpe, Apperson, Walpert and Wauhab in the center, and Castle, Blue, Pállassou and Pine in the south—these are some of the names given, years ago, to the individual ridges which collectively and more recently have come to be referred to as the "ridgelands." These ridgelands play a vital role in making the San Francisco Bay Area the special place that it is to resident and visitor alike.

For more than one hundred years these ridges and rolling hills have been used to graze cattle for dairying and beef. Today, the ridgelands represent many things to many people, for some they are a parkland area, a few call them home, to others they represent
an investment for development purposes, for still others the ridgelands represent the basis of their livelihood. For a great many people, however, the ridgelands represent a visual and psychological contrast to the nearby urbanized areas.

Topography has played the major role in shaping the historic development patterns for residential, commercial, recreational and agricultural development in the San Francisco Bay Area. Growth began in San Francisco with the city's development as a port and trading center, and later as the jumping-off point for the Mother Lode during the Gold Rush. The narrow plain along the eastern shore of the bay was used in those early days as farmland. Gradually, the cities of the East Bay—Oakland, Berkeley and Richmond—replaced the farms and, along with the Peninsula communities across the bay in San Mateo County, merged to form a large metropolitan complex.

During and following World War II, this urbanization process accelerated. By the early post-war years the development pattern had spread out along the entire east bay plain moving south and spreading out over the northern portion of the rich agricultural lands of the Santa Clara Valley. The large-scale, low density residential development characterized by San Jose, gradually replaced the orchards and crops historically grown in the valley. Expansion continued, jumping over the intervening ridges to the agricultural valleys located further inland. The Diablo, Livermore-Amador, and San Ramon valleys are now being filled with development, largely suburban in nature.
The relative ease with which these level, valley lands can be converted to mass-produced, single-family homes has resulted in the loss of most of the prime agricultural lands of the Bay Area. The intervening ridges, the ridgelands, being more difficult and expensive to develop, have remained largely undeveloped, in various open space uses*. But, in recent years portions are beginning to show the pressures of development as the Bay Area continues to grow. It is this pressure, which bodes for the diminishment of the open space character of the ridgelands and the seeming inability of local government to deal with it in a comprehensive manner which led to this study by the National Park Service.

Section 602 of the National Parks and Recreation Act of 1978 (Public Law 95-625) calls for the Secretary of the Interior to study the entire ridgelands area to determine whether or not Federal involvement is needed and advisable in order to preserve the scenic, recreational and open space values associated with the area. This determination is to include whether or not it is feasible and desirable for a unit of the park system to be established in the ridgelands. This study is also to address the extent to which these values are suitable for a variety of outdoor recreation uses; Federal, State and local programs which can be utilized to make these values accessible for public use; whether or not these values can be adequately protected under

* See Appendix A for definitions of open space uses.
present ownership patterns and, lastly, the development of public land policies which would help protect open space areas in private ownership.

For the purposes of this study the National Park Service has identified and assessed resource values associated with an area approximately 850,000 acres in size, more than 1300 square miles. The study area coincides with those portions of Contra Costa, Alameda and Santa Clara counties shown as open space on their respective general plan maps. Accordingly, the ridgeland of Contra Costa County are split by the suburban development which has taken place in the level valleys where the communities of Martinez, Concord, Walnut Creek, Danville and San Ramon are located. Similarly, the Alameda County portion of the ridgeland is split in the north by the wide Livermore-Amador Valley which contains the communities of Dublin, Livermore and Pleasanton. The Santa Clara County ridgeland, nearly one-half of the study area, takes in the entire eastern half of that county. Additionally, since, in a number of instances, city limits extend up into the ridgeland, the study area also takes in these areas. This includes major portions of the cities of Hayward, Fremont and San Jose, along with small portions of other cities, including Richmond, Oakland, Pleasanton, Walnut Creek, Concord, Lafayette, Pleasant Hill and Martinez.
Citizen Concerns

There has been strong and vocal citizen support expressed for preservation of the ridgelands, as has often been the case in the San Francisco Bay Area regarding open space preservation. Open space preservation is, of course, not a new topic of interest and controversy in the Bay Area. Two decades ago, citizen interest in open space preservation coalesced around San Francisco Bay. This vital, core open space for the entire Bay Area was seen to be in danger of being lost or, at least, significantly diminished by fill. Due largely to diligent citizen efforts over a number of years, a state agency was permanently established given the responsibility for regulating bay fill and development along the San Francisco Bay shoreline through use of the permit power.

Public concern has been directed also on those large natural areas situated around the bay. Again, it was felt that the open space character of these areas was being diminished, in these instances usually by residential development of some sort. In the recent past, many of these areas—the Point Reyes peninsula, the Marin Headlands, San Bruno Mountain and others—have been preserved through purchase by a public park agency.

Organized citizen interest in preserving the ridgelands area surfaced about eight years ago. With the bay itself protected by an agency of state government and the large open space areas to the north becoming the Point Reyes National Seashore and the
Golden Gate National Recreation Area, both administered by the National Park Service, it was inevitable and logical that attention would be directed to ensuring the protection of the great eastern flank of Bay Area open space, the ridgelands. Initially, this was seen by most citizen groups to be best accomplished through large scale purchase by a public park agency. However, through an expanded awareness of both the nature of the ridgelands and what had already been accomplished, through regulation as well as by acquisition, a shift in emphasis was effected from “park” to “preserve.” In May 1977, a report, Ridgelands, A Multijurisdictional Open Space Study, was released by the three counties, the Association of Bay Area Governments, the East Bay Regional Park District and the Bureau of Outdoor Recreation. This report helped to bring to light many of the issues related to future uses of the ridgelands. Most recently, in anticipation of the National Park Service's study, a consortium of citizen groups held a “Ridgelands Day” to hear and discuss alternative ways for preserving the ridgelands. The proposals discussed centered on a number of possibilities for preserving open space in the ridgelands. Among them were more effective local regulation, the establishment of a regional open space authority through the initiative process and some sort of a "greenline" approach, involving the creation of a state planning commission for the ridgelands. The creation of a large park was not discussed as a means of preserving the open space nature of the ridgelands.
Counteracting the efforts of citizen environmentalists for preservation of the ridgelands through increased action by government are the sentiments expressed by ridgelands landowners. During this study, team members met and communicated with landowners and landowner groups on several occasions. At all of these meetings, landowners voiced their opposition to the establishment of a national park in the ridgelands. This opposition is not of recent origin. Prior to the initiation of this study, the Alameda County Agricultural Advisory Committee, whose membership is composed principally of landowners, stated their position against enactment of the study bill, adding that they (the committee) felt that the ridgelands were not an appropriate area for a national park or any other such facility. Landowners were represented on the Citizens Advisory Board appointed to the earlier multi-jurisdictional study. During that study, landowners expressed their opposition to establishing, of any additional parks in the ridgelands, national or otherwise.

The landowner groups contacted during this study included the Alameda County Farm Bureau, the Contra Costa County Farm Bureau and the Mount Hamilton Range Improvement Association (Santa Clara County). All of these groups strongly opposed the establishment of any national park in the ridgelands. In some instances this opposition extended to any additional governmental actions, including regulation by local government.

The reasons given by landowners for their opposition to "outside interference" in the ridgelands, center around four basic concerns.
First, they believe that enough of the ridgelands are already in public ownership. They don't want their lives and livelihood further disrupted by more parks in the ridgelands. Secondly, and even more important, they are concerned that more stringent regulation of their lands will reduce its value to provide public benefits without just compensation. This is the basic "taking" issue—landowners in many parts of the ridgelands believe that such uncompensated "taking" has already occurred as a result of existing local land use regulation. Third, the manner in which public park and recreation lands are managed creates problems for adjacent landowners, ranging from the introduction of plant and animal pests to human use problems such as fires, vandalism, and general anti-social behavior. Finally, many believe that agricultural productivity would be better served by permitting residential use of the ridgelands as an alternative to development of the considerable more productive valley areas.

These two groups, environmentalists and landowners, see themselves as being diametrically opposed to each other in terms of what future uses are made of the ridgelands. However, in many ways these two groups may not really be on opposite sides, particularly with regard to maintaining the open space character of the ridgelands. There are many landowners, some second or third generation, who desire nothing more than to see the ridgelands remain as they are. This attitude is shared by the citizen environmentalists.
SOCIO-ECONOMIC SETTING OF THE RIDGELANDS

Land Use

Today, the preponderant land use of the ridgelands is cattle grazing. Grazing has in fact been the traditional and historic use of the ridgelands for more than one hundred years. Moreover, it is a use wholly compatible with maintaining the open space character of the ridgelands.

A few limited areas of cropland do exist in the ridgelands. In the hills just to the south of the Livermore Valley, wine grapes are grown. In several of the small valleys in the ridgelands, dry-farm forage is raised and small orchards have been planted. The Tassajara area, an extensive area of low rolling hills south of Mt. Diablo, is being dry-farmed for forage. In other moist portions of the ridgelands, ranchers raise dry-farm forage to supplement the grasses produced naturally.

These grazing lands vary in quality from the highly productive rolling grasslands of the Berkeley, Briones and Mission hills in the northern portions of the study area to the more marginal steep and brushy hills of southeastern Santa Clara County. Grazing operations range in size from part-time operations with a few hundred acres to full-time operations involving several thousand acres. Grazing is not limited to private lands; much of the publicly owned land in the study area is leased for grazing, both for the purpose of providing operating funds for the public
agency's primary purpose and to provide fire prevention through the reduction of combustible material.

For many years, grazing was the only use made of the ridgelands and the ridgelands were the exclusive domain of ranchers and dairy farmers. During the 1920's, extensive portions of the ridgelands were purchased for water distribution, production and storage. This use caused very little change in the open space character of the ridgelands. Moreover, grazing continued as many parts of these public watershed lands were leased to ranchers for this purpose. A decade or so later, the first lands were purchased in the ridgelands for public park purposes. As the East Bay area's population grew, additional park areas were purchased over the years in response to the public's growing demand for outdoor recreation opportunities. These parks in themselves did little to change the open space character of the ridgelands and did not significantly reduce the amount of grazing lands. In fact, as with the watershed lands, some of these parklands were and are leased for grazing. What these parks did do, however, was to bring people in large numbers into the ridgelands. This set the stage for the next major use to be made of the ridgelands—residential housing. In contrast to the previous uses, residential development on a large scale alters the open space character of the ridgelands.

These alternative and competing land uses of the ridgelands are discussed in more detail below:
Grazing - The agricultural output of the ridgelands from grazing, while not inconsequential, is relatively insignificant in the context of meeting food demands at the national or even state level. However, in addition to providing food production, the maintenance of grazing operations of privately owned land in such close proximity to a major urban area provides a variety of significant positive externalities. Among the benefits of such private operations are the range of open space benefits associated with undeveloped and publicly inaccessible lands. Included also are general public benefits associated with improved air quality, visual quality, water quality, and the preservation of community identity. An additional positive externality associated with continued grazing is the educational value of grazing operations in close proximity to urban populations which might otherwise be thoroughly alienated from the food production process.

In spite of these many important economic and environmental benefits, the future of grazing is uncertain. Today, the economic operation of grazing operations in the ridgelands area is beset by a multitude of problems.

Ridgelands ranchers are not, of course, immune to the inevitable industry-wide cyclical price fluctuations which periodically cause financial convulsions in the ranching community. Such fluctuations may cause financially distressed ranchers to sell off part or all of their land holdings to pay their accumulated debts. Nor are they, or rather their survivors, immune to the effects of the estate tax laws, which may dictate the sale of portions of an
estate. Finally, the rancher, to varying degrees committed to a particular life-style, is hardly immune to the lure of the profit potential offered by land sales.

The ridgelands situation does differ from the norm, however, in the effect of such land sales on land use patterns. Where there is no alternative use to grazing, as for example in remote rural areas, the effect of a sale may be merely pecuniary, with the land ownership shifting from the weak to the financially more sound ranchers. In the ridgelands, particularly those portions closest to the urban fringe, grazing is in competition with residential development as an alternative land use. Sales in this case may have the effect both of converting land use on the separated parcel and, even where the proportion of the land developed is limited, e.g., a single residence on a 100-acre parcel, the resulting parcelization of the land makes more difficult the assembling of the large expanses of grazing land necessary to sustain a continuing grazing operation. This parcelization, while not dramatic, provides a long term erosive force which over time can render grazing in the ridgelands economically infeasible.

The above discussion relates the effects in the ridgelands of forces which exist industry-wide. However, it is the proximity of the ridgelands to a large urban area which has affected the financial feasibility of ranching there through property tax impacts, agricultural capital availability, and physical intrusions.
Historically, the property tax acted as a powerful incentive for ranchers to sell off their land holdings to speculators and developers. With assessed land values swollen with a considerable speculative component, tax levels were far in excess of those supported by the agricultural income. The statewide occurrence of this phenomenon, however, promoted the passage of State legislation (Williamson Act) in 1965 to permit taxation of agricultural land on the basis of agricultural income in exchange for a 10-year commitment by the landowner to retain the land in agricultural use. At present, a significant portion of the study area, more than 500,000 out of a total of 850,000 acres, is bound by such contracts between the landowner and local government. Further reducing the tax load on the rancher is Proposition 13, which, particularly when coupled with the Williamson Act, reduces taxes to minimal levels. Consequently, property tax considerations no longer loom large as a compelling stimulus for land use conversion.

Although assessed valuations for grazing lands in general are based on agricultural use, the market value of the land need not be so restricted and, in fact, may often contain a substantial speculative component. One result of this factor is that entry capital is not readily available to one who wishes to become a rancher and whose income available for debt repayment will be derived primarily from the ranching operation. In the absence of such capital availability, it seems likely that land transfers will tend to favor well-financed interests with long term aspirations for development. Finally, the financial feasibility
of continued ridgelands ranching is weakened by certain elements associated with the nearby urban centers. Family dogs, for example, from nearby suburban areas have been known to travel in packs in the evening hours, chasing cattle and in some cases killing calves. Vandalism is also a severe problem in many areas, with fence-cutting trail hikers a particularly troublesome element. Wildfires, too, occur with more frequency as more people hike, bike, and trail ride across private property. All of these intrusions reduce the capability of the ridgelands areas to maintain production on a profitable basis.

In summary, the long run maintenance of private grazing operations in the ridgelands appears to be on financially shaky ground. While major short term land use changes would not be expected, the framework is set for a long term erosion of grazing and conversion to more urban uses.

Recreation - Generally, the demand for recreation opportunities is primarily a function of population, leisure tastes, and the proximity of the resources. All three factors would seem to portend a growth in the demand for ridgelands recreation in future years.

The existing Bay Area population already exerts considerable use pressure on those existing ridgelands recreation areas in close proximity to large population centers. Highly popular areas include both water-oriented recreation sites such as Del Valle and San Pablo reservoirs and the upland view and trail oriented areas
close to the urban fringe such as Briones, Redwood, and Tilden regional parks and Mt. Diablo State Park. The population growth projected for the three county study areas suggests significant increases in pressure for recreation use of these existing areas.

Leisure taste trends in recent years have contributed greatly to the growth in the demand for the type of opportunities readily afforded by the ridgelands area. Trail use, not only by bikers, hikers, and horsemen, but by legions of cross-country joggers and runners, has increased dramatically in recent years and constitutes a significant proportion of recreation use in the ridgelands. Other recreation opportunities well-served by the ridgelands' natural character include nature appreciation, particularly bird watching, and photography. The more traditional range of activities associated with developed recreation areas and with water bodies have remained popular as well.

The ridgelands' location with respect to population, always an important inducement to extensive use must necessarily become even more significant in stimulating demand as the price and availability of energy becomes more of a deterrent to longer distance automotive travel. Many parts of the ridgelands are readily accessible to large populations, and parks within those areas receive extremely heavy use. Significant differences in the pressure are apparent within the ridgelands area, with the more distant and less readily accessible parks such as Henry Coe State Park in a remote part of Santa Clara County receiving only moderate
use despite the availability of some extremely attractive natural resource oriented opportunities.

Analysis of the capability of existing recreation areas to provide for future increases in recreation demand raises some complex and difficult questions. The ridgelands provide basically two types of recreation experience: (1) opportunities to experience natural and cultural phenomena and (2) opportunities for use of natural and largely undeveloped lands. The ridgelands do provide opportunities for developed recreation sites, but neighborhood and community parks located within urban areas provide the bulk of this sort of recreation opportunity in a more efficient manner. Unique natural and cultural resources are, of course, where you find them and are preserved more as compelling dictates of heritage preservation than in response to user demands. The capability of the land base of the ridgelands to provide for the dispersed type of recreation experience is discussed below.

The capability of the existing park lands to provide for the more dispersed and nature oriented activities is not so clear. The demand for these activities and the satisfaction afforded the user is, in large measure, a function of the density of use. As more and more users compete for space in natural, scenic areas, the level of satisfaction must necessarily decline. Maintenance of the existing level of satisfaction in these areas in the face of increasing demands would necessitate expansion of the recreation
land base. Such maintenance of quality indefinitely is, of course, impossible; however, to the extent that additional natural, scenic areas can be made available to the public, it appears likely that they will be used. Additional lands may also be required in some areas to protect the quality of existing sites from prospective adverse uses.

The extent of future recreational land use of the ridgelands will be in large measure a function of the willingness and capability of public agencies to obtain additions to the recreation land base and to improve and maintain that land base already in public ownership. The primary existing recreation suppliers in the ridgelands area are the California Department of Parks and Recreation (DPR) and the East Bay Regional Park District (EBRPD), the East Bay Municipal Utility District (EBMUD) and the several local park agencies.

DPR's role in the ridgelands centers around Mt. Diablo and Henry Coe state parks. A third area, Carnegie Cycle Park, a recent acquisition, is only partially within the study area. A fourth area, Del Valle Reservoir, is managed for the State by the EBRPD. Major efforts have been made to expand and adequately buffer these two parks and it is anticipated that the State will continue to actively protect these units. Apart from some possible involvement with land acquisition at Del Valle Reservoir, the State is not expected to assume a direct role in other portions of the ridgelands.
The two public water districts with major land holdings in the study area both have lands with significant potential for increased public use. The East Bay Municipal Utility District presently provides for substantial recreation use on its lands and plans to expand its operation to additional sites in response to increased demand. The San Francisco Water Department, on the other hand, has thus far not utilized the considerable recreation potential of its lands and does not plan to do so at this time. It is not expected, in any event, that either of the utilities will acquire additional lands in the study area.

The regional and local park and recreation agencies would normally be expected to continue to play a significant role in the preservation and development of recreation resources in the study area. However, Proposition 13, the successful 1978 initiative slashing property tax rates, has, while only modestly impacting many local programs, severely impacted recreation agencies. These agencies, historically dependent on property tax revenues for an average of nearly two-thirds of their funds, now receive only a fraction of their former revenues through distribution of the available property tax revenues and the supplementary state income tax surplus. Faced with tremendous revenue losses and forced to cut back on personnel and programs, the park agencies are in many cases unable to either protect their own existing resources or to prevent the spillover of uncontrolled use onto adjacent private lands. The search for alternative funding sources, ranging from the imposition of increased entrance and user fees to the
solicitation of contributions from individual and corporate donors, has been relatively unsuccessful in solving funding shortages.

Representative of the local recreation agencies' dire straits is the condition of the East Bay Regional Park District. An agency with leadership credentials extending well beyond the Bay Area, the EBRPD has been immensely successful in acquiring large and valuable park sites throughout its two county (Alameda and Contra Costa) service area. Financed with a substantial property tax override largely dedicated to acquisition, the District has been moving rapidly toward completion of an ambitious master plan. Under presently anticipated funding levels, the District will be unable to finance further significant acquisition in the ridge-lands. Moreover, it is hard pressed to adequately maintain existing areas.

Most of the other local recreation agencies face problems strikingly similar to EBRPD, with increases in land holdings largely limited to dedications and donations. An exception is the Santa Clara County Parks and Recreation Department which, thanks to a recent voter-passed measure, will be in a position to continue acquisition and development for at least the next few years. The Department does, however, because of restrictions in the use of available funds, face difficulties in maintaining an adequate level maintenance and operation at its existing units.

External financing is available to some extent to the park agencies. The State of California has a program which provides
funding primarily for trail development related to the provision of access to units of the State Park System. Some of these funds will be available for use in the study area: EBRPD will play a key role in the administration of the program.

Federal financing for acquisition and development is also available through the Land and Water Conservation Fund. Fund projects, however, require matching State or local funds which are expected to be in short supply in coming years. There is no source of categorical external support for operation and maintenance of park units in the ridgelands.

In summary, the present state of local public finance for agencies concerned with the ridgelands area does not inspire confidence that additional resources will be acquired, protected and managed in the absence of some form of supplementary funding. While Proposition 13 does not exclude the imposition of additional taxes in areas other than real estate, it does make the levy of additional taxes considerably more difficult, requiring a two-thirds vote of support on both the state and local levels. Moreover, fiscal stringency has been further assured as a result of passage of the "Spirit of 13" initiative, which limits state and local state and local real per capita expenditures to existing levels.

Residential Development - Land use trends are affected by a broad range of forces, including population growth, public tastes, national and regional economic trends, governmental actions, and technological developments. Most of these forces cannot be
predicted with any reliability, or, for that matter, even be foreseen. One of the most important factors, population growth, can be predicted with at least some measure of reliability, however.

The Association of Bay Area Governments (ABAG) periodically projects population for the nine Bay Area counties, and ABAG's most recent projections are shown below for the Bay Area as a whole and individually for the three study area counties.

<table>
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<td>Santa Clara County</td>
<td>1,170</td>
</tr>
</tbody>
</table>

As indicated above, substantial continued population growth is foreseen both for the Bay Area and the three county areas which includes the ridgelands. This continued growth can be expected to considerably intensify the competing demands for the alternative uses of the ridgelands.

The future demand for residential uses of the ridgelands will depend to a considerable degree on population growth, in addition to the availability of alternative development areas, relative cost considerations, public tastes and a number of other presently imponderable factors having to do with regulation and infrastructure development.
ABAG has made a series of Bay Area housing projections extending to the year 2000. The projections for the three ridgeland counties appear below.

<table>
<thead>
<tr>
<th>County</th>
<th>1975</th>
<th>1990</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda</td>
<td>404</td>
<td>492</td>
<td>551</td>
</tr>
<tr>
<td>Contra Costa</td>
<td>202</td>
<td>303</td>
<td>343</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>392</td>
<td>540</td>
<td>610</td>
</tr>
</tbody>
</table>

Growth at the projected rate will consume a considerable amount of new vacant land; however, there is more than ample land in the ABAG’s regional plan designated for residential use to accommodate such growth at projected density levels. It is only in the relatively distant future that areas now planned for open space would, in an aggregate sense, be "required" to satisfy additional housing needs.

The availability of these alternative areas already designated for residential development does not of course mean that there is or will be no effective demand for residential development of the ridgeland area. For a number of reasons it appears likely that there will be continued interest in residential development of at least portions of the ridgeland area.

The costs of development in hilly areas are in general an inhibiting factor, particularly when consideration is being given to the development of more moderate priced housing. Hill areas
require considerable additional land preparation and in general require greater costs in the development of utility infrastructure because of the need for greater unit spacing to accommodate the terrain. In addition, continuing service costs for dispersed hillside developments are generally higher than for more densely developed areas.

While the ridgelands are not, for the most part, economically competitive with flatland developments in terms of the provision of mass housing, the hills do offer amenities which make them particularly attractive for luxury housing, thereby meeting the demands of the Bay Area's considerable upper income population. Hill areas offer views, long a real estate premium in the Bay Area, and, of the terrain-dictated need either for large lots or for clustered development with reserved adjacent open space, they also offer a rural, natural atmosphere unavailable in more densely developed areas. A number of such developments are presently underway in the fringe areas of the ridgelands and, in the case of the Blackhawk development, also within ridgelands. There appears to be a ready market for such developments.

Location with respect to areas of employment, already an important ingredient in the demand for housing, may be expected to become an even more important factor as energy prices increase in the years ahead. From the standpoint of ridgelands development, this location premium should have the effect of increasing pressure for development of the close-in portions of the ridgelands located in reasonable proximity to mass transit facilities, and decrease the
pressure for development of more isolated portions of the area where transportation is limited to the private automobile.

An overriding consideration in the ultimate residential development of the ridgelands are the policies of public planning, regulating, and service agencies. While these policies will be discussed in more detail later, it is appropriate to suggest here the interface of such policies with the economic environment. Of great importance, because of the ridgelands' generally limited access, its lack of local water sources, and the generally limited capability of ridgelands soils to accommodate on-site waste disposal, would be the willingness of public agencies to provide utility services to ridgeland areas. Policy decisions regarding such matters are not, of course, made in a vacuum. Real estate developers have historically responded to the tremendous profit potential of raw land division and development by exercising considerable resourcefulness in persuading public agencies of the feasibility of appropriate policy changes. To the extent that such developments are in demand, can be accomplished on a highly profitable basis, and can be designed to avoid severe environmental controversies, it seems likely that real estate developers will continue indefinitely to obtain public agency support in the further subdivision of at least portions of the ridgelands.

Several examples can be cited of recent past, current, and near term potential residential developments of considerable significance to the open space character of the ridgelands area.
The Blackhawk Ranch development, a subdivision of high priced custom-built homes located in the hills to the south of Mt. Diablo State Park, will ultimately involve some 4,200 units spaced over 2,300 acres. A staged development to be completed over a several year period, the project is already partially completed, with additional units under construction. The success in marketing these homes is indicative of the demand for such high-priced dwellings and suggests that the relative cost considerations associated with hillside developments may be a rather minor deterrent to further ridgeland residential developments aimed at higher income groups.

While the conversion of a substantial acreage of grazing land to residential development must necessarily negatively impact the area's open space values, it must be recognized that some fairly significant tradeoffs were involved in the plan for Blackhawk, including the dedication of lands for substantial additions to Mt. Diablo State Park and preservation of considerable additional land as project open space. Such tradeoffs are not, of course, unique to the Blackhawk situation, but rather would be expected in the case of any large scale project.

Walpert Ridge, a presently undeveloped and prominent landform lying partially within the City of Hayward, is facing the probability of large scale residential development in the near future. After years of controversy between development and
open space interests, the City Council has decided to permit some development in the area, albeit on a smaller scale than has been proposed by the developer. It is expected also that a considerable acreage will be dedicated to permanent recreation and open space use, to some extent mitigating the damage to the open space values produced by the development.

A particularly disturbing aspect of the Walpert Ridge situation relates to the cancellation by the City of Hayward of Williamson Act contracts on portions of Walpert Ridge, thereby facilitating the area's urban development.

While the law does contain provisions for cancellation when the public interest requires such action, the purpose of the law is clearly to provide long term preservation of agricultural/open space use. The existence of such contracts on substantial portions of the privately owned lands in the ridgeland area has long been considered to provide significant protection against at least near-term land use conversions over much of the area. The action by Hayward raises serious questions as to the effectiveness of the contracts.

A final example, and one on which the ultimate ramifications are yet to be revealed, is the Tassajara area of Contra Costa County. This large area of low, rolling hills, located immediately south of the Blackhawk Ranch, has historically been a cattle grazing area and is in large part enrolled in
Williamson Act contracts with Contra Costa County. A recent decision by the Board of Supervisors, however, permitting the cancellation of a Williamson Act contract on a parcel in the area, opens the door to conversion of the parcel into several five acre "ranchettes." To the extent that this decision is precedent-setting and could lead to similar action on other parcels in the Tassajara area, the open space values of the area, which include grazing, could be rather quickly and thoroughly compromised.

Other Land Uses - There are a variety of other land uses in the ridgelands area including mining, utility corridors, transportation, and military operations. While alteration of any of these land uses could have significant impacts on portions of the ridgelands area, they would not be expected in aggregate to have major impacts on the overall character of the area.

Planning and Regulation

Land Use Planning - Land use plans covering the study area have been developed at the regional level by the ABAG, at the county level by Alameda, Contra Costa, and Santa Clara counties, and by the several cities whose boundaries or spheres of influence extend into the ridgelands area.

ABAG, a voluntary organization of nine Bay Area counties, provides systematic and coherent regional planning for the Bay Area, reflecting and integrating the plans of its member jurisdictions.
ABAG's adopted land use plan for the Bay Area intended to guide long-term growth, provides for a city-centered region with compact urban developments surrounded and provided with identity and amenities by substantial permanent open space. Although fringe portions of the ridgelands area fall into a "controlled development area" which might either be developed or ultimately committed to permanent open space, the great bulk of the study area is designated for permanent open space in the ABAG plan.

County and city plans are, in general, consistent with the overall concept of the ABAG plan, designating the great preponderance of the ridgelands area as open space. They are, quite naturally, more specific than the highly conceptual ABAG plan and, in particular, provide greater resolution in the "controlled development area."

With regard to their applicability to the ridgelands, the meaning of the general plans' open space designations requires some clarification. Areas so designated include both lands currently in public ownership and managed in such a way as to preserve open space values, and privately owned land used primarily for agricultural purposes. The degree of permanence associated with lands included within the open space designation also varies to a considerable extent. Publicly-owned lands generally enjoy a high degree of permanence, particularly park or watershed lands. At the other end of the spectrum are those private lands currently under interim open space designation, but expected to be developed in the long run as part of the orderly urban growth of existing population.
centers. Occupying a more central position in the permanence spectrum would be the large acreage of private lands in the ridgelands too remote to be planned for near term urbanization but whose distant future use is uncertain. Most of these remote lands are encumbered with ten-year Williamson Act contracts.

The designation of open space then should not be construed as suggesting uniform ultimate land use. Rather, because of the multiplicity of goals associated with the preservation of open space, a variety of different use patterns would be expected to prevail; some, such as parklands, providing for general public use, and others, such as private grazing lands and restricted watershed areas, where public use would be totally or largely prohibited.

Urban Development Policy — The city-centered region concept recognizes the desirability of directing urban development in time and space so as to provide both for economic efficiency and the retention of environmental amenities. This guidance of development by local government is referred to as urban development policy. Urban development is influenced by the decisions of a wide array of local agencies, including counties, cities and special districts. Coordination of the actions of these many agencies toward the ends of efficiency and amenity preservation is intended to be accomplished through the Local Agency Formation Commission (LAFCO's). Established by State Law, LAFCO's are county-wide agencies to review proposed annexations, incorporations, district formations and detachments, and empowered to delineate spheres of
influence. The latter represent the defined service areas for special districts or the expected boundaries of cities. Spheres may define either ultimate or temporary boundaries. While LAFCO's do not engage in land use planning, actions taken with regard to urban expansion may be critical in the realization of planning objectives. Although LAFCO's have significant power to direct urban growth, their power is far from absolute and may fairly readily be undermined by jurisdictions with differing objectives. In the long run, then, the success of urban development policy is in large part dependent on the presence of a region-wide consensus on desirable land use patterns.

Zoning - Zoning is the major regulatory tool used in the implementation of land use plans. Zoning in the ridgeland area, as required by state law, is generally consistent with the general plans in providing more or less for open space uses. The three counties have zoned the great preponderance of lands under their jurisdiction in various agricultural classifications. Considerable differences exist among the three counties with regard to definition of the agricultural zones and the permissability of lot divisions and residential construction. In Contra Costa County, for example, the two agricultural zones covering most of the study area permit residential development on minimum size lots of either five or twenty acres. In Santa Clara County, slope density zoning for most of the area provides variable building lot size requirements, ranging from 20 acres on relatively flat parcels and up to 260 acres on very steep terrain. In Alameda County, a small portion
of the area is zoned for rural residential development with a five acre minimum, but most is zoned for 100 acre minimum division and building lots. In addition to these agricultural zones, small portions of the study area, less than five percent, are zoned for more intensive residential development with lot sizes ranging as small as 6000 square feet.

While zoning has tended more to recognize agricultural uses than to be directed toward their preservation, there are some indications of interest in increased use of this tool as a method for the preservation of agricultural viability. In Alameda County, for example, a zoning change is under consideration which would increase building site minimums to 320 acres. This increased building lot size requirement, which would obviously preclude much additional residential development, would be coupled with increased flexibility in the handling of lot divisions to accommodate intra-family transfers and sales for tax purposes. The present lack of flexibility in such cases presents severe economic difficulties for some family ranching operations. Consideration of more restrictive agricultural zoning, i.e., larger lot sizes, is also underway in Contra Costa County. The several cities with jurisdiction in the ridgeland area have a wide variety of zoning regulations, ranging from dense multi-family housing to agricultural zoning with a twenty-acre minimum. To a large extent, city zoning for hillside areas, while providing for the possibility of low density housing, promotes rather than the clustering of developments on the more level and readily developable portions and provides for preservation of
steeper areas and ridgelines as open space. This clustering can be accomplished either on a single parcel basis through the planned development procedure or may relate to two or more parcels in a density transfer scheme in which development rights for a property with primary open space values would be purchased and utilized for increasing the density on a parcel better suited for development.

Zoning has historically had a reputation as a relatively weak tool for open space preservation because of the ease with which it can be changed and the ease with which variances can be granted. To a very large extent, the effectiveness of zoning is a function of the resolve and commitment of the decision-making bodies behind it. As the composition, philosophy, and policies of these bodies change, so may the zoning.

Other Regulations - The existence of a certain zoning classification, e.g., five acre minimum building lot size, does not generally suggest the ultimate division and development of the area into lots of that size. A number of additional regulations guide and, because of physical, economic and environmental factors, tend to limit the extent of the development which can occur. Approvals of subdivision and construction projects are contingent on demonstration of adequate water supply, waste disposal facilities, soils capability, and a variety of other factors. Water supply in much of the study area is a severely limiting factor. Imported supplies are generally not available except in fringe areas, and groundwater resources are not such as to provide for development of individual water systems on a widespread basis.
Similarly, only a small portion of the study area is presently serviced by sewer systems, and most of the area is poorly suited for on-site sewage disposal. Finally, soils in the ridgeland, particularly those in Contra Costa and Alameda counties, are relatively poor for building foundations due to loading and shrink-swell characteristics. Local ordinances are also directed toward protection of certain categories of areas of particular environmental concern, including in many cases prominent ridgelines and scenic areas adjacent to roadways. These ordinances require a review of the specific project features to ensure compatibility with environmental protection. In Alameda County, for example, site review regulates the esthetic impact of development on scenic routes and in riparian areas. In the City of Lafayette, a hillside preservation ordinance applies special controls over grading and building site location on key ridges which surround, define, and give a unique character to that City. Similar controls exist or are in the process of being implemented in other ridgeland jurisdictions as well.
NATURAL RESOURCES

Climate

The climate of the ridgelands is variable, resulting from the interaction of several factors—Pacific Ocean currents, land and sea air masses, and the uneven topography of the area. Overall, however, the study area has a Mediterranean type climate—dry and warm in the summer and wet and cool in the winter. The most dominant influence on the climate of the ridgelands is the Pacific Ocean, which has a moderating effect on the annual temperature fluctuation. Those ocean breezes reaching the ridgelands tend to cool the land in summer and warm it in winter. Two large air masses also have a major influence on the climate.

The Pacific high, located about a thousand miles offshore, is a moist, dense air mass of relatively constant temperature. The Continental air mass, located to the east over the Great Basin of Nevada and Utah, is cool and dry in winter, and warm and dry in summer. The interplay of these two air masses occurs along the Pacific coast, and weather in the ridgelands varies according to which air mass is dominant at a given time. The Pacific High tends to dominate for most of the year, especially during the warmer months. This air mass contributes to the coastal fog patterns of spring and summer; in early fall the High begins to weaken and regional weather briefly becomes somewhat more clear and warm. By winter, when the Pacific High is weak, rainstorms blow in from the ocean (when the air mass is stronger, it tends to keep such storms from reaching the coast). The Continental
air mass has somewhat less influence on regional weather, although it is the source of occasional hot, dry winds in late summer and occasional periods of cold, clear weather in winter.

In general, the regional climate is mild and the annual temperature range is relatively narrow. Average annual temperature for the San Francisco Bay Area is 57°F; the average minimum is about 45°F, and the average maximum is about 69°F. Within the ridgelands, however, there are local climatic variations influenced by proximity to the coast, elevation, aspect and other factors. Moist air moving inland from the coast must rise over the ridgelands; as it rises, the air cools and releases a certain amount of moisture. Thus, the western portions of the ridgelands generally receive more rainfall than the eastern portions. Similarly, the ridges act as a barrier to coastal fogs, except where a low pass or gap allows the fog to move inland; consequently, summer days are generally warmer as one proceeds inland. Within the ridgelands, there are climatic variations between the ridgecrests and canyon bottoms. Ridges receive more rainfall than canyons. Canyons tend to collect fog and to serve as drainage ways for cold air; night and winter temperature are lower in canyons than on adjoining ridges. Wind chill factor, however, is more pronounced on open ridges than in sheltered canyons and valleys.

Summers throughout the ridgelands area are mostly warm and dry. On occasion, late summer winds from the northeast (the Continental air mass) bring unusually hot, dry weather to the region. These
spells of "fire weather" dry out soils and vegetation and may result in extensive wild fires.

During winter months, there is a marked increase in the frequency and amount of rainfall. Approximately ten days per winter month experience some rain, as opposed to one day per month in summer. Average annual precipitation ranges from 11 to 32 inches within the ridgelands. As mentioned, the western portions receive the greater amounts of rainfall. Approximately 85 percent of the annual precipitation is in the form of rain. Severe winter storms with gale winds and heavy rains occur only occasionally; snow and hail are also rare. However, it is not uncommon for the top of Mount Diablo or the crests of the Diablo Range in Santa Clara County to be snow covered for brief periods during the winter. Winters are cooler, just as summers are warmer, in the upland areas inland from the coast.

**Topography**

As discussed earlier, the study area generally consists of a series of roughly parallel ridges and valleys trending in a northwest to southeast direction. At the north, the ridgelands are divided into two ranges by a series of valleys.

The west range includes the Berkeley, San Leandro and Briones Hills, as well as a number of prominent but unnamed ridges. Highest elevations here are about 2,000 feet above sea level and the terrain is generally composed of gently, rolling hills. The east range includes Mount Diablo itself and the adjoining Black
Hills. Ridgetop elevations and configurations are comparable to those in the west range, with the exception of massive and rugged Mount Diablo, which rises to 3,849 feet and dominates the surrounding area. This rock mass of Mt. Diablo is much older than the material of the surrounding ridges and more resistant to erosion.

South of the Livermore Valley there are no broad valleys within the ridgeland, although there are a number of long, narrow valleys and canyons. Several large reservoirs are located within the ridgeland, mostly in the western half of the study area. Elevations are somewhat higher and the terrain considerably more rugged in the southern part of the study area. The high point is Mount Hamilton, at an elevation of 4,243 feet, and many of the other ridges are 3,000 feet or above.

Overall, elevations in the study area cover a range of about 4,000 feet, from the lowest elevations along the foothills (about 200 feet above sea level) to the top of Mount Hamilton at over 4,200 feet. The fact that ridge elevations are fairly consistent throughout the area indicates that most of the ridgeland probably originated as a nearly flat plain which sloped gradually upward to the south. Erosion has carved out a complex pattern of canyons, leaving ridges which correspond to the original elevation of the plain. The relatively narrow canyons and rounded ridges are indicative of a "youthful" topography in geological terms.
Slopes in the area are quite steep, generally ranging from 25 to 50 percent and in some areas as much as 75 percent.

Most natural streams and creeks within the study area are intermittent except for the watercourses that result from the artificial regulation of reservoirs. In the Contra Costa County portions of the study area, major streams include Kirker, Walnut, San Pablo, Alhambra, Marsh and Kellogg creeks. The major streams in Alameda County consist of Alameda, San Leandro, San Lorenzo and Corral Hollow Creeks. Pacheco and Coyote creeks are the major streams in the study area in Santa Clara County.

Geology

The geologic history of the ridgelands is quite complex and spans the last 180 million years, dating back to the Jurassic period of geologic time. Among the many processes occurring during this time were sedimentary deposition, volcanic episodes and numerous crustal disturbances evidenced by severe folds and faults. The oldest rocks in the study area consist of Mesozoic and Cenozoic rocks (up to 180 million years old) folded into a series of northwest-striking anticlines and synclines that are in some instances overturned to the west. Mount Diablo, located at the northern end of the Diablo Range, is on the crest of one of these anticlines.

Numerous northwest trending faults in the study area are structurally related to the famed San Andreas fault, located 20 miles to the west. This major fault marks the location where
the crustal movement occurs between the North American Plate and the Pacific Ocean Plate. This movement results in frequent and sometimes major earthquakes in and around the study area.

The rocks of the Franciscan formation form the core of the ridgelands. This formation consists of a complex of sedimentary, volcanic and metamorphic rocks 70 to 180 million years in age. Mount Diablo and most of the ridgelands in Santa Clara County are comprised of medium to coarse grained sandstone and shale, interbedded with small amounts of conglomerate, chert and limestone. A small amount of metamorphic rock is also present. Some Franciscan formation volcanic rocks (mostly basaltic lavas and explosively ejected volcanic fragments) are found on the north facing slopes of Mount Diablo. A sandstone, shale and conglomerate unit with similar physical characteristics to the Franciscan formation, formed during the Jurassic and Cretaceous periods, overlies this latter formation in many places and occurs east of Mount Diablo and at lower elevations along the western slopes of the ridgelands in all three counties.

Serpentine and peridotite occur in scattered locations in the study area along the Hayward fault zone, on the north face of Mount Diablo and in small areas of northern Santa Clara County.

A group of Tertiary volcanic rocks and minor interbedded gravel, sands and clays ranging in age from three to 40 million years are found at the western edge of the ridgelands near Coyote Reservoir in Santa Clara County and above Oakland just to the east of the
Hayward fault zone. These include lava flows and associated dikes and ejected volcanic fragments of basalt, andesite, and rhyolite composition.

A large area of moderately consolidated to well-consolidated Tertiary sedimentary rocks are found between the Hayward and Calaveras fault zones on the lower south and northeast slopes. These rocks which are five to 55 million years old consist of sandstone, shale, siltstone, conglomerate, chert, porcellanite, coal, limestone, agglomerate and tuff.

Unconsolidated sediments consisting of gravel, sand, silt, clay, and peat underlie valleys flatlands and lake bottoms in the study area. The thickness of these sediments may be as shallow as several feet or greater than 1,000 feet as in the Santa Clara and Livermore valleys, both outside of the study area. These sediments were formed beginning about five million years ago.

A number of sites in the study area contain significant geological features. These features, located on the map in the Cultural Resources section of this report, are listed and briefly described as follows:

(A) Black Hawk Ranch Fossil Site - Fossils of plants, animals and invertebrates of the lower Pliocene epoch, deposited four to five million years ago.
(B) Lime Ridge - Shallow limestone deposits precipitated from hot springs on Eocene marine sediments formed from 37 to 55 million years ago.

(C) Mount Diablo - Contains an excellent example of a diapir by Franciscan rocks as a result of crustal deformations during a mountain building period which occurred from one-half to five million years ago. (A diapir is the piercement of the overlying igneous and sedimentary strata). Several plant and animal fossil locations are found on the mountain.

(D) Rocky Ridge - Hogback ridge formed five to 12 million years ago and composed of a series of parallel ridges of marine sandstone, faulted against Pliocene rocks. The area includes a variety of invertebrate and vertebrate fossils.

(E) Siesta Valley - Readily observable tightly folded syncline formed four to five million years ago and containing invertebrate fossils.

(F) Corral Hollow - Oldest fossil plants in the Bay Area formed during the lower Eocene epoch, 50 to 55 million years ago.

(G) Sunol Valley Regional Park - Contains highly illustrative examples of geologic folds, faults and igneous dikes formed from two to 22 million years ago.

(H) Alum Rock Park - Mineral springs are found here which vary greatly in mineral content and include saline, carbonated and sulphate solutions, oddly weathered and shaped rock formations,
and unusual volcanic rocks and mineral occurrences. Rock formations found in the park extend from the late Pliocene to early Pleistocene, from one to three million years ago.

(I) Blackbird Valley Spring - Contains a species of bacterium that flourishes in very alkaline water, making it the organism with the highest known alkaline tolerance.

(J) Isabel Creek Melange Terrain - Excellent example of rock jumble caused by its location in a major faulting zone.

Seismicity

One of the most earthquake-prone areas in the coterminous United States is the San Andreas fault system located along coastal California. Many of the individual faults of these major systems are known to have been active during the last 10,000 years. Earthquakes in California are quite shallow and related to movement along active faults. The west and central portions of the ridgeland are located in the parts of the San Andreas fault system in which fault slip, fault creep, and small to moderate-sized earthquakes are common. The Hayward and Calaveras faults are part of the San Andreas system and are both located in the study area. The Hayward and Calaveras faults have both been active in the past 2,000 years. Segments of these faults have recorded slip during historical earthquakes and are presently undergoing fault creep. Both have recorded surface faulting during historical earthquakes and appear capable of generating major earthquakes. With regard to public safety, the most critical fault in the study area is
the Hayward Fault. It is currently recording creep and was the source of major earthquakes in 1836 and 1868. In addition, the Concord and Antioch faults, also in the study area, have recorded continuous or intermittent creep and are considered active. The Pleasanton Fault is also considered active because of evidence of tectonic creep.

There are also a number of faults in the study area whose activity status has not been clearly established. They may not be active and capable of generating an earthquake, but they intersect active faults. Consequently, movement of an active fault could initiate adjustments on presumably inactive cross of adjacent sub-parallel faults.

**Minerals**

Production of minerals from the study area is primarily of local economic importance. Sand and gravel, crushed rock, and shale from the ridgelands have provided major supplies for the local construction industry. Sand and gravel resources are contained in the sandstone and mudstone deposits of both marine and non-marine origin found in Alameda and Santa Clara counties. Crushed or broken stone and dimension stone resources are located in quarries in the study area. Parts of Apperson Ridge in Alameda County have been identified as a major source of crushed rock by the California Division of Mines. Expansible shales are located in the minor conglomerate deposits of sandstone and mudstone in Alameda and Contra Costa counties. Scattered limestone deposits are located throughout the ridgelands.
Oil and gas resources, primarily small natural gas fields, are located in northern Contra Costa County near Mount Diablo and on the northern edge of the study area south of Antioch. Mercury mines, also located in the Mount Diablo area, are not currently in operation but could be reopened if economic conditions for that resource improve. Chrome deposits are found in the Cedar Mountain area of southeastern Alameda County. Northeast of the Black Diamond Mines Regional Preserve in Contra Costa County and the area around Tesla in east central Alameda County are both sources of silica. These fine sands are utilized in the production of glass.

Future utilization of the mineral resources of the ridgeland, particularly the construction materials (sand, gravel and crushed stone) is expected to increase in direct relation to population growth of the San Francisco Bay Area. The following describes the location by county and production status of significant mineral resources found in the study area.
## Mineral Resources of the Ridgeland

<table>
<thead>
<tr>
<th>Resource</th>
<th>Alameda</th>
<th>Contra Costa</th>
<th>Santa Clara</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expansible Shale</td>
<td>⚫</td>
<td>⚫</td>
<td></td>
</tr>
<tr>
<td>Limestone and Shells</td>
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<td>⚫</td>
<td>⚫</td>
</tr>
<tr>
<td>Mercury</td>
<td></td>
<td>⚫</td>
<td></td>
</tr>
<tr>
<td>Mineral Water</td>
<td></td>
<td>⚫</td>
<td>⚫</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td></td>
<td>⚫</td>
<td>⚫</td>
</tr>
<tr>
<td>Sand and Gravel</td>
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</tr>
<tr>
<td>Stone, crushed or broken</td>
<td>⚫</td>
<td>⚫</td>
<td>⚫</td>
</tr>
</tbody>
</table>

- ⚫ Significant resource not being used but likely to be used within next 20 years.
- ⚫ Significant resource being used.
- ⚫ Significant resource being used but likely to be exhausted, seriously depleted, or uneconomic in 20 years.

### Soils

The upland portions of the study area are generally characterized by soils that are well-drained to excessively well-drained on steep and very steep slopes. In Contra Costa County, the predominant soil associations of upland areas are characterized by clay loams and loams weathered from soft fine-grained sandstone and shale and interbedded sedimentary rock. Upland areas of the Alameda County portion of the study area are composed of clay soils which are found on moderately sloping to very steep slopes and are underlain by shale and fine-grained sandstone. Other soil types ranging in texture from sandy loams to gravelly loams are also found in upland...
areas of Alameda County, but these loamy soils are underlain by metasedimentary rock (hard shale and sandstone) and basic igneous rock. The ridge areas of Santa Clara County are characterized by gently sloping to very steep slopes, and are composed of well-drained to excessively well-drained gravelly loams underlain by sandstone and shale.

Soils in the lowland portions of the study area generally are well-drained clays and clay loams and gravelly loams on nearly level to gently sloping valley floors. In Contra Costa County, the predominant lowland associations are clays, clay loams and silty clay loams. In Alameda County, the two major soil associations found in lowland areas are gravelly loams. In Santa Clara County, the majority of lowland soils consists of loams and silty clay loams.

Most of the soils in the ridgelands pose severe constraints on development. Subsoil permeability is generally low, limiting the use of septic tanks. Water recharge capacities of study area soils is severely limited and significant groundwater supplies are largely restricted to valley floors. Slopes throughout much of the ridgelands area are quite steep, ranging up to 75 percent and over, making construction very difficult. There is widespread landslide hazard, and the erosion hazard is severe for slopes steeper than 30 percent. The risk of landslide, erosion, and siltation problems also increases with increased development as vegetation is removed and slope stability is disturbed. In general, ridgetops and valley
bottoms are relatively stable with respect to landslides, but steep side slopes are relatively unstable.

The soils of the ridgelands are largely unsuitable for crop production, thus much of the ridgelands remains in natural vegetation. Nearly all agricultural use is in the form of grazing, with some limited production of hay and grain crops through dry farming methods (without irrigation). Lowland areas, when used for agriculture, are for irrigated orchards and vineyards, as well as some row and field crops.

In summary, only about two to three percent of the study area contains soil types which are suitable for crop production. These are the valley bottoms, which are composed of alluvium eroded from the adjacent hillsides and ridges. The remainder of the ridgelands, more than 95 percent, are not prime soils and suitable only for livestock grazing, watershed and water storage, or low-intensive outdoor recreation.

Water Resources

The majority of the higher elevations of the ridgelands study area has marginal groundwater supplies for stock or single-family domestic use. The United States Geological Survey (USGS) has estimated water yields ranging from 0.1 to 10 gallons per minute from wells in these higher ridge areas. The southeast portion of Santa Clara County is the most arid in the study area.

The inadequacy of the Bay Area's underground water supply to serve a large population was recognized decades ago. Consequently,
Aqueducts and reservoirs were constructed in the ridgelands to deliver and store water from the Sierra Nevada. Public watershed around these reservoirs was purchased to utilize and ensure the quality of regional surface water supplies. The ridgelands, therefore, are of critical value to the entire Bay Area as a water collecting and storage area.

Vegetation

The ridgelands study area contains nine major plant communities. These communities may not always be distinctly separated since they frequently merge into each other. However, specific elements within each community are usually recognizable.

<table>
<thead>
<tr>
<th>Community</th>
<th>Characteristic Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Scrub</td>
<td>California sagebrush, black sage, coyote, bush monkey flower</td>
</tr>
<tr>
<td>Closed-cone Pine Forest</td>
<td>knobcone pine, coulter pine</td>
</tr>
<tr>
<td>Redwood Forest</td>
<td>coast redwood</td>
</tr>
<tr>
<td>Ponderosa Pine Forest</td>
<td>ponderosa pine, California black oak</td>
</tr>
<tr>
<td>Broadleaf</td>
<td>California laurel</td>
</tr>
<tr>
<td>Evergreen Forest</td>
<td>California buckeye, coast live oak, madrone</td>
</tr>
</tbody>
</table>
Oak Woodland

valley oak
coast live oak
blue oak
digger pine
California buckeye

Chaparral

chamise
scrub oak
buckbrush
manzanita

Grassland

brome grass
wild oats
blue bunch grass
foothill sedge

Riparian

western sycamore
fremont cottonwood
arroyo willow
red willow
box elder
big leaf maple
white alder

Although nine major plant communities have been identified in the study area, some were combined for mapping purposes as illustrated on the vegetation map. The information on the map was derived from vegetation type maps originally prepared by the United States
Forest Service, currently available from the California Department of Forestry. The vegetation data are approximately 40 years of age and represent the latest comparable field checked data for the entire study area. Current location of major communities may vary somewhat; however, the map presents a generally accurate illustration of vegetation location and types. The map has been modified to reflect the extent of current urbanization. Community types under 20 acres were not mapped on the original Forest Service maps. Consequently, some of the scarce vegetation types, such as knobcone pine and Sargent cypress, are not illustrated.

The predominant plant community in the ridgelands study area is the grassland, followed by broadleaf evergreen forest and the oak woodland. The grassland community is the most extensive, located in most parts of the study area. It predominates on south-facing slopes and ridges where comparatively drier conditions exist. The grassland community is composed mostly of introduced annuals of Mediterranean (European) origin and consists mostly of bromes, wild oats and barley, soft chess and alfileria. The study area contains a few areas of remnant native perennials, such as, blue bunch, needle grass and California oat. The broadleaf evergreen forest is also found throughout the study area, usually on north-facing moist slopes. The understory associated with the oak woodland community consists normally of mixed grasses. The understory of the broadleaf evergreen forest consists of a dense growth of shrubs, which is considerably more complex than in the oak woodland.
community. The oak woodland community consists of a mixture of northern oak woodland, southern oak woodland and foothill woodland species.

Although the broadleaf evergreen forest and riparian woodlands consist of technically different plant communities, they blend together so that it is very difficult to see any clear line of demarcation. The riparian woodland community requires considerable moisture throughout the year. The understory of both these communities is complex with overlapping species. These two grouped together are among the most unique and complex in the world and they are found only in coastal-central California.

The coastal scrub community contains species of northern coastal scrub and southern coastal sage scrub. There is considerable diversity of plant materials in the coastal scrub community.

Large areas of chaparral are located on Mount Diablo and on the higher ridges in eastern Santa Clara County. This community forms large areas of almost impenetrable vegetation which is subject to massive fires during dry seasons. Periodic fires appear necessary to maintain the good health of the chaparral community. New browse after light fires provide ideal habitat for deer. The warm and dry summers also enhance the danger of wildfires in grassland and oak woodland plant communities.
Those portions of the study area nearest to developed areas contain a great variety of introduced trees, shrubs, and flowers. Extensive exotic eucalyptus forest occur, usually near built-up areas.

Due to the diverse topographic characteristics and climatic characteristics there are a number of significant vegetative natural areas in the ridgeland:

One of these is the Flicker Ridge area (1), located on lands administered by the East Bay Municipal Utility District and on private holdings to the east. This area's significance is due to the number of diverse plant communities in a relatively small area: coast redwoods, pine, chaparral, grassland, oak woodland and coastal scrub.

The nearby Huckleberry Botanic Preserve (2) administered by the East Bay Regional Park District contains rich stands of chaparral and broadleaf evergreen forest.

Sobrante Ridge (3), immediately east of El Sobrante, contains a concentrated area of chaparral consisting primarily of brittleleaf manzanita which reaches its northern limit on this particular ridge. The heartleaf manzanita, also present on this ridge, is rarely found in other locations.

To the east, Mount Diablo State Park (4) and the surrounding area contains numerous botanical communities. These communities include chaparral which occurs in patches over
much of the mountain and a well developed coastal scrub community, consisting of California sage brush, black sage and scattered toyon. Mount Diablo also contains stands of Coulter pine and knobcone pine as well as grasslands and riparian woodlands. The north side of the mountain is particularly significant because of the diversity and integration of plant communities. Approximately 38 species of plants reach their northern limit on Mount Diablo, including nine species of oak.

The northernmost stands of Coulter pine and black sage are located northwest of Mount Diablo near the old mining town of Nortonville (5). Digger pine also grows here. These two pines form a distinctive woodland association on several ridges in the area. Excellent examples of chaparral and oak woodland communities are also located in this area intermixed with grassland. This area supports the southernmost limit of the common manzanita. Coulter pine, endemic to California, also occurs on Mount Day (6) and Lamb Ridge (7) in northern Santa Clara County.

Cedar Mountain in southern Alameda County contains a unique stand of Sargent cypress, another endemic to California (8). The largest trees of the stand are estimated to be 150 years old and reach 80 feet in height. The tree is also found in Santa Clara County near Lick Observatory on lands owned by the University of California.
The Corral Hollow area (9) in eastern Alameda and western San Joaquin counties is the northern limit of many desert and semi-desert species, predominantly chaparral. These extend eastward outside of the study area along the western border of the San Joaquin Valley.

Sunol Valley Regional Park (10) east of Fremont in Alameda County is a pristine area containing dominant vegetative communities of oak woodlands and grassland mixed with chaparral. Woodland species include Digger pine, California buckeye and valley oak. The grassland consists primarily of exotics with some native species. There is also a riparian woodland dominated by western sycamore.

The ponderosa pine found in and north of Henry Coe State Park (11) in Santa Clara County are considered remnants of those found in Monterey County and the foothills and higher elevations of the Sierra Nevada.

At the present time, there are no endangered and threatened plant species in the area listed on the Federal Register, however, there are two state (California) designated rare plant species. These are the large flowered fiddleneck located in the Corral Hollow area and the Birds-on-nest, an annual herb, located in Mount Diablo State Park. No species are currently designated by the State as endangered.

The California Department of Fish and Game is conducting research and preliminary mapping of rare and endangered flora in the State.
Within the study area, the Department has identified 17 additional plants which have been collected and observed since 1945. This information and additional research will be utilized for recommending any additional plants for designation as rare or endangered.

Wildlife

The great diversity of wildlife occurring in the study area largely results from varied topography and climate as well as large areas of diverse and undisturbed habitat.

Fauna are described as follows in several categories, including mammals (game and non-game), reptiles, amphibians, birds (game and non-game), and fish.

Mammals - The black-tailed deer, sub-species of the mule deer, is a native that inhabits forest, open woodland and chaparral portions of the ridgelands. They are also found in coastal scrub areas. Deer feed on leaves, twigs of woody plants and forbs as opposed to grasses. Although primarily browsers, they will eat new spring grass before it seeds. Wild pigs are quite well established in certain remote portions of the study area. The species has developed over the years from a cross between Russian wild boars and the domestic pig. The black-tailed jackrabbit can primarily be found in coastal scrub, open grassland and chaparral. The brush rabbit also occurs in the study area preferring a habitat of thicket, brush, chaparral and edges of forest. The tree and western gray squirrels are game animals
located in forested and oak woodland areas in the study area. The gray fox, muskrat and badger may possibly be found in the study area. According to state wildlife specialists, mink may possibly be found in the ridgelands.

Non-game species of relative importance in the study area include the mountain lion, coyote, ring-tailed cat, raccoon, bobcat and red fox. The San Joaquin kit fox, found in the eastern portion of the study area, is listed as an endangered species by the Federal Government and rare by the State of California. Other threatened species are described later in this section. Mountain lions feed primarily on deer. State wildlife specialists indicate that the area south of the watershed managed by the San Francisco Water Department contains good habitat for mountain lions and black-tail deer. Bobcats are found in forested areas and prey upon various rodents, small mammals and birds. Mountain lions and bobcats were also found in the Mount Diablo area. The ringtail, a relative to the raccoon, prefers chaparral areas or more rocky areas within the ridgelands.

Tule elk have been reintroduced in the study area on Grant Ranch County Park in Santa Clara County and on portions of the Concord Naval Weapons Station. This species of elk is much smaller and lighter in color than the wapiti of the Rocky Mountains. According to California Fish and Game staff, there have been fairly good results in establishing this species in the ridgelands. Numerous other non-game mammals within the study area include species of mice, shrews, moles, bats, gophers, rats, and skunks.
Reptiles - Reptiles in the study area consist of several species of snakes, lizards and turtles. One snake, the Alameda striped racer, has been designated as rare by the State. Only one poisonous snake, the North Pacific rattlesnake, is found in the study area. Several species of garter snakes, the common kingsnake, the gopher snake and the ringneck snake are located in the study area.

Lizards such as the Western skink and Gilbert's skink, the Western shiptail, the California legless lizard, and the Western pond turtle occur in the study area. The Western pond turtle is the only native freshwater turtle in California.

Amphibians - There are six salamanders, several species of toads and frogs, the Ensatina (a salamander) and several newts located in the study area. The newts and the tiger salamander are pond-breeding salamanders. The remaining salamanders are ground-breeding amphibians. The Western spadefoot toad occurs within the drier regions of the study area, whereas the Western toad requires moist and open foraging habitat.

Frogs present in the study include the bullfrog, red-legged frog, the Pacific tree frog and the yellow-legged frog. The number of red-legged frogs have decreased during the past several decades. Bullfrogs are out competing the red-legged frogs because they prey on the red-legged frog and are tolerant of water with low oxygen levels. The Pacific tree frog is rather abundant in the study area where water, in the form of lakes, ponds or quiet streams,
is available throughout the spring breeding season and where there is a moist cover of vegetation.

**Birds** - Bird species are numerous in the study area. The Coastal Range of California is a major flyway (Pacific) for migratory birds. Some birds use portions of ridgeland as a wintering range and others use it for nesting.

Game birds in the study area include wild turkey, pheasants, geese, doves, quail, pigeon, ducks and coots. The wild turkey is the largest game bird found in the study area near lands owned by the San Francisco Water Department. The second largest game bird is the ring-necked pheasant. This introduced species occurs in grassland, coastal scrub areas and brushy areas bordering farms. The mourning dove, a native species, is the most numerous game bird in the study area, as well as in the State of California.

The California quail is also native to the study area. Calaveras Reservoir, located on lands administered by the San Francisco Water Department, is an important goose wintering area.

Many species of non-game birds are found in the ridgeland area, among them the California Condor, southern bald eagle and the American peregrine falcon. These species are listed as endangered by both the Federal Government and the State of California.

The golden eagle has also been observed in the study area. In 1974, a study by San Jose State University documented that several pairs of golden eagles were present in the study area, but no
fledged young were observed. The prairie falcon, American kestrel and several species of hawks are also found in the ridgeland. Species of gulls, owls, hummingbirds, woodpeckers, swallows, jays, wrens, thrushes, warblers, and sparrows are among the more common birds found in the study area.

Fish - The Thicktail chub, which may be extinct in the study area, is designated an endangered species by the State of California. The riffle sculpin and the Sacramento perch are native species found in the study area. The sculpin can be found in shallow streams of the ridgeland. The Sacramento perch is the only native sunfish in the study area and is present in Calaveras Reservoir.

Game species include large mouth bass, small mouth bass, brown bullhead, bluegill, black crappie, channel catfish, white catfish, green sunfish, and rainbow trout. According to information from the California Department of Fish and Game, trophy game fish are located in the San Francisco Water Department's Calaveras and San Antonio reservoirs. Bait and rough species of fish include carp, goldfish, golden shiner, mosquito fish, Sacramento black-fish, hitch, and western suckor.

Rare and Endangered Species - Good game and non-game wildlife habitat areas in the study area are located in areas in and around Mount Diablo, in and around Calaveras, San Antonio and Del Valle reservoirs, as well as areas to the east and south, and an area in and around Anderson and Coyote reservoirs and Henry Coe State Park.
The best wildlife habitat area in the study area, according to California Fish and Game staff, is the San Francisco Water Department's lands and adjacent lands to the east and south. This area is a prime wintering area for raptors and contains habitat for mountain lions, black-tailed deer, wild turkey, fox, bobcat and other smaller animals.

One mammal and three birds are listed as endangered species in the study area. They are the San Joaquin kit fox, the California condor, the southern bald eagle, and the peregrine falcon. None are listed as threatened.

The presence of kit fox adult population and dens have been confirmed in all three counties of the study area. The preferred habitat of the kit fox is the grassy, rolling hills along the eastern part of the study area. Land conversion from uncultivated natural habitat to agriculture and urban uses in valley floors has reduced the habitat of the fox, forcing its range farther into the ridgeland area.

The California condor, a carrion-eating vulture, is steadily moving toward extinction. The largest land bird in North America has had its habitat reduced due primarily to pesticide and predator control programs. This bird seasonally occupies the southern half of Santa Clara County, from August through December. Nesting occurs to the south of the study area in San Luis Obispo and Santa Barbara counties.
The southern bald eagle winters in Alameda and Santa Clara counties near large lakes and reservoirs, particularly in the areas around Calaveras and San Antonio reservoirs. Reasons for its decline are human encroachment into nesting and feeding areas, environmental pollution, contamination from pesticides, and shooting.

The American peregrine falcon breeds along the California coast and on suitable cliffs in the inland mountain areas. This bird has been reported to winter in the study area near Calaveras and San Antonio reservoirs. Its decline is due to similar circumstances leading to the decline of the southern bald eagle. In 1970, only two pairs were found in California, however, by 1977, this figure had increased to 14 pairs.

The southern bald eagle, the American peregrine falcon, and the California condor are also listed by the State of California as endangered species. The San Joaquin kit fox has been designated as a rare species by the State.

In addition, the thicktail chub and the Alameda striped racer are designated as endangered and rare, respectively, by the State of California.

The endangered thicktail chub may be extinct but previously has been found in Coyote Creek in Santa Clara County. Draining of riparian marshes, and various flood control measures are largely responsible for this loss of habitat.
The Alameda striped racer has been designated rare by the State and is considered one of the rarest snakes in the East Bay area. It is found in the valleys, foothills and lower slopes in the ridgelands. Its habitat is associated primarily with chaparral, but it may be found also in grassland, open woods and on rocky slopes.
CULTURAL RESOURCES

Today, the ridgelands are regarded by many as a scenic, open space backdrop for the residents of near urbanized areas. But in the past, the ridgelands were more than dramatic topographic features. These environments supplied all of the basic resources which supported the inhabitants, whether they were Native American, Spanish-speaking, or 19th Century Americans. The ridgelands form a stage upon which representatives of all periods in California history acted out their roles and although no complete historical description of the study area has been completed, it is rich in cultural resources of the past.

Native Peoples

If an imaginary visitor came to the East Bay ridgelands before the 1770's, a Native California population would be seen living in the wooded hills and ridges, in the pleasant stream-cut valleys, and in the rolling open grasslands. These people, called "costanos" or coastal people by the Spanish (Costanoan in English) or "Ohlone" which some prefer today as a native name, spoke eight distinct geographic dialects, four of which were in the study area. These native peoples formed themselves into self-governing, self-sufficient village communities linked by language, territory, and intermarriage. Their villages were clusters of thatched circular family dwellings, brush shelters, and small sweathouses which were partially built into the ground. The Ohlone people were effective gatherers of many plant foods—particularly acorns from the coast live oak and valley oak—and hunters of the abundant deer,
antelope, elk, and smaller land animals. Those Ohlone groups living along coastal areas and in portions of the ridgeland near bayshores, marshes, and rivers also collected shellfish, hunted aquatic animals, and fished or netted from "tule" or reed boats. Although little is known of their social life, the people did recognize local leaders, but did not see themselves as a single, united "tribe."

The technology of the Ohlone people was varied and included many stone and bone tools and ornaments of shell and other materials. They maintained trade contacts with neighboring groups across Suisun Bay to the north and into the San Joaquin Valley to the east. The people wove many forms of baskets which were used for carrying, cooking, eating, and drinking and were sometimes decorated with feathers or beads, but unfortunately very few examples have survived.

It is likely that the people travelled within their own home territory as plant foods came into season and animals migrated, but probably returned to a home village area, usually in a valley, periodically. Researchers in the Ohlone language believe the dialects became separated at least 1400 years ago. Archeological evidence shows the Ohlone people as the first residents of the study area at least 4000 years ago. Their population, estimated at 10,000 persons during the early 1770's, and lifestyle, which was attuned to the resources of their homeland, were disrupted in the closing decades of the 1700's by the activities of Spanish-speaking newcomers.
Between the 1770's when several exploring parties of Spanish people visited the Ohlone in their territory, and about 1805, many Ohlone people were moved to the missions located in present-day Fremont and San Francisco. But later on, some descendents continued to live and work around communities or ranches well after the establishment of the three counties by the State of California. Today, some Native Americans in the area believe themselves as heirs of the Ohlone heritage and are very interested in preservation of the old village and camp locations. At local museums and in some East Bay Regional Park District units, the story of the Ohlone people and their contributions in California history are recognized and interpreted for visitors.

Archeologists have recorded over 400 locations of archeological resources in Contra Costa County, but many of these sites do not exist today. Even though decades of archeological research have passed, it has been estimated that more than 100 sites have been destroyed since 1960. Some have been destroyed by urban expansion, others by residential construction, and even a few sold as topsoil materials. Most of the remaining recorded sites are outside of the study area, along bayshore or delta margins, as remnant resources in urban areas, or within areas proposed for development. A number of excavation projects into these Ohlone sites have been accomplished in the Richmond-San Pablo area and near Rossmoor and Danville—all locations outside of the ridgelands study area. In addition to information about diet, trade, technology, and many other aspects of Ohlone life before the 18th Century, some of these
excavations showed that these Native Americans were effective inhabitants of the county as early as 2000 BC.

Recent terrain examinations and some excavations within the ridgeland study area— at the East Bay Municipal Utility District's San Pablo Reservoir, Mt. Diablo State Park, and scattered other locations—show that there is a high potential for many more camp and village sites and rock art locations to be found. The potential significance of these unrecorded sites in valleys, on grassy ridges, and within wooded drainages will have to await further description, but a sample of 12 sites within San Pablo Reservoir clearly indicates many clusters of sites would be of National Register of Historic Places caliber. The loss of almost one-quarter of the county's recorded sites places a high value on the resources which remain within the study area. Some of these sites are already undergoing damage from artifact collecting by youth groups, trail bike riding, and grazing.

Although most of the pre-Gold Rush historic resources have been destroyed or removed by later population growth, the ridgeland area within Contra Costa County may contain archaeological evidence of the Spanish and Mexican periods. In Pinole, historical archaeological research at the Ignacio Martinez Adobe, built in 1836, indicates that historical archaeological values may survive changes in land use. American history is represented, for example, by abandoned railroad routes, forgotten ranch headquarters locations, and even school house sites—all of which are known through research by San Francisco State University in the San Pablo
Reservoir, recently drained in order to work on the dam. The Black Diamond mining district—now protected as a Regional Preserve by the East Bay Regional Park District—contains at least one of the small but lively 19th Century towns associated with the mines. At the location of Somersville, current excavations by University of California, Berkeley, will shed light on the lifestyles of habitants and their place in Contra Costa County history. Certainly, the historical values of the Black Diamond District and others like it would meet the criteria for inclusion on the National Register of Historic Places.

Also containing over 400 known archeological sites, Alameda County has probably lost nearly one-quarter of these resources to urban growth and other development pressures. Excavations have been completed near Livermore and at other locations. Some lands within the study area have been examined, particularly Walpert Ridge. To mitigate highway construction impacts, California State University at Hayward will conduct excavations in the near future at the Mission Pass locality for CalTrans. This project will probably be within the study area. Other areas known to be either extreme or high in potential for archeological resources are Del Valle Regional Park, Sunol Valley Regional Park, the San Francisco Water Department's watershed lands, including San Antonio Reservoir, the Niles Canyon-Scotts Corner area, and Chabot Regional Park. It is likely that many of these examples of Ohlone occupation would be eligible for the National Register as districts.
Archeological research in historic sites has been limited to the Higuerra-Galindo Adobe, located in the foothills east of the Mission San Jose de Guadalupe. This 1840's two story adobe structure, now restored, was originally a residence on the Rancho Aqua Caliente owned by Fulgencio Higuerra. Other historic sites are likely to be located within the study area of Alameda County in the future.

In recent years, archeological projects have been frequent in the western portions of Santa Clara County and in the developed areas of San Jose and its suburbs.

Highway construction along US101 in the Santa Clara Valley has resulted in archeological and ethnohistoric research studies for this corridor just to the west of the ridgeland study area. There are slightly over 400 recorded sites in Santa Clara County, but most are not within the ridgeland. Some research has been done, however, in the valleys composing Grant Ranch Country Park where more than a score of archeological sites, including Ohlone rock art locations, have been located recently. A number of sites are known for the Lick Observatory-Mt. Hamilton area (25), for the Henry Coe State Park area (7) the Mt. Mondana region (19) and the Pacheco Peak area (11). Other areas of the eastern portions of the county have not been examined, but a large number of sites can be expected on valley floors, near springs, on stream terraces, and in sheltered rock outcroppings.
Much of southeastern Santa Clara County has been ranchland for generations and little development seems to threaten archeological resources, but surface artifact collecting by youth groups within some public park areas has seriously impacted some sites.

It is likely that in the relatively remote topography of eastern Santa Clara County many archaeological resources of the historic period will be found in the Pacheco Pass area, Henry Coe State Park, Grant Ranch County Park and elsewhere. Seven historical sites are recorded for the Gilroy Hot Springs locality. When more fully recorded, these archaeological resources would likely meet the criteria of the National Register of Historic Places.

In addition to those historic architectural resources already on the National Register or the California Historic Landmarks, architectural features of Civilian Conservation Corps origin in Mt. Diablo State Park and the historic ranch buildings in Henry Coe State Park may qualify for National Register listing after thorough evaluation. Depending on the degree of restoration, the Higuerra-Galindo Adobe may also qualify for National Register status.

Spanish/Mexican/Anglo Exploration and Settlement

Spain's exploration and colonization of the New World began in 1521 with Cortez claiming Mexico, but it wasn't until 250 years later that Spanish explorers would reach the San Francisco Bay Area. In 1769, Gaspar de Portola's overland expedition discovered San Francisco Bay and three years later, in 1772, the first
Europeans set foot in the ridgelands area. This expedition, led by Don Pedro Fages and Padre Crespi, traversed the ridgelands and, standing in the vicinity of Mt. Diablo, was the first to see the Great Central Valley of California. Other expeditions, comprised mainly of soldiers and priests, followed to settle the area and bring religion to the natives. Ayala brought the first ship into San Francisco Bay in 1775 and charted some of the shore. In 1776, Juan Batista de Anza and Padre Font followed almost exactly the same route as Fages four years earlier. Missions were begun in the area in San Francisco, San Jose, Sonoma, San Rafael and Fremont. Mission San Jose, located in what is today Fremont, was begun in 1797 and is located near the western edge of the ridgelands. This early period of exploration and initial colonization ended with Mexico declaring its independence from Spain in 1822.

Mexico's independence signalled the beginnings of the land grants. Scores of grants were awarded to settlers of the ridgelands and bayshore areas starting in the early 1820's and running into the middle 1840's. The most important of these were the early grants because they began to delineate boundaries and suggest patterns of land usage. In 1820, Luis Peralta became the first white settler in what was to become Alameda County. He was followed closely by Francisco Castro and Ignacio Martinez in Contra Costa County in 1823. In 1837, Jose Joaquin Estudillo, the founder of modern day San Leandro, was awarded a grant of land, and six years later Don Guillermo Castro was granted the land that would become Castro Valley. Both Estudillo's and Castro's grants were entirely within
Alameda County. Mexico awarded other grants to early settlers further demarcating boundaries and increasing the population in these early years. However, they were not the only people to recognize California's future potentials and move there; the Americans were close behind.

John Gilroy, a Scotsman, came to the San Francisco Bay Area before many Spaniards or Mexicans. In 1814, he left his ship in Monterey and travelled north to the area moving many times before finally settling near the town bearing his name—Gilroy. However, John Livermore has the distinction of being the first American to settle in the region. Although he arrived in 1820, Livermore did not finally settle down until 1835 in the Livermore Valley. John Marsh became the first American to live in Contra Costa County about six miles west of what is now Byron. It was during this period of time when many of the famous mountain men were breaking new trails. Jedediah Smith found the first route over the Sierra Nevada mountains and made his way to the Bay Area and the ridgelands in 1827. John Bidwell's party in 1841 became the first group of Americans to use Smith's route and reached John Marsh's ranch that same year. Many of the canyons and passes in the ridgelands, for example, Pacheco and Altamont, have historically been used as transportation routes.

While most of the historic development and growth occurred along the edges of San Francisco Bay, much use was made of the ridgelands, especially for grazing. Hospitality on the ranchos was warm and gracious, but there were problems. The 1840's brought many
Americans into the San Francisco Bay Area, some of whom settled in the ridgelands. By the middle 1840's, numerous Americans were expressing discontent with Mexican rule and words "revolt" and "war," surfaced frequently. In 1845, the two ideas merged in the Bear Flag Revolt and the Mexican War. A year later the war was over, and in 1848, the territory was transferred from Mexico to the United States. California became a state two years later in 1850.

1850 marked the beginnings in a shift from Mexican to American flavor and influence. With Statehood, California was divided into counties—Contra Costa and Santa Clara were two of the original 27. The next ten years, 1850-1860, signalled rapid growth in the area with numerous towns springing up within and near the ridgelands: Alamo, San Ramon, Danville, Pacheco, Walnut Creek, San Pablo, and Oakland. By 1853, Contra Costa County has grown so quickly it was necessary to split it in two with the southern half becoming Alameda County. The area got one of its first schools in Martinez during this period, and with the introduction of irrigation, farming became an important industry. Most of the towns springing up in this era had a grazing and agricultural base. An example of this lifestyle is preserved today in Henry Coe State Park and Grant Ranch County Park, both located in Santa Clara County. Both spreads were begun in the 1880's by pioneering families as cattle ranches with some agriculture. Their rolling terrains are excellent examples of the ridgelands and the early use to which this area was put.
Influences outside the San Francisco Bay Area had profound effects on the ridgelands. The Gold Rush of the late 1840's and early 1850's brought numerous people through this area. Some stayed without going further, others returned after seeking their fortune in the gold fields. The ridgelands contained their own resources, coal being the prime example. It was found near the now abandoned town of Somersville in northern Contra Costa County, and in 1858 the Black Diamond Mine was founded. Other mines were discovered and the settlements associated with them lasted to late in the 19th Century. The 1860's and 1870's saw more towns laid out, the road system improved and enlarged and the first railroad between Alameda and Hayward was begun.

The railroads opened up the country and encouraged industry. The Central Pacific, eventually absorbed into the Southern Pacific, ran the first line from Oakland to Tracy in the Central Valley, with the Santa Fe soon following to obtain a share of the freight business. The narrow gauge California and Nevada Railroad and the Oakland, Antioch and Eastern competed for both passenger and freight business as the area's population grew. Industry saw a fast growing market in the East Bay and many companies began their operations there. Power companies, foundries and paper mills were some of the early concerns and the railroads expanded laying lines for them. As the 1900's approached, oil refineries, shipping, transportation, and manufacturing became increasingly dominant. The 1920's and 1930's saw many bridges completed, connecting Contra Costa County to the north bay communities, Alameda County to San
Francisco and to cities further down the peninsula in San Mateo County. These bridges helped open the East Bay and the ridgelands to increased uses.

Land preservation began during the 1920's and 1930's. The East Bay Regional Park District was formed in 1934 in the Oakland-Berkeley hills and land was set aside there as parkland for future generations. In 1931, Mt. Diablo was designated a state park. Donations of land for public purposes go back even further, to 1876, when James Lick, one of the wealthiest men in the West, donated the land and funds for the building of an observatory. Lick Observatory, on the top of Mt. Hamilton in Santa Clara County, was the result and the most powerful telescope in the world at the time of its construction. It still serves as an invaluable educational tool today, operated by the University of California and open to the public.

During the late 1940's, the 1950's and 1960's, people began moving to California in greater numbers, and the East Bay and the Santa Clara Valley, with their ideal location and many natural amenities, became home for thousands.

Whereas growth slowed down in San Francisco and in the peninsula communities to the south, growth in San Jose and in the interior valley communities of Concord, Walnut Creek, Pleasanton and Fremont continues. The ridgelands, although isolated somewhat by their rugged topography and limited access, also are feeling the development pressure. Many of the residents of the San Francisco Bay area
recognize the varied aspects of their cultural heritage and want to save it. Adobes, dating back to the Spanish-Mexican period, located in the ridgelands have been restored as have the homes of many prominent citizens. Examples of the attempts being made to save our past and remember our heritage are the John Muir National Historic Site, the Eugene O'Neill Foundation's efforts to insure the preservation of the playwright's home and the East Bay Regional Park District's enactment at Coyote Hills of an Ohlone crossing of the San Francisco Bay in tule canoes.

National and State Listings

A large number of Native California and historical archeological sites, historic landmarks, and locations of local historic interest are in or near the study area. The following locations have been listed on the National Register of Historic Places, a nation-wide inventory, and the California Inventory of Historic Places:

National Register

1. Herschell-Spillman Merry-Go-Round: A large, ornate, historically significant carousel, located in Tilden Regional Park.

2. Eugene O'Neill House: Built in 1937 for playwright O'Neill who lived and worked there until 1944. Administered by the National Park Service as a national historic site.

3. John Muir House: Home of the prominent conservationist, scientist and western mountain and glacial authority, considered the "Father" of the National Park System.
About nine acres are administered by the National Park Service as a national historic site.

4. John Marsh Home: Built for John Marsh, first physician in the State of California and owner of a large cattle ranch. The house was described in 1856 as "probably the most beautiful and complete residence in the state."

5. Mission San Jose: This one story adobe is the sole remaining building from the mission established in 1797. It was among the largest of the missions in the 1820's with nearly 2000 residents. Secularized in the 1830's.

6. The Abbey (Joaquin Miller Home): Home of Cincinnatus Hiner ("Joaquin") Miller, first major western frontier poet.

7. Malaguerra Winery: Built in 1869, this was the first winery in the Morgan Hill area.

8. Old Stone Grist Mill: Built in 1840's, with additions between 1870 and 1880, this structure may have served as the "refuge" or "fortified shelter" referred to in Mexican Governor Figueroa's land grant title to Juan Alvarez in 1834.

9. Coyote Creek Archeological Site: The district contains three distinctly different types of sites: granite boulder shelter with surrounding midden, large midden, scattered midden with associated house depressions. Costanoan Indians lived here during prehistoric times. The site, located near Gilroy Hot Springs, remains unexcavated.
10. Poverty Flat Sites: Village site inhabited during prehistoric times by the Costanoan Indians. This site is located within Henry Coe State Park and, too, has not been excavated.

11. Vicente Martinez Adobe: Built in 1849, the two story adobe residence was constructed on an 1836 land grant known as Rancho Pinole. Located on the John Muir National Historic Site.

California Historic Landmarks


13. Mt. Diablo: The 3849 foot summit marks the location of the Mt. Diablo principal Meridian and Base Line.

14. Captain Fages Trail: Portion of route taken by Captain Don Pedro Fages and Padre Crespi who trekked through the area looking for a way to cross San Francisco Bay. First whites to enter the ridgelands (1772).

15. The Abbey: See National Register, Number 6.

16. Mission San Jose: See National Register, Number 5.

17. Leland Stanford Winery: Founded in 1869 by Leland Stanford, this winery produced wine that rivaled any in the world. Buildings are now owned and operated by Weibel Champagne Vineyards.

18. Cresta Blanca Winery: Charles Wetmore planted this vineyard in 1882 and wine from his fruit won the first International Award at the 1889 Paris Exposition, the highest honor. This assured California wine growers that they could compete with the best in the world.

19. Vicente Martinez Adobe: See National Register, Number 11.
RECREATION AND OPEN SPACE RESOURCES

The total study area, within which the National Park Service has identified and assessed resource values, encompasses approximately 850,000 acres, or more than 1300 square miles. This enormous area, still largely undeveloped and devoted to open space uses, is situated next to and around more than a dozen large cities whose combined populations are approaching one and three-quarters million. About three quarters of the study area, about 680,000 acres, is in private ownership. Ownership tracts for the most part are quite large. Along the western edge of the study area near the urban fringe, tracts are smaller, generally ranging in size from 20 to 100 acres. The more remote parts of the study area, in contrast, contain larger tracts, most of them being several hundred acres in size and some more than a thousand acres. A few tracts in eastern Santa Clara County are over 10,000 acres. The use presently made of all these large tracts of private land is cattle grazing.

Nearly three quarters of the lands in private ownership in the ridgeland are under Williamson Act contract (approximately 500,000 acres). Enacted in 1965 as the California Land Conservation Act, its purpose was to preserve the prime agriculture lands of the State which were being lost to residential development. The Act enables local governments to establish agricultural preserves wherein land use is restricted by regulation, accomplished through a 10-year voluntary contract with the landowner. The preserves are
normally at least 100 acres in size, but may be smaller if this judged to be consistent with the local government's general plan. On the anniversary of the contract period, one year is automatically added. Consequently, unless notice of non-renewal is given, the contract is designed to run perpetually. The landowner is compensated for allowing the restricted use by a property tax break, since within the preserve assessments are based on the land's current use value rather than on "highest and best use."

If a contract is not renewed, assessed valuation begins to rise so as to arrive at full value by the tenth year.

Ranch houses and other assorted buildings associated with cattle raising are scattered throughout most of the study area and have been there for decades. Recently, however, in certain parts of the ridgelands large scale residential development is taking place or being proposed. There is every indication that large scale residential development will continue in the ridgelands. Such development would irrevocably change the ridgelands, blending them in with the nearby urbanized area.

The remainder of the study area, close to 170,000 acres of land and about 20 percent of the total, is in public ownership and also devoted to uses which are largely of an open space nature. In contrast to the lands in private ownership, there is no threat to the open space nature of these public lands. The great bulk, more than 155,000 acres, is managed for park and watershed purposes.
These public park and watershed lands are found scattered throughout the ridgelands. Most, however, are grouped in three large blocks running generally north-south along the western edge of the study area, from Richmond south to San Jose, for a total distance of close to 50 miles. The northern and middle blocks, composed of contiguous public park and watershed lands, are separated only by a narrow band of private lands in the vicinity of State Highway 24. Together these two blocks form a 20 mile stretch of public lands utilized for watershed and recreation purposes, located immediately adjacent to the residential sections of several East Bay cities. Moreover, these lands historically have served both to confine urban growth and to provide a natural backdrop for not only the adjacent communities but for the entire East Bay.

The southern block, also composed of public park and watershed lands, is separated from the middle block by a ten mile expanse of private lands broken up by recently expanded park units of the East Bay Regional Park District system. This southern block does not back up against residential development, but is separated from it by a two to three mile wide corridor of undeveloped lands in private ownership.

The remaining public lands are mostly large parks, the largest two being state parks anchoring the northern and southern ends of the ridgelands study area. The non-park public lands are scattered throughout the study area and administered by the State of California, the Department of Defense, the Bureau of Land Management, and other Federal agencies.
The majority of the approximately 170,000 acres of public lands within the study area, more than 90,000 acres in all, are public parklands. Those public agencies who own and manage these lands include the California Department of Parks and Recreation, the East Bay Regional Park District, the Santa Clara County Department of Parks and Recreation, the Livermore Area Recreation and Park District, and the park and recreation department of the cities of San Jose, Walnut Creek and Concord. These parks range in size from the more than 13,000 acre Henry W. Coe State Park in Santa Clara County to the 27 acre park area recently acquired by the East Bay Regional Park District in Claremont Canyon above the City of Berkeley. Most of them, however, fall within the 1000 to 2000 acre range. These parklands are large natural areas devoted to uses such as hiking, horseback riding, nature appreciation, swimming and picnicking. Those parks located close to urbanized areas are used in great numbers by joggers and bikers. These same parks contain some developed recreation areas, but the great majority remain undeveloped. The few parks which contain large water bodies receive a heavy amount of public use.

State Department of Parks and Recreation - Two large units of the state park system, Mt. Diablo in the north and Henry W. Coe to the south, are within the ridgeland study area. The former contains Mt. Diablo itself, a 3,849 foot peak which dominates the entire northern portion of the study area and whose slopes contain significant and diverse flora and fauna. Since its establishment
as a park in 1931, the state has continued to pick up additional lands expanding the park. Their long range interest is in the entire Marsh Creek drainage located on the eastern side of the park. Currently, the park encompasses about 11,000 acres. Two parcels totalling 530 acres are now in the process of being deeded over to the State as a condition to allowing residential development on lands located on the lower southern slopes outside of the park boundary. A 1750 acre parcel on the west side and a 600 acre parcel on the east are both funded acquisitions and will become part of the park in the near future.

A 250 acre parcel located along Mt. Diablo's northern boundary is being proposed for acquisition by the state in fiscal 1980/1981, following the approval of the State Legislature. By means of dedications, as a condition to allowing residential development, the state will be adding more than 1500 acres to the park all along its southern boundary. The dedications will take place on a piece-meal basis over the next ten years as the development is phased in. There will be additional dedications occurring on the west side of Mt. Diablo, again, taking place as a condition to the county allowing residential development to take place.

Henry W. Coe State Park in Santa Clara County, known originally as the Coe Ranch, was donated by its owners for public park use in 1953. A special appropriation from the State's General Fund has been set up for the purchase of two large parcels, together totalling about 18,000 acres, to add to Coe. Pending Public Works Board approval of this acquisition, the Department of Parks and
Recreation will have title to about 31,000 acres in all. Recently, discussions have taken place between the state and property owners regarding possible further expansion of Coe Park.

The other major park facility owned and operated by the Department of Parks and Recreation is the Carnegie Cycle Park in eastern Alameda and western San Joaquin counties. Most of this 1535 acre park facility is outside of the ridgeland study area.

In addition to these existing parks, the state has recently been involved in preliminary discussions regarding the possible expansion of parklands around Del Valle Reservoir. The reservoir and the adjacent lands, though state owned, are operated by the East Bay Regional Park District.

East Bay Regional Park District - The District operates more than two dozen large parks located throughout the ridgeland study area, together totalling nearly 44,000 acres. The older, more developed parks, were picked up in the 1930's from lands owned by the East Bay Municipal Utility District. These parks, such as Tilden, Sibley, Redwood and Chabot, are all located along the front foothills on the western edge of the study area. They receive a heavy amount of use, due largely to their accessibility. Parks in the study area acquired more recently by the District are located in remote areas to the east, often abutting public watershed lands. These parks are largely undeveloped. They are being operated as regional wilderness and preserves, which may account for their not receiving a heavy amount of use. A few have not yet
been open to the public and are currently being leased out by the District for grazing purposes.

**Santa Clara County Department of Parks and Recreation** - The county operates several units in the ridgeland, including the large Grant Ranch County Park, a 9,500 acre facility acquired recently and just now in the process of being developed. This development, however, will be kept to a minimum and the park will retain its open, natural character. Other units include Ed Levin County Park, Anderson and Coyote reservoirs and adjacent lands, and Sportsman Park. Recently, the county, working in concert with the East Bay Regional Park District, has acquired a large parcel adjacent to Ed Levin. Together, these two park areas total more than 1500 acres and, when combined with the District's acquisition in this part of Alameda County, form a total multi-jurisdictional park area of nearly 2200 acres. Santa Clara County presently operates six parks within the study area, extending over about 15,000 acres. Their ultimate, long-range acquisition goal is to link up the existing Ed Levin County Park with the Grant Ranch, eventually extending south all of the way to Henry W. Coe State Park. The accomplishment of this goal would create a continuous line of park lands along the front foothills of Santa Clara County's ridgeland from the northern part of San Jose south to Gilroy.

**Livermore Area Recreation and Park District** - The District operates Sycamore Grove Regional Park and Veterans Park, both within the ridgeland study area. The former, a 375 acre natural area, was acquired in 1973 with county revenue sharing monies. The 31 acre
Veterans Park was acquired in 1967 from the General Services Administration.

San Jose Department of Parks and Recreation - San Jose operates Alum Rock Park in the ridgelands, a 775 acre facility which remains largely undeveloped in an open, natural condition. The Department's overall interest, however, is directed toward urban areas and the great majority of their units are neighborhood parks. As a policy matter, they do not plan to acquire any more park lands in the study area, viewing this sort of purchase as a county responsibility.

Walnut Creek and Concord - In 1974, in response to a request from the City of Walnut Creek, Contra Costa County set up a special district for the purpose of preserving open space lands in the ridgelands area adjacent to the city. This district (R-8) takes in all of Walnut Creek plus that city's sphere of influence. By means of a six and one-half million dollar bond approved by the district voters, augmented by Federal Land and Water Conservation Fund assistance and state park bond monies, a total of 2,500 acres has been acquired on Lime and Shell ridges, both within the ridgelands study area. Under the terms of a joint powers agreement, the county turned over the management of these lands to Walnut Creek.

The nearby City of Concord has acquired more than 200 acres of open space on Lime Ridge next to the Walnut Creek holdings. The purchase of these lands in Concord was funded with local
bond monies augmented by state funds. As a condition to allowing residential development in certain areas, Concord expects to receive, through dedication, additional large areas of park and open space lands, some of which will be within the ridgelands.

A master plan is now being developed for the Lime Ridge-Shell Ridge area in coordination with the East Bay Regional Park District. As a part of this effort, a trails system will be developed to connect the Lime and Shell ridges with the nearby units of the East Bay Regional Park District and Mt. Diablo State Park.

Watershed Lands

More than three-quarters of the non-park public lands within the ridgelands are watershed, about 68,000 acres in all. These lands are among the most pristine in the ridgelands, managed for decades for the purposes of water storage, production and distribution.

East Bay Municipal Utility District (EBMUD) - The District was established in the early 1920's for the purpose of water production and distribution. Land acquisition was begun soon thereafter and the District, using bond monies to purchase the lands of a privately owned water company, ended up with about 40,000 acres of watershed in Alameda and the Contra Costa counties. The District judged, however, that much of this land was not needed for watershed purposes. Over the years, about 25,000 acres of these lands have been sold to the public agencies, private owners, individuals and companies. Most of the lands sold to public agencies went to the East Bay Regional Park District as a result
of the conclusions reached in a study of EBMUD's lands to determine which portions were suitable for park and recreation uses. The park lands which were identified in this study, between 7,000 and 10,000 acres, did not include any lands EBMUD felt were needed for watershed purposes. EBMUD has purchased additional lands for watershed purposes so that, despite the selling of lands, they presently own and operate over 27,000 acres of land and water within the ridgeland study area. The District has had a moratorium on the sale of any its lands ever since 1959.

Following several decades of keeping its reservoirs and watershed lands closed to the public for recreational use, the District, in 1966, opened up Lafayette Reservoir*, and Chabot Reservoir was opened up shortly thereafter. In early 1969, the District's Board of Directors, in a policy statement, called for the development of multiple use concepts for their watershed lands which would recognize their open space value. After more than a year's work, with considerable citizen input, a land use plan was adopted by the Board. Except for 80 acres, the more than 27,000 acres of watershed in Alameda and Contra Costa counties were placed by EBMUD in one of three open space categories: (1) Agricultural Preserve, (2) Educational Areas and (3) Recreational Areas. The first category, encompassing about 60 percent of the watershed, are those areas reserved for watershed, agricultural or wild-life uses. Public access is allowed in the preserve area by permit,

* In 1959, the state legislature passed a law which made it possible to open terminal reservoirs for recreation purposes, so long as these did not include any body contact activities.
except for the use of hiking and riding trails crossing these lands. The second category, taking in a little under ten percent of the watershed, is composed of those areas to be used for the study of the ecology or economy of natural or rural environments. In these areas, public access is restricted so as to preserve the areas' integrity. The third category is composed of a number of areas to be used specifically for outdoor recreation activities. Public access is unrestricted in these areas. This last category encompasses about one-third of the watershed lands. Presently, the ridgeland two reservoirs, Chabot and San Pablo and their adjacent lands, are open to the public for recreational uses such as boating, fishing, picnicking, hiking, biking and riding. Eventually, EBMUD plans to open the other two reservoirs, San Leandro and Briones.

The District patrols the watershed with rangers trained along the same lines as the state park rangers. The rangers deal with numerous trespass cases each year, however, the District, maintains that there have been no major management problems associated with public use of the watershed. Staff estimates that there is about $250,000/year net cash flow loss to the District that can be attributed to public use of the watershed. The permits, issued by the District for access to certain portions of the watershed, are valid for a one or three year period and the watershed is open seven days/week during daylight hours.

San Francisco Water Department - The Water Department's watershed lands begin about twelve miles south of EBMUD's lands. The nearly 38,000 acres of land and water surface are located within the
ridgelands of southern Alameda and northern Santa Clara counties. They are owned and operated by the Water Department as part of its Suburban Division. In addition to those lands owned in fee, the Department has riparian rights on approximately 7,000 acres in the study area. The Suburban Division formerly was operated as two separate systems, the Alameda and the Peninsula. The latter being the more than 23,000 acre watershed area located across San Francisco Bay in San Mateo County. Currently, Water Department overall operations are in two divisions, the Suburban and the City Distribution Division.

The Alameda system was originally purchased by San Francisco in 1928, following a voter approved bond to acquire these lands from a private water company. These lands were, in fact, the last portions of the system to be developed by San Francisco. The lands contain two major reservoirs, Calaveras and San Antonio. Calaveras is the largest water surface in the study area, with a total capacity of more than 96,000 acre feet.

The watershed lands are an unspoiled, scenic and natural area, and prime habitat for a large variety of wildlife. The Department, in managing its watershed, places priority on their preservation, as substantiated in their recently updated publication, *San Francisco Water and Power*, which states that "the Water Department will stop at nothing to maintain the integrity of their water regions."

Despite another statement in this publication that the Alameda County watershed lands have "become a place of refuge for lovers of open space," the basic management philosophy of the Department is
now and has been to keep these lands closed off to any public use, in marked contrast to EBMUD. Consequently, the lands are fenced and patrolled, and each year several thousand trespassers are cited by the Department. Most of these are visitors from nearby units of the East Bay Regional Park District.

Other Public Lands

The remaining public lands devoted to open space uses are located throughout the ridgelands. The Federal government has jurisdiction over more than 10,000 acres of open space lands in the ridgelands. At the northern end of the study area in Contra Costa County, approximately 2,500 acres of the Concord Naval Weapons Station are within the ridgelands. The Federal government (Nuclear Energy Regulatory Commission) has jurisdiction over a little more than 1,000 acres in eastern Alameda County which is part of a much larger parcel in western San Joaquin County. These lands are fenced, patrolled and public access is restricted. Just north of Pleasanton, the U.S. Army operates the Camp Parks Reserve Training Center, about 1,000 acres of which falls within the study area.

Finally, the Bureau of Land Management has jurisdiction over public domain lands in scattered parcels in eastern Santa Clara County. The bulk of these lands are located just to the north of Henry W. Coe State Park. Together, they encompass about 7,000 acres of steep, chaparral covered slopes. Portions are leased for livestock grazing; however, most of these lands have only open space being remnants of the once more extensive public domain lands in the area.
The State of California owns 3,500 acres of lands in the Mount Hamilton area east of San Jose. Except for the development around the Lick Observatory atop Mount Hamilton, these lands are undeveloped. These lands are fenced, and public access is restricted. In the eastern part of Concord in Contra Cost County, the state has acquired about 400 acres for the purpose of developing it as a state college campus. It is unlikely that the campus will be built due largely to declining college enrollments in the region. The area remains in open space, but the state will eventually be required to sell at fair market value.
SIGNIFICANCE OF RIDGELANDS RESOURCES

To a great extent, the natural, cultural and recreational values of the ridgelands have already been recognized. The large portions of the ridgelands now preserved and protected as parks attest not only to the recreational significance of the area, but also to the significance of the natural and cultural values found there. What now needs to be addressed is whether or not these values are significant enough, in terms of the need for resource protection and the potential for public use, to warrant the establishment of a unit of the National Park System in the ridgelands.

Criteria for Parklands

As mentioned, Section 602 of the National Parks and Recreation Act of 1978 (Public Law 93-625) calls for the Secretary of the Interior to study the ridgelands area to determine, among other things, whether or not it is feasible and desirable for a unit of the National Park System to be established.

The National Park Service has as its principal mandate the preservation of the outstanding natural and cultural resources of the nation. Consequently, the Park Service is concerned not only with managing those resource areas already within the national system, but through a feasibility study planning process is also looking to identify areas that may qualify as additions. In identifying these areas the Park Service is primarily looking for those which would serve to help in ultimately producing a system which adequately represents the significant natural and cultural
heritage of the nation; also, the Park Service is to determine whether or not these areas are in need of protection.

Additionally, areas which have outdoor recreation values may be added to the system. These recreation values play a particularly important role in the assessment of those areas which due to their location serve urban residents.

Natural or cultural areas being considered as additions to the National Park System are measured against criteria dealing with significance. Significance in this instance essentially means that areas being considered must contain examples of our national heritage (see Appendix B for listings of natural, cultural, and recreational criteria). To make this determination of significance, areas are examined for the presence of natural and/or historical themes identified in Part I (History) and Part II (Natural History) of the National Park System Plan. The purpose of these documents is not only to identify and evaluate the significance of the natural or cultural features of a particular area, but to determine if these features are adequately represented in the National Park System.

Part I divides the organization of American history into nine themes, which represent important trends and influences worthy of commemoration. These themes are, in turn, broken down into subthemes, the basic study units.
Part II divides the entire country into relatively homogeneous areas, called natural regions. These regions are based on observable physiographic, climatological, and biological features. Within each of these regions are found varying numbers of natural history themes, or categories of natural phenomena. Together, these themes encompass the significant natural phenomena of the nation. Regional themes vary in numbers and in significance throughout their natural range and may be found in more than a single region. Consequently, their relative significance may differ from one region to another.

Areas being considered as national recreation areas must be capable of meeting regional recreation deficiencies on a scale which, because of jurisdictional, financial, and recreation considerations, cannot be reasonably met by others. Also, areas being proposed as national recreation areas must contain significant natural and/or cultural resources.

Natural Resource Significance

The natural resource value of the ridgelands owes much to the area's particular geographic location, its climate and its proximity to the urban complex.

Vegetation - The vegetation of the ridgelands is diverse. There are a total of nine plant communities found there. Of particular interest is the intermingling of these communities; this has produced unique mixtures of grasses, woodlands and coastal scrub. There are specific locations in the ridgelands which have
particular significance. On the slopes of Mt. Diablo, there occurs a great diversity of individual plant species and an integration of plant communities; also, more than three dozen plant species reach their northern limits here. In other specific locations in the ridgeland, there are also particular plant species not found growing any further north. Several sites are significant in the biological diversity found within a small geographic area. In still other areas, significance lies in the pristine nature of the vegetation found there.

The Coulter pine and Sargent cypress, both endemic to California, are found in specific, isolated localities within the ridgeland. A stand of these cypress contains individual trees estimated to be 150 years old.

The California Department of Fish and Game has designated rare two plant species in the ridgeland. It is likely that other plant species found in the ridgeland, pending completion of research by Fish and Game, will be designated rare or possibly endangered.

Wildlife - The ridgeland, due primarily to size and the lack of development, provide suitable habitat for a variety of wildlife. Wildlife is found throughout the ridgeland, but its relative abundance or scarcity varies among different localities. Generally, the more remote parts of the study area provide the best habitat for larger game and non-game mammals. The two large state parks, Mount Diablo and Henry Coe, provide excellent habitat for larger wildlife. The California Department of Fish and Game believes the lands
administered by the San Francisco Water Department to be the best wildlife habitat in the study area. These lands contain a particularly rich variety of large mammals and raptors. This is due in large measure to the fact that they are managed exclusively as watershed and, in accordance with administrative policy, public use is not allowed.

Within the ridgelands, sightings have been made of the California condor, the southern bald eagle, and the peregrine falcon. These large birds have been listed by both the State and Federal governments as endangered species. The San Joaquin kit fox, sighted in the eastern fringes of the ridgelands, has been listed by the U.S. Fish and Wildlife Service as endangered. The California Department of Fish and Game has listed the kit fox as a rare species, along with the Alameda striped racer. Lastly, a species of fish, the thicktail chub, which appears on the State's list as endangered and which once was present in limited reaches of the ridgelands' watercourses may actually be extinct.

Geology - A number of geologically significant sites have been identified in the ridgelands. Eight of the ten sites identified are located on public lands and administered so as not to adversely impact the site's basic integrity. Two sites are located on private lands. Since they are located in the more remote part of the ridgelands, there is no immediate threat of damage or loss.
Cultural Resource Significance

As described in an earlier chapter of this report, the ridgeland contains numerous and diverse cultural resources. These resources consist of a large number of prehistoric sites and several historic sites.

Many of the prehistoric (Ohlone) sites are significant. One such site, Coyote Creek, located on the western ridge of the ridgeland, contains several examples of Ohlone culture and is listed on the National Register. Another area containing several sites which provide fine examples of Ohlone culture is the now dry San Pablo Reservoir bed. The sites are considered to be significant enough to have potential for inclusion on the Register. Other Ohlone areas have merely been identified and not yet evaluated. It is highly likely that still others exist, but remain undiscovered so their significance is unknown.

The prehistoric sites identified in the ridgeland have been judged to be largely of regional significance. The larger, more diverse sites may be of statewide significance. It is possible, of course, that some of the unevaluated or undiscovered sites may prove to be of greater significance, but, as yet, none of these are known to exist in the ridgeland. Most of those which have been identified and evaluated are on public lands and usually have been given some degree of protection by the administering agency. Many additional sites, some known, others unknown, exist on private lands. The degree of protection given these sites is up to the individual property owner and varies considerably.
The historic and architectural resources of the ridgelands are not as numerous as the pre-historic, but have been better documented. This is probably due to their greater visibility, since none are more than two hundred years old, rather than to being any more significant. Two sites of particular historical significance are the John Muir House and the Eugene O'Neill Home. The former, located on the edge of the ridgelands, is administered by the National Park Service as a national historic site. The latter, Tao House, is also a national historic site now being managed by the National Park Service. The Eugene O'Neill Foundation is operating programs on the site. Several additional sites in or adjacent to the study area have been listed on both the National Register and the California Inventory of Historic Places. Others may be added to the Federal and/or State listings. The historic resources have been judged to be largely of regional significance.

Recreational Resource Significance
The recreational significance of the ridgelands is well demonstrated by the size and number of public parks found there, altogether totalling more than 90,000 acres. In addition, there are more than 27,000 acres of public watershed lands open to certain types of public recreation use. These park and watershed lands are large natural areas devoted to such recreational uses as hiking, horseback riding, nature study, photography, picnicking and some overnight camping. Those park units nearest the urban fringe do contain some development and, due largely to their accessibility, receive a heavy amount of use. Most of the parks in the ridgelands,
however, remain undeveloped, particularly those located in the more remote parts. These areas also receive less use. This is due largely to the management policies of the administering agencies rather than to the lack of demand for this type of recreation opportunity. The ridgelands lend themselves to a particular type of outdoor recreation experience— one associated with the natural environment rather than with social interaction and recreational facilities. Consequently, some of these more remotely located park areas in the ridgelands may already be used to capacity.

The ability of the ridgelands to meet the basic recreation needs of many inner city residents is limited. This has been substantiated in the San Francisco, Oakland, San Jose Field Report for the National Urban Recreation Study conducted in 1977 by the Bureau of Outdoor Recreation (now the Heritage Conservation and Recreation Service) and the National Park Service. This study, based primarily on field work carried out in selected Bay Area neighborhoods and communities, contained a major conclusion with respect to urban recreation needs: "The primary urban recreation need, expressed as a common thread in neighborhoods..., is for the establishment of more parks within the community or neighborhood." This study also concluded that "large natural park areas located on the periphery of the San Francisco Bay Area need to be made more accessible to urban residents." The basic message given in this report was that inner city residents felt that park and recreation areas located within the city itself could best serve their needs, not the large natural landscapes located on the urban fringe. The
recreation value of the ridgelands then is of a particular and specific nature, closely associated with the natural, open space character of the area.

Through the excellent system of parks already developed in the ridgelands by local, regional and state park agencies much of the area's recreation value is now protected and preserved. There are additional areas with recreation potential which have been identified by the various park agencies. Most of these areas, if acquired, would be expansions to more fully protect existing park values or key acquisitions to connect existing parks.

With respect to the full realization of the recreation value of the ridgelands, it should be noted that there are extensive public lands with recreation potential. Noteworthy are the 38,000 acres of watershed lands managed by the San Francisco Water Department. These vast holdings, unlike the nearby watershed lands of the East Bay Municipal Utility District, are currently unavailable for public use. They are unspoiled and scenic, and suitable for certain kinds of dispersed outdoor recreation activities such as hiking and horseback riding.

In addition to the opening up of more of the public lands of the ridgelands for outdoor recreation, considerable additional opportunities could be provided through the establishment of trail corridors to link up existing park and publicly used watershed lands.
National Park Suitability

The suitability of the ridgelands as a unit of the National Park System ultimately rests on the significance of the resource values found there and whether or not these values are adequately protected.

In previous sections of this report the natural and cultural resources of the ridgelands were identified and assessed. With regard to these resources, there are specific localities in the ridgelands which exhibit particular significance. However, these natural and cultural resources are not representative of the outstanding resources of the nation, i.e., they are not of sufficient significance to warrant protection through the establishment of a unit of the National Park System. Moreover, the establishment of the Santa Monica Mountains National Recreation Area in 1978 brought into the National Park System an area with natural resource values similar to the ridgelands. The authorized boundary of the national recreation area, located to the west of Los Angeles, takes in approximately 150,000 acres, major portions of which are chaparral, grassland and coastal scrub. Finally, the majority of the resources of the ridgelands are located on public lands acquired and managed for the protection and preservation of their natural and cultural values. Consequently, the significance of these resources has been recognized and they are receiving a degree of protection sufficient to ensure the maintenance of their integrity.
The recreation resources of the study area are also not of sufficient significance to warrant creation of a national recreation area. The primary recreation resources of the study area, its large, natural landscapes, while of considerable significance to residents of the East Bay area, are not significant enough to attract national visitation. Nor do these areas offer the potential for meeting major identified recreation needs of many inner-city residents. These needs can better be met by providing neighborhood and community parks within urban areas. Moreover, to a considerable degree, the recreation potential of the ridgeland has been recognized and is being realized. The existing institutional framework should have the capability, given resolution of the current finance program, to respond as future recreation demands arise.

The conclusion that creation in the ridgeland of a unit of the National Park System is unwarranted should not be taken to mean that there are no significant values in the ridgeland in need of protection, however. The nature of these values, and some options for addressing them, are the subject of the next section of this report.
THE FUTURE OF THE RIDGELANDS

The unique character of the San Francisco Bay region is in large part a product of the interface of its considerable remaining open space with the concentrated urban development along the bay plain and in the interior valleys. Preservation of the open space character of the Bay Area is an objective with well-established regional consensus. Substantial contributions to the open space preservation effort have already been made by all levels of government. At the local level, park and open space districts have been formed to acquire key areas; agricultural preserves have been established enabling landowners to place large amounts of open space under Williamson Act contracts in return for lower property tax assessments. At the state level, the Bay Conservation and Development Commission, empowered to control use of the San Francisco Bay shoreline through permit issuance, has been successful in retaining San Francisco Bay as open space by stopping bay fill. At the Federal level, the creation of the Point Reyes National Seashore and the Golden Gate National Recreation Area serve to preserve in perpetuity considerable amounts of open space on the north and western coastal portions of the Bay Area.

The ridgelands of the East Bay form an equally significant open space feature of the region, as do the above areas. The expanse of the ridgelands not only provide a natural and scenic backdrop for East Bay residents, but are a vital, large-scale link, the entire eastern flank, in the continuous ring of open space around the cities of the San Francisco Bay Area.
There are presently threats to the open space integrity of the ridgelands. Most of these threats are in the form of residential development proposed for certain parts of the ridgelands, most of it on a large scale. The long term effect of these proposals on the open space of the ridgelands will be to slowly erode it away. In the short run, however, the current commitment of local regulatory agencies to amenity preservation, the highly confused public finance situation which can be expected to retard local infrastructure development, and the availability of alternative areas for residential development will tend to limit the encroachment of residential development into the ridgelands. Moreover, in the short run, grazing should continue to be a viable land use throughout much of the area, providing an alternative to conversion to more intensive land uses. The considerable extent of the ridgelands included in ten-year Williamson Act contracts further provides a near term means for open space preservation for much of the area.

In the long term, preservation of the open space values of the ridgelands is by no means certain. Demands for additional development of residential areas in the ridgelands, coupled with forces tending to increasingly reduce the feasibility of grazing uses in many ridgelands areas, can be expected to nibble away at the open space values in an undramatic but unceasing manner. Moreover, the recent willingness of local government to allow cancellation of certain Williamson Act contracts sets an alarming precedent; it also further lessens the viability of grazing in
adjoining areas. Finally, the current outlook for public acquisition of key open space and recreation resources as needs and opportunities arise is rather bleak, particularly at the local level. In order to maintain, in the long term, the open space character of the ridgelands, a more coordinated and more effective program is needed.

**Action Programs**

Protection of the important open space values of the ridgelands area can, of course, be provided by a variety of mechanisms and implemented through the efforts of public agencies at all levels of government. As noted earlier in this report, there have been considerable efforts made by both government and private interests to preserve the open space of the ridgelands. Moreover, these efforts have been relatively successful. However, a key and essential ingredient, with some few exceptions, seems to be missing. This would be a recognition by the various land use decision-makers that the ridgelands constitute a single resource of regional significance rather than a collection of merely locally significant resources. Given this initial recognition, a number of different approaches can be brought to bear on the open space preservation objective. The action options discussed below all take this "regional consciousness" as the first step in any ridgelands preservation program.

The following three options can be viewed as distinct and independently implementable; however, they are interrelated and
could be implemented in combination, eventually leading to maximum use of open space protection measures in the ridgelands.

Option one is tailored to deal with the present situation and the limited near term threats to the ridgelands. It involves only local government. It is felt that a full and effective implementation of this option would be sufficient to deal with threats to the ridgelands as they now exist. That is, options two and three appear to be unnecessary at this time.

If option one were not implemented, or, if it proved to be ineffective in dealing with present threats, implementation of the other options would be warranted, leading to involvement by the State and/or Federal governments. There are, of course, advantages and disadvantages, strengths and weaknesses and trade-offs involved in each of the options. All of the options provide for the preservation of the open space values of the ridgelands. Their success in accomplishing this objective is wholly dependent upon the level of commitment made by local governments. At the same time, none would necessarily prevent orderly development and growth in non-critical or non-sensitive areas of the ridgelands. Lands in private ownership would largely remain so and the authorities of existing governmental entities would not be greatly affected. All of the options are discussed in greater detail below.

Multi-jurisdictional Cooperative Planning (Option 1) - While a regional "ridgelands consciousness" already exists to a limited degree, being reflected in a general way in the ABAG Regional
Plan and the county general plans, there is no existing mechanism whereby the interests of the "whole" can, on a continuing basis, be brought to bear on land use decisions relating to the constituent "parts." The lack of such a mechanism practically ensures that decisions will continue to be made on a primarily local basis, with the regional aspects left largely to chance. Consequently, present threats to the open space values of the ridgeland will continue unabated.

A coordinated approach to ridgeland's values protection would be greatly facilitated by the creation of a permanent organization with membership including representatives of all the local general and special purpose governments having jurisdiction within the ridgeland, State and Federal agency representatives, as appropriate, and the full range of private interests. Such an organization, established either as an advisory body or more formally as a government entity with designated powers, under the Joint Powers of Government Act, would have several essential functions:

- To define the regional interest in the ridgeland. The area designated for this study is large and may include areas which might be considered to be of more local than regional significance. Definition of the regional interest would permit the participating parties to focus their common attention on key areas whose open space nature is essential to maintenance of the regional character of the ridgeland. At the same time, it would prevent dissipation of
effort by intruding in other areas and issues which should be largely decided at the local level.

- Development of a comprehensive and coordinated land use management plan whose principal goal is open space preservation. The plan would outline the approach to be taken in the protection of the various areas considered to be of regional significance. It would provide for greater consistency, and hence greater equity and effectiveness, in the administration of land use regulations which now differ considerably among the several general purpose governments with jurisdiction in the ridgelands. To the extent that acquisition funds are available from various local, state, and Federal sources, the plan would establish a system of priorities to help guide acquisitions toward those areas with high open space and/or recreation values and where there appear to be near term threats. This kind of approach would serve to prevent acquisition in areas where there is no threat or where resource or recreation values are marginal.

- Provide a continuing public forum for regional review of ridgelands land use issues. The existence of a permanent ridgelands organization would guarantee that the regional perspective would be applied, even if only on a non-binding and advisory basis, before action is taken on any major land use issue. Moreover, the organization would provide
a mechanism for periodically assessing the status of the ridgeland preservation effort and determining what, if any, additional steps might need to be taken to firm up the effort.

State Commission (Option 2) - The local cooperative action discussed above is basically a voluntary association which is designed to accomplish its objectives through persuasion, mutual reinforcement and public exposure. The effectiveness of such an organization is difficult to predict.

A stronger and probably more effective approach to ridgeland preservation would involve the creation by the California Legislature of a ridgeland agency with the power to develop a plan for ridgeland preservation and to implement such a plan through use of a permit system or other mechanisms capable of overriding local land use regulations. A prototype for such an agency is the San Francisco Bay Conservation and Development Commission (BCDC), created several years ago to plan for and regulate land use around the San Francisco Bay shoreline. The creation of BCDC was in direct response to the need for application of regional and state perspectives to San Francisco Bay land use issues, and a recognition by the public that the continued application of purely local interests on a piecemeal basis was leading to the degradation of a resource essential to the character and well-being of the entire region.
"Greenline" Approach (Option 3) - The "greenline" approach is exemplified by the recent legislation establishing the Pinelands National Reserve in New Jersey. Conceptually, the approach provides for the creation of a comprehensive land use management plan for the target area by a planning entity representative of local government and key private interests. State and Federal government agencies may be a part of the plan preparation effort. Upon completion, the plan would be submitted to the Federal government for approval. The "greenline" approach calls for the implementation of the management plan through the coordinated activities of local, State, and Federal governments. A major portion of the preservation effort is accomplished through the land use regulation activities of local government. The Federal government's primary role, contingent upon plan approval, is the provision of grant funds for acquisition of lands judged to be essential to the preservation effort, but which either cannot be equitably preserved for open space values through regulation or which are required for public use. The Federal role additionally includes conforming its other activities in the target area to the overall management plan.

The Federal Role In the Ridgelands

As indicated in the previous chapter, the natural, cultural, and recreational resources of the ridgelands are not of the sort and magnitude generally protected by establishment of a unit of the National Park System. Moreover, the multiplicity of agencies in the ridgelands with park and open space implementation capabilities
makes another agency presence largely redundant. To the extent that there is a Federal interest in ridgelands area preservation, this interest could best be pursued in the areas of technical and financial assistance in partnership with the state and local agencies already having jurisdiction in the ridgelands area. This, of course, is what the "greenline" approach calls for.

However, for two important reasons it is recommended that "greenlining" not be undertaken in the ridgelands at this time. First, the threats to the overall integrity of the ridgelands are long term rather than immediate. While there is a continuing piece-meal erosion of the open space values in the ridgelands, there is no impending catastrophe to justify the mobilization of large amounts of new Federal funds. Second, it is not clear that the existing financial resources and regulatory powers are being used to best effect in preservation of the ridgelands resources and regulatory powers are being used to best effect the preservation of the ridgelands resource. With the establishment of a ridgelands organization as discussed under Options 1 and 2, there would be created an opportunity to more fully investigate means of accomplishing preservation goals through the better use of existing resources and authority. Such an organization would also have the capability of periodically reviewing the ridgelands situation, and, if necessary, developing a credible case and the necessary foundation for eventual Federal involvement.
The term "open space" has been defined by the State of California (Government Code Section 65560) as land or water that is essentially unimproved and devoted to an open space use. Open space uses which the State wanted included in the open space plan elements of local government are as follows:

(1) Open space for the preservation of natural resources, including, but not limited to, areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for the ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands.

(2) Open space used for the managed production of resources, including, but not limited to, forest lands, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; areas required for recharge of ground water basins; bays, estuaries, marshes, rivers and streams which are important for the management of commercial fisheries; and areas containing major mineral deposits, including those in short supply.

(3) Open space for outdoor recreation, including, but not limited to, areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreation
purposes, including access to lakeshores, beaches, and rivers and streams; and areas which serve as links between major recreation and open space reservations, including utility easements, banks of rivers and streams, trails and scenic highway corridors.

(4) 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 fault zones, unstable soil areas, flood plains, watersheds, areas presenting high fire risks, areas required for the protection of water quality and water reservoirs and areas required for the protection and enhancement of air quality.
APPENDIX B

Criteria for determining national significance of cultural and natural resources and national recreation areas.

A. Cultural Resources:

National significance is ascribed to structures, sites, objects, and districts that possess exceptional value or quality in illustrating or interpreting the cultural heritage of our Nation.

1. The following guidelines are used:

   a. Properties at which events occurred that have significantly contributed to, are identified prominently with, or outstandingly represent, the broad cultural, political, economic, military, or social history of the Nation, and from which an understanding and appreciation of the larger patterns of our American heritage may be gained.

   b. Properties associated importantly with the lives of persons nationally significant in the history of the United States.

   c. Properties associated significantly with an important event that outstandingly represents some great idea or ideal of the American people.
d. Structures that embody the distinguishing characteristics of an architectural type specimen, exceptionally valuable for a study of a period, style, or method of construction; or a notable structure representing the work of a master builder, designer, architect, or engineer.

e. Objects that figured prominently in one of the above.

f. Archeological sites that have produced information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation over large areas of the United States.

g. Historic districts composed of structures not sufficiently significant individually by reason of historical association or architectural merit to warrant recognition.

B. Natural Resources:

Nationally significant resources are those which have exceptional values or qualities illustrating the geological and ecological themes of the country. An integral part of national significance is the area's integrity—it should be a true, accurate, essentially unspoiled example of natural history.

1. The following guidelines are used:
a. The area is an outstanding example of geologic landform or biotic area that is still common or of broad distribution.

b. The area contains a rare extant remnant geologic landform or biotic area of a type that is now vanishing due to human desoilment, although once widespread.

c. The area contains an extant geologic landform or biotic area that was extremely unique in the region or Nation during presettlement times.

d. The area contains a site possessing exceptionally high ecological or geological diversity, e.g., species, biotic communities, habitats, landforms, observable geological processes.

e. The area contains a site containing biotic species or communities whose natural distribution at that location makes them of unusual biogeographic significance.

f. The area contains a site harboring a concentrated population of rare plant or animal species, particularly those officially recognized as threatened or endangered.

g. The area is a critical refuge necessary for the continued survival of either common or uncommon wildlife species.
h. The area contains a site containing rare or unusually abundant fossil deposits.

i. The area is an outstandingly scenic area.

j. The area contains a site that can be described as an invaluable ecological or geological benchmark due to an extensive and long-term record of research.

C. National Recreation Areas:

The following criteria are established for the evaluation and selection of areas proposed for Congressional designation as National Recreation Areas in the National Park System. The following criteria are to be applied to all proposals.

1. Containing outstanding natural and/or cultural features and providing significant recreation opportunities.

2. National recreation areas should provide recreation opportunities significant enough to assure national, as well as regional visitation.

3. The scale of investment, development, and operational responsibility should be sufficiently high to require either direct Federal involvement or substantial Federal participation to assure optimum public benefit.
As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, and parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.