

CITY OF COSTA MESA

FAIRVIEW PARK MASTER PLAN

March 1998



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CITY OF COSTA MESA

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GENERAL GOALS STATEMENT FOR FAIRVIEW PARK

The following brief statement describes the Fairview Park Citizens Advisory Committee general plan for Fairview Park. It can and should be read by any individual or group prior to their presentation of any proposal for activities or facilities within Fairview Park.

The Master Plan for Fairview Park is the outcome of the Committee's conceptual theme best described with the general term "passive use". This will include trails for pedestrians, runners and bicyclists. Areas will be developed with appropriate vegetation and physical conditions to create and enhance varied native habitats such as grassland, woodlands, riparian, alluvial scrub, sand dunes, coastal sage and vernal pools. Preservation of the archaeological sites will also be a top priority. Included in this concept, in addition to trails and restoration of native habitats, will be some turfed areas for picnicking, resting, children's play, and individual and small group non-organized sports activities. Special activities and facilities with appropriate educational and recreational value, such as a small museum complex, will be considered as compatible with other uses and space allocations.

No commercial ventures are encouraged within the park, and any fund raising activities within the park by any organization should require approval by the City Council.

Group activities such as track meets, kite flying, model airplanes, team games, or educational programs are to be confined to the designated trails or turfed areas. This is in keeping with a major concern of the Committee which is the enhancement and protection of the native flora and fauna within the park. To this end, non-obtrusive signs and fencing will be used as well as the enforced leash laws.

*The Fairview Park Citizens Advisory Committee
August 20, 1997*

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Existing Site Drainage and Hydrology

Prepared by: Robert Bein, William Frost & Associates

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Modifications to Recommendations Contained in the CA-ORA-58 Test Level Site Assessment Document (Koerper 1993)

Prepared by: Henry C. Koerper, Ph.D.

APPENDIX C

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Prepared by: Robert A. Hamilton, Consulting Biologist

Environmental Sensitivity of and Description of Vernal Pools and Associated Resources September 1997

Prepared by: Tony Bomkamp, Biologist

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Consultant Team for this Master Plan

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1. EXECUTIVE SUMMARY

INTRODUCTION

"The site could be planned as the City's premier park, to include a wide diversity of recreational opportunities encompassing natural passive park land. The Master Plan for this site must address the distinctive character of the location and its adjacencies providing a park with unique city-wide significance. The Santa Ana River, Talbert Nature Preserve, and the bordering school properties all should influence the park design and layout. In addition, the park contains important cultural and natural features which should be planned for future protection."

*City of Costa Mesa Parks, Recreation and Open Space Master Plan
January 1996*

This statement from the recently completed planning document well states the challenge for Fairview Park. The consultant team has operated on the premise that the text should have the insertion of "shall" in place of "could" as the third word: for the community is aware of the high potential for this rare open space. Through this Master Plan the citizens of Costa Mesa and their elected officials determine the course of planning for this land which will affect the lives of many generations of residents. The consultant team has endeavored to create a Master Plan which insures that the needs of the community are met, and that the great potential for the site is realized.

The site is unusual not only for its impressive bluff top location and interesting rolling hills, but for the story that it can tell of: Native American civilizations, wildlife and its habitat, unusual and subtle natural features, and our aspirations as urban dwellers to provide spaces for previously dominant living systems to continue to function. The promise of restoration built upon the existing remnant wildlife habitat, opportunities for discovery, interpretation, recreation and enjoyment for people is a challenging and exciting prospect.

Fairview Park will be the link which ties many existing and future resources of the City together. The Costa Mesa River - Bay Trail will connect through the park to the Talbert Nature Preserve immediately. When all portions of the Local Coastal Program are complete a continuous recreational trail will lead through park lands. Saltwater marshes at the mouth of the Santa Ana River, South Talbert Park with Victoria Pond, Talbert Nature Preserve, Costa Mesa Vista and Canyon Parks will be linked at Fairview Park to the arteries of the Costa Mesa bikeway system.

The Park consists of 208 acres of open space currently used for walking, biking, jogging, flying model airplanes, model railroading, and picnicking. Approximately 13 acres of the site have been improved as passive park space with lawn, trees and parking. The remainder of the site is vacant. Work on this Master Plan was begun in July of 1996.

1.1 GOALS AND OBJECTIVES OF THE MASTER PLAN

The goals and objectives for preparing the Master Plan of work have been:

1. To determine the proposed uses and program requirements for the park through meetings with the Fairview Park Citizens Advisory Committee, the general public and the City Council.
2. To provide a framework for future park improvements which can be constructed in an orderly and consistent manner.
3. To provide written information and graphic presentations which document the materials gathered, and to illustrate the policies to be implemented.

1.2 THE MASTER PLAN PROCESS

The consultant team is made up of Katzmaier Newell Kehr, Architects, Landscape Architects and Planners as lead consultant; Ann Christoph, Landscape Architect; Robert Bein, William Frost & Associates, Professional Engineers, Planners, and Surveyors; Robert Hamilton, Biologist; Michael Brandman Associates, Biologists, Tony Bomkamp, Botanist, concerning the vernal pools; and Henry Koerper, Ph.D., Archaeological Consultant. Henry Koerper was the author of the previous archaeological report, and replaced the Keith Companies as archaeological consultant at the suggestion of the Keith Companies.

General direction to the consultant team has been given by the general public in open meetings, the City of Costa Mesa Community Services Department, the Fairview Park Citizens Advisory Committee, and the City Council.

A new topographic survey of the site was created with contour lines at two foot vertical grade intervals. This new survey has been used as the base map for the Master Plan. Previous studies of archaeological resources, biologic resources and existing elements such as streets and the small scale railroad were plotted on the base map.

An analysis of existing opportunities and constraints was made by the consultants, and the findings were presented to the Fairview Park Citizens Advisory Committee. The Committee expressed the requirements for the park to the consultants in a meeting on October 30, 1996. Very strong emphasis was placed on native plant community/habitat restoration without the inclusion of active sports field facilities.

Field studies included observations of current conditions and use patterns, and interviews with Orange County Model Engineers, operators of the narrow gauge railroad at the park; and the Harbor Soaring Society, whose members operate model gliders on the site.

Three alternate schemes were developed by the consultants and presented to the Committee at a public meeting on November 13, 1996. Based upon the comments of the Committee and the public, changes were made and the revised composite scheme was presented at a working session of the City Council on December 9, 1996.

The three alternative schemes and the composite scheme were presented in a public workshop at the Council Chamber on Saturday June 28, 1997. Comments on the proposed land uses and the details of the physical scheme were accepted.

A progress report was made at a meeting of the City Council on August 4, 1997. Following this report the preparation of environmental documentation for the plan was initiated concurrent with the preparation of the draft of the Master Plan.

On December 15, 1997 the City Council adopted Mitigated Negative Declaration with revisions, and adopted Resolution 97-102 approving PA-97-43, the Fairview Park Master Plan. At the same meeting the Council adopted Resolution 97-103, approving GP-97-03A, amending the General Plan of the City of Costa Mesa incorporating the Master Plan references into the Parks, Recreation and Open Space Master Plan element.

1.3 THE MASTER PLAN

The master plan presents a park for passive uses. Facilities are provided for individual and small group activities focused upon walking, biking, picnicking, quiet contemplation, interpretation of the archaeological and biological resources, and the hobbies of kite flying, model glider airplane flying and riding the model railroad.

The passive uses included in the plan were driven by the need to protect the unique archaeological and biological resources, the City's new focus of attention on other park lands for use in active team sports, and the community's expressed desire for a passive park. The concept of a park with a natural setting and a very low level of "improvements" in terms of buildings or other construction appears to have widespread community support.

The portion of the site west of Placentia Avenue will include expanded lawn and tree areas to provide a group picnic area north of the existing park entrance. Much of the remaining area is planned to be restored native habitat including grassland, coastal bluff scrub, coastal strand, vernal pools, alluvial scrub, and a riparian zone along the existing Placentia Drain. The restoration of habitat will not only improve conditions for the birds and small mammals which have occupied the site in the past, but will provide rich opportunities for passive human use. These natural areas are to be reached by defined pedestrian and bike trails which will provide recreation, interpretive opportunities and rest areas for enjoyment of the setting and the expansive views. The existing trail connection to Talbert Nature Preserve is retained and enhanced. New parking is to be provided in the northwest lowland area which will serve both Talbert and Fairview Park. The natural areas of Fairview Park are planned to join those of Talbert in order to eliminate a visible property line.

Habitat restoration areas are recommended to be incorporated into the Natural Communities Conservation Plan and Habitat Conservation Plan (NCCP/HCP) which may be advantageous to the City in the implementation of this plan.

Park land east of Placentia Avenue is planned to receive more trails and natural areas as a botanic garden with a plant palette expanded to present plant communities from other parts of California in addition to the local natives featured on the west side of the park.

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The model train is retained with the potential to bridge Placentia Avenue and extend as far as the interpretive area and group picnic areas. A small pond and picnic area are planned for the central portion of this planning unit, within the train rail area. A lawn and tree area in the vicinity of the pond, picnic area and train station may be used to accommodate small nonamplified musical presentations. A site area of approximately $\frac{3}{4}$ acre is available for potential historical or natural history museum/interpretive center buildings.

3 $\frac{3}{4}$ acres in the central train area bordered by the train tracks, trestle, and the Fairview Channel is to be used as a dog park. Enclosed by a 6 foot chain link fence, this area provides an area where dogs may be run off-leash. The area is reached by a narrow path at the eastern boundary of the park. Parking for 20 cars is provided just south of the train yard. Planting in this area is primarily lawn with trees and shrubs near the fence line. A double gate is to be provided for mowing equipment.

With construction costs estimated to be approximately nine million dollars, the need for a long term construction effort is anticipated, and a plan for phasing construction is provided. The natural restoration areas are seen as excellent candidates for grant funds which may assist in the construction. As sections of the master plan are being completed, future phased areas of the park may be utilized as they are today for many passive uses.

The resulting 208 acre Fairview Park will represent a unique facility rich in recreational and interpretive opportunity. The urban setting places these assets close at hand for the use of the Costa Mesa community. The linkage to the 90 acre Talbert Nature Preserve and the Santa Ana River system of trails and parks leverages the beneficial effects to the community and the natural environment by expanding the limits of the park property. The long term possibility is for Fairview Park to be the gem of the many fine parks developed by the City for the benefit of its citizens.

See Section 6 for a detailed description of the elements of the Master Plan.

2. EXISTING PLANNING CONDITIONS

2.1 THE SITE AND ADJACENT USES

The Fairview Park site is split into two distinct sections by Placentia Avenue. 155 acres lie to the west of Placentia, and 53 acres to the east.

WEST OF PLACENTIA

The entire western border of the western section is joined by the ninety acre County of Orange Talbert Nature Preserve which is restored natural habitat with public access trails. The presence of Talbert is a strong influence upon the planning of Fairview Park. An opportunity exists to build upon the existing natural habitat at Talbert. Talbert Nature Preserve has no parking facilities and is currently entered by trails only. A major access trail to Talbert exists through Fairview Park along the northwestern bluffs. The County of Orange has expressed interest in a joint parking facility located off of Placentia Avenue in the lowlands area with a new trail into Talbert.

The bluffs to Swan Drive

The northwest portion of the site, 45 acres, joins Talbert to the west, private residences of Swan Drive to the north, Placentia Avenue to the east, and the park bluff to the south. This section of the site contains important plant species and soil conditions comprising alluvial scrub habitat. The northern boundary area contains the Fairview Channel which is a major storm drain structure which serves a broad area outside of the park boundary and connects to the Greenville-Banning Channel to the west of Talbert Nature Preserve. The Fairview Channel lies approximately fifty feet from the rear yards of adjoining residential properties on Swan Drive. The Swan Drive residents strongly oppose the introduction of active public use in close proximity to their rear yards. The Placentia Drain, an earthen drainage channel created during agricultural use of the site, cuts diagonally through this area from northeast to southwest. Flows from this portion of the drain generally flow south along the border with Talbert Nature Preserve.

The bluffs area, south to Pacific Avenue

Approximately 110 acres lie west of Placentia and are defined by bluffs dropping down into Talbert Nature Preserve to the west, into the Fairview Park lowlands to the north, and to the south the residential community of Pacific Avenue and Canyon Drive. A parking area for 26 cars exists for park use at the north end of Canyon Drive. Marion Parsons Elementary School and Estancia High School form the remainder of the south border of the western area. Marion Parsons School is scheduled to again become active as an elementary school after some recent years of alternative uses.

The undeveloped portions of the site are currently covered in non-native grasses with some scattered remnants of native plant communities, crossed by freely roaming trails. The northwest bluff region contains the registered archaeological site CA-ORA-58 which is a well documented and defined area to be protected and preserved. Fill soils containing construction and paving debris were placed over portions of the ORA-58 site as a



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AERIAL PHOTOGRAPH 8-12-96

protection measure. The fill was moved for study of the archaeological site limits in east to west strips in the 1993 investigation, resulting in uneven and unnatural topography. Portions of another archaeological site, CA-ORA-506, lie beneath the existing developed park and the area east of Placentia Avenue. This site has been the subject of far less research than ORA-58. Studies conducted in 1994 identified certain seasonally wet areas of the western area of the park as vernal pools. This identification was an important ecological discovery. Vernal pools were once widespread, but many have given way to development before their importance was fully understood; and very few remain in Orange County. The pools are a protected ecosystem and closely regulated. These resources will be restored and protected as described in Section 3 of this document.

Existing Developed Fairview Park

This section of the site contains the developed Fairview Park which consists of approximately 13 acres of lawn and trees with trails, portable restroom facilities and parking for 106 cars. These existing facilities are to be retained and expanded upon.

EAST OF PLACENTIA

The entire eastern border of the park is bounded by Costa Mesa Golf Course, which is separated from the park by a fence. The eastern part of the park is cut into two sections by the Fairview Channel. The north and south sections created by the channel are joined by a foot bridge which is not presently connected to any trail system in the park.

North of the Fairview Channel

The site slopes steeply up from Placentia Avenue and the Fairview Channel to join single family residential areas at Canary Drive. At the Canary Drive termination at the park boundary there is a grade separation of approximately 15 feet; the park being higher. The slope varies along its face, but averages approximately 1:1, or a 45 degree slope. This slope is currently used for park entry under hazardous conditions. Additional studies are required to find an entry solution acceptable to the City and the neighborhood. No parking facilities for park use exist in this area and the community opposes the creation of functions which may attract vehicles or excessive traffic in the local streets.

South of the Fairview Channel - The railroad area

The southern portion of the east side of the park site contains approximately 45 acres and is currently utilized by the Costa Mesa Model Engineers railroad. Installed as a volunteer project over a ten year period, this extensive narrow gauge rail system is open to the general public at no charge one weekend each month. Other weekends are used for system maintenance and entertainment of private parties on a reservation basis. The railroad has become a popular feature, often attracting over 5,000 visitors on a weekend. Current parking is on unimproved soil and gravel.

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3.2 GEOLOGY AND SOILS²

Topographically the site is differentiated by a bluff 60 to 70 feet high creating an upper mesa and a lower flood plain. The Newport Mesa is comprised of deposits of clays, silty clays, silts, sands, and fine to coarse gravels of the Upper Pleistocene Lakewood formation. These deposits are of continental to very shallow marine origin. The Lakewood formation is underlain by the slightly upturned and truncated Lower Pleistocene San Pedro formation. The Lakewood formation is approximately 70 to 100 feet thick in the area of Fairview Park.

The mesa portion of the park site is underlain by a layer of heavy clay which provides the hardpan responsible for the creation of the vernal pools on the southern third of the mesa.

The lower portions of the site generally consist of 8 feet of sand and silty sand fill overlaying alternating beds of soft to medium-stiff silt/clay and loose to dense sand and silty sand. Ground water has been found at depths of 10 and 11 feet.

Care must be taken in the design of structures or bridges due to the potential for liquefaction during a strong earthquake. New soils testing must precede any structural work.

3.3 EXISTING SITE DRAINAGE AND HYDROLOGY

A study of the site hydrology and drainage patterns was conducted and is presented in Appendix A. No significant contributory drainage flows onto Fairview Park from outside its boundaries. The major portion of rainfall runoff from the site is collected in the Placentia Drain, a ditch created during past agricultural uses of the site. This drain cuts diagonally across the sandy soils of the northwest lowlands and runs south along the lower face of the bluffs to enter Talbert Nature Preserve. The drain is filled in places and currently has no clear flow line through its full length.

The southern half of the mesa contains vernal pools which collect rainfall and runoff from 29 acres of contained drainage area. These important resources are described in detail in Appendix C.

Erosion of the bluffs is attributed to the poor condition of the vegetation and random pedestrian and skate board traffic. Two areas, one at the north and at the south end of the bluffs, are generating small canyons as erosion removes the bluff soil.

At the southern site border near Canyon Drive rain water collects on park property and extends into the adjoining residential property at times of heavy rain. This border flooding condition is south of the sensitive vernal marsh area.

² Van Dell and Associates, Inc. Geotechnical Investigation, Proposed Park Improvements, Costa Mesa Park, Costa Mesa California, September 3, 1987.

SANTA ANA RIVER MOUTH OPEN SPACE STUDY

ILLUSTRATIVE PLAN

County of Orange EMA
Harbors, Beaches & Parks Division
July 20, 1990



The County of Orange produced a coordinated plan in 1990 for a linked "stair step of parks" progressing from the coast up the Santa Ana River to Fairview Park. This Santa Ana River Mouth Open Space Study encompasses salt marsh restoration, wetlands, woodlands and grassland for the open space along the southern side of the river. The elements of this plan involve the City of Newport Beach, the City of Costa Mesa (at Canyon Park and Fairview Park), the County of Orange and the Corps of Engineers. Restoration of the County's Talbert Nature preserve was an important link in this park system. Fairview Park is a significant piece of the plan due to unique ecological resources, its size and adjacency to Talbert Nature Preserve and the Santa Ana River. The completion of Fairview Park as anticipated by this master plan is consistent with the intent of the Santa Ana River Mouth Open Space Study.

2.5 TRANSPORTATION ARTERIALS

Fairview Park is served by only one arterial street, Placentia Avenue, which bisects the park. A park entrance from Placentia Avenue exists to the western section of the park. This intersection serving the western park entry is currently planned to be controlled by a traffic signal. The eastern section of the park (the train parking area) is entered by a signal controlled intersection at the southern tip of the site at the entrance to Estancia High School. Both signal controlled intersections are to be retained and developed for access to Fairview Park.

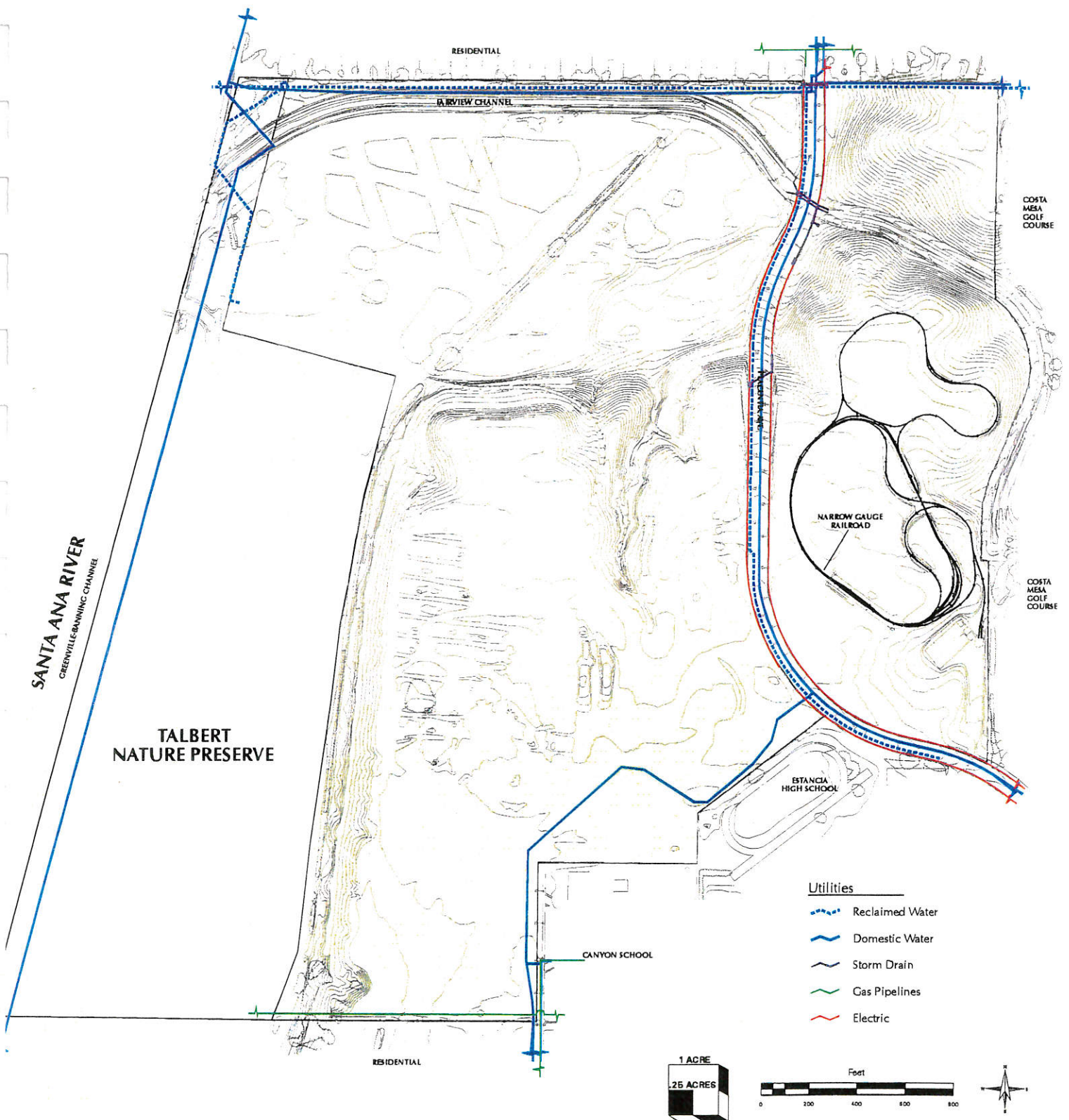
2.6 UTILITIES AND EASEMENTS

Public utility easements are limited to the north and south boundaries of the park. Domestic and reclaimed water lines lie along the extreme north property line. These lines are a barrier to creating a simple ramped connection from the park to Canary Drive. A regional gas main crosses in the east-west direction at the southern property line in the area of Parsons School. The gas main continues down the bluff into Talbert Nature Preserve and constitutes no obstruction to park planning.

A potable water line is in place for service to the park extending from Canyon Drive to Placentia Avenue. New potable water services are possible from mains located in Placentia Avenue.

Sewer mains exist off the site in Pacific Avenue and Canyon Drive. A study by the City Engineer determined that these lines are the only potential gravity flow source of sewer service to the park site. A preliminary plan indicates the potential to extend a gravity flow main from Pacific, across the western site, extending across Placentia to serve the train station site. This long gravity sewer appears to be more cost effective than a forced sewer main to the Estancia High School area.

Electrical service is available in Placentia Avenue.



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UTILITY LOCATION MAP

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3. EXISTING SITE CONDITIONS

3.1 SITE HISTORY

Human occupation and use of the Fairview Park site is known to have begun by 1500 B.C. The site is unique in the richness of its cultural deposits and the documented record of this use. The prehistoric period and the preservation of the two archaeological sites are addressed in the section entitled Archaeology in this document.

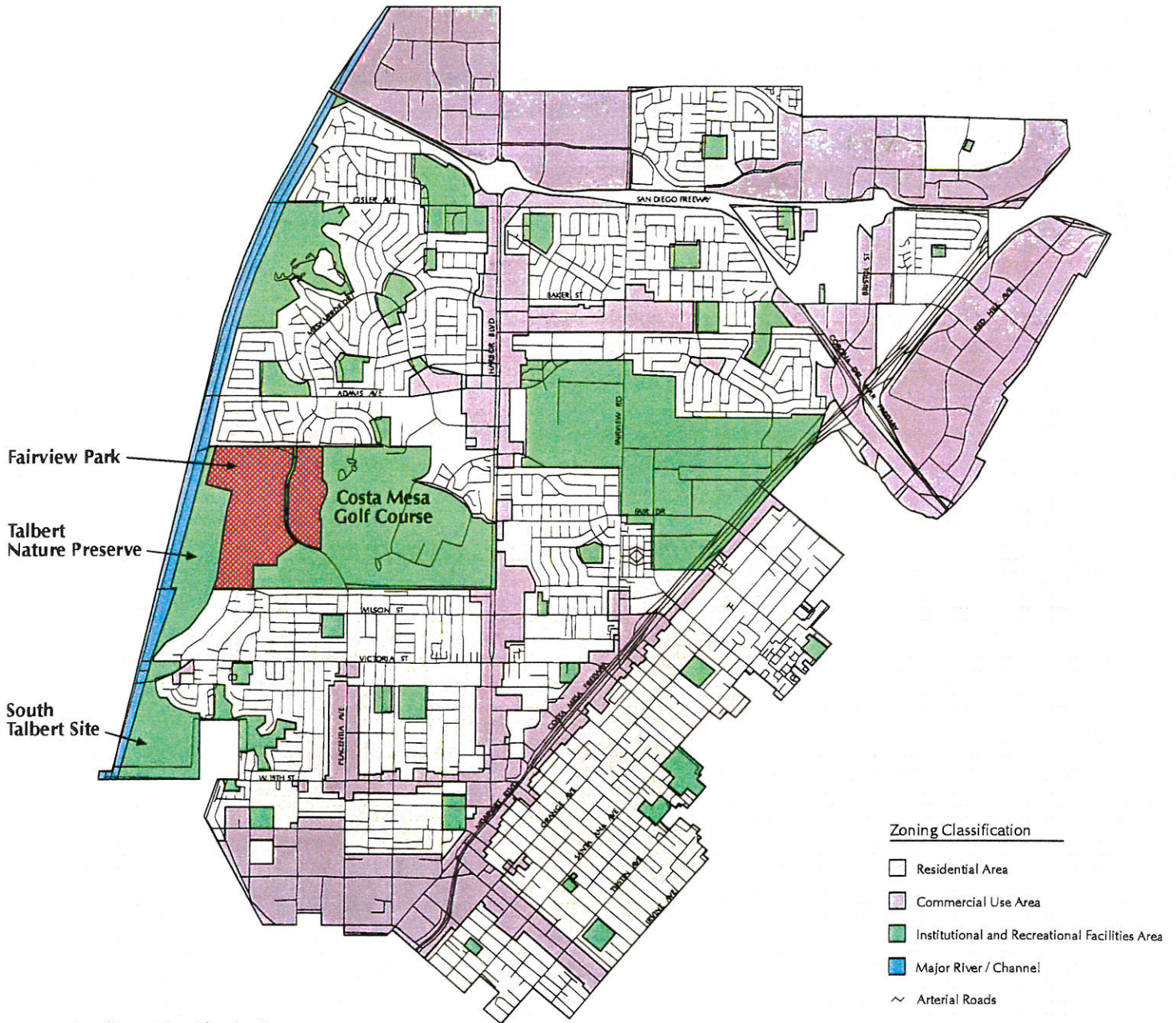
The site of the native rancharía of Genga (Geña in Gabrielino) gave way to Spanish occupation. By 1780, records of Mission San Juan Capistrano indicate use of the site area by Mission cattle herds. The Yorba family re-established their own herds on the site by 1835.

The Eduardo Polloreno adobe was situated on the northeast corner of the park in the area of Canary Drive. Only the foundations remain of this, the youngest of three adobe buildings in the immediate area, the others being the Estancia, or Gabe Allen Adobe, and the Rice Adobe. The Estancia remains today near the corner of Adams and Placentia, restored by the City of Costa Mesa.

The land changed hands several times and was used for agricultural purposes, escaping development perhaps due to the topography of the eastern portions and the wet conditions of the western area. In 1926 the first documented archaeological remains were discovered during plowing operations. Important discoveries continued to be found and studied, and by 1935 State Emergency Relief crews began formal archaeological excavations. Federal Works Progress Administration crews were active in 1936 and 1937.¹ In the 1970's the County of Orange and the City of Costa Mesa purchased the land for park and recreation purposes.

A joint use plan was studied in the 1980's which planned several active uses which were met with strong objections by the residents of Costa Mesa. The City purchased 210 acres of the 300 acre site in 1985 in order to insure a lower level of development. The land purchased by the City site is now the subject of this Master Plan. The remaining 90 acre County of Orange site has been restored as the Talbert Nature Preserve.

¹ Koerper, Henry C.; Earle, David E. and Apadaca, Paul Winter 1996 Archaeological, Ethnohistoric, and Historic Notes Regarding ORA-58 and Other Sites Along The Lower Santa Ana River Drainage, Costa Mesa. *Pacific Coast Archaeological Society Quarterly*, Vol. 32, No1.



Source: City of Costa Mesa Planning Dept.



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ADJACENT USES MAP

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2.2 PREVIOUS PLANS

The open space of Fairview Park has been the subject of several previous planning efforts, none of which have been formally adopted by the sponsoring agencies.

1977 General Development Plan - County of Orange

1984 General Development Plan - County of Orange and City of Costa Mesa

1988 Master Plan - City of Costa Mesa

1995 Fairview Park Development Plan - Johnson Turner Associates - California Coastal Conservancy

The plans involved a range of activities gradually moving to more passive uses in each successive plan. The studied uses have included golf, baseball fields, extensive interpretive center buildings and habitat restoration. The plans calling for more active uses and development met with strong citizen opposition.

A plan for potential development of the sports fields of Estancia High School by Andrew Goetz & Associates, undated, was researched and determined to have no significant impact upon the Master Plan for Fairview Park.

2.3 PARKS, RECREATION, AND OPEN SPACE MASTER PLAN

The Parks, Recreation and Open Space Master Plan was adopted by the City Council in 1994. The Plan established long term goals for the City's open space and recreation needs and established priorities and implementation measures. The goals of this plan have been included as a part of the Fairview Park Master Plan.

The Parks, Recreation and Open Space Master Plan calls for the Fairview Park plan to recognize the important adjoining uses, links to existing bike and walking trails, and stresses the need to preserve the important natural and cultural features.

Also proposed by the Open Space Master Plan was the potential for additional active ball fields in the area of Estancia High School. Alternative design schemes have considered this option. Ball fields have not been included in the Fairview Park Master Plan due to recent acquisition of land for this purpose, and citizen requests for a passive park at Fairview.

2.4 LOCAL COASTAL PROGRAM

The Coastal Zone and Commissions were created in 1972 in order to protect the State's coastal resources. The Zone extends 1,000 yards inland from the mean high tide line. The California Coastal Act of 1976 modified the boundary eliminating the 1,000 yard boundary, but retaining portions of the Santa Ana River lowlands and most of Canyon Park. Fairview Park is not included in the Coastal Zone.

The 1976 Act mandated the preparation and adoption of a Local Coastal Program (LCP) by local governments for their areas of jurisdiction within the Coastal Zone. The City of Costa Mesa has coordinated its efforts with the County of Orange.

3.4 ARCHAEOLOGICAL RESOURCES

3.4.1 BACKGROUND

The bluffs of Fairview Park in the prehistoric setting looked out over river bottom lands cut by meandering streams of salt water at high tide and fresh water when the tide was low. The environment supported thousands of birds and an abundance of shellfish; and supported a village settlement whose remains indicate a very high level of social complexity. There were two periods of site occupancy by different cultural groups: at least 1500 BC, - AD 500 and AD 500 - the late 19th century.

The Fairview Park site contains two listed archaeological sites, arguably portions of the same general site, which have been investigated and documented. CA-ORA-58 occupies the northwestern bluff top of the site to the west of Placentia Avenue. CA-ORA-506 lies to the east of ORA-58 and is east of Placentia Avenue in the general area of the model railroad extending north to the Canary Drive area. Of the two sites CA-ORA-58, the bluff-top site, has been the subject of greater attention through archaeological study and preservation methods.

The City of Costa Mesa engaged The Keith Companies in 1993 to investigate the park site and to recommend protection and preservation methods. Their Report on Investigations to Delineate Site Boundaries and Further Characterize Cultural Remains at CA-ORA-58, Costa Mesa, California is a very comprehensive document which relates the history of archaeological study in the site, the significant artifacts which have been recovered and the boundaries of the site. The report recommended capping the CA-ORA 58 site with a layer of fill soil prior to the development of an active use park.

This Master Plan calls for the CA-ORA 58 site to be restored to its original natural plant communities and to be preserved as high quality habitat in a combination of native grasslands and coastal sage scrub. The site would be accessible by trails, but general access to the archaeological deposit and the potential for artifact hunting is to be discouraged. The change of planned use of the site from possible active park to passive activities led the Consultants back to the author of the Keith Companies report, Dr. Henry C. Koerper, Ph.D., to update the protection / preservation recommendations. His report is presented in Appendix B.

3.5 EXISTING BIOLOGICAL RESOURCES

In October of 1995 the City of Costa Mesa engaged Robert A. Hamilton, Consulting Biologist to survey the existing biological conditions and to make recommendations regarding the planning of the park. This document has been utilized in the planning process. The entire document is included as a reference source and detailed account of the existing biological conditions on the site.

This section summarizes information contained in the Setting section of biologist Robert A. Hamilton's 9 October 1995 Biological Constraints and Opportunities report, Fairview Park, Costa Mesa, and biologist Tony Bomkamp's Vernal Pools section. The Hamilton and Bomkamp reports are included as Appendix C to the Master Plan; please refer to these for information on sensitive species that occur, or potentially occur, within Fairview Park, and for more thorough treatment of topics covered in this section.

The undeveloped portion of Fairview Park west of Placentia Avenue is an integral part of the lower Santa Ana River ecosystem. Although greatly reduced and fragmented over the past century, this ecosystem continues to provide habitat for a wide variety of native plants and animals, including many threatened, endangered, or otherwise sensitive species. The Master Plan calls for the restoration and protection of the sensitive areas west of Placentia Avenue and for the placement of most active use facilities in the portion of Fairview Park east of Placentia Avenue. This approach is consistent with preservation and enhancement of the park's most valuable biological resources.

3.5.1 EXISTING BIOLOGICAL CONDITIONS

Existing Vegetation

The Master Plan Drawing shows the park's plant communities. The following discussions describe each community and note the key importance of each in alphabetical order.

Alluvial Scrub

Sandy soils in the low-lying northwest corner of Fairview Park support a natural alluvial scrub community that is a remnant of the historic Santa Ana River flood plain; this community may be unique in Orange County. This area supports Orange County's only known population of California Evening-Primrose; in addition, several sensitive plant and wildlife species potentially occur there. Locally dominant native species in this community include Sandbar Willow (*Salix hindsiana*), California Croton (*Croton californica*), Salt Heliotrope (*Heliotropium curassavicum* ssp. *oculatum*), Western Ragweed (*Ambrosia psilostachya*) and Telegraph Weed (*Heterotheca grandiflora*). California Evening-Primrose (*Oenothera californica*) and Chaparral Sand-Verbena (*Abronia villosa*) occur locally. Non-native dominants include Common Poison-Hemlock (*Conium maculatum*), Shortpod Mustard (*Hirschfeldia incana*) and Tree Tobacco (*Nicotiana glauca*). Approximately nine acres of the non-native, invasive Giant Reed (*Arundo donax*) is in the process of being eradicated from this area.

Prime habitat for the endangered Pacific Pocket Mouse (*Perognathus longimembris pacificus*) consists of alluvial scrub growing on sandy soils near the coast between Los Angeles and the Mexican border. It is likely that this mouse occurred in Fairview Park's

native alluvial scrub community historically, but chronic disturbance and dense growth of weeds in this area have probably extirpated the species from the park. However, during a site meeting with project biologist Robert Hamilton on 1 October 1997, biologists from the U.S. Fish and Wildlife Service expressed a high degree of interest in restoring approximately 41 acres of alluvial scrub in the northern portion of Fairview Park in order to relocate this mouse to the park.

Annual Grassland, Annual Grassland/Developed

Fairview Park's grasslands are dominated by primarily non-native annual grasses, with native annual species interspersed in some areas. Locally dominant non-native species include Slender Wild Oat (*Avena barbata*), Common Wild Oat (*A. fatua*), Foxtail Chess (*Bromus madritensis* ssp. *rubens*), Soft Chess (*B. mollis*), Common Ripgut Grass (*B. diandrus*), Nit Grass (*Gastridium ventricosum*), Crab Grass (*Digitaria sanguinalis*), Hare Barley (*Hordeum murinum* ssp. *leporinum*), Foxtail Fescue (*Vulpia myuros*) and Rabbitfoot Grass (*Polypogon monspeliensis*). Locally dominant native species include Meadow Barley (*Hordeum brachyantherum*) and Vernal Barley (*Hordeum intercedens*). A wide variety of ruderal forbs occur within the park's grasslands, including Sweet Fennel (*Foeniculum vulgare*), Grass Poly (*Lythrum hyssopifolium*), filarees (*Erodium* spp.) and Shortpod Mustard. Native forbs include Small-flowered Microseris (*Microseris douglasii* ssp. *platycarpa*), Big Gumplant (*Grindelia camporum*), Alkali Weed (*Cressa truxilensis* var. *vallicola*), Dove Weed (*Eremocarpus setigerus*) and Shining Peppergrass (*Lepidium nitidum*). West of Placentia Avenue, annual grasslands occupy the mesa exclusive of vernal pools and an area where fill piles were placed in the 1980s.

Most of Fairview Park east of Placentia Avenue is classified as "annual grassland/disturbed" due to the following minor developments interspersed within the grasslands: 1) a train track and small station, 2) a parking lot, 3) a maintenance yard, and 4) minimal landscaping.

In many areas, the difference between annual grasslands and ruderal areas (discussed subsequently) is somewhat subjective, and depends on the length of time since a given area was mowed. Together, annual grasslands and ruderal areas cover approximately 173.5 acres in Fairview Park.

Coastal Bluff Scrub - Disturbed

Coastal bluff scrub is a native upland plant community that occupies portions of the west-facing bluff above Talbert Regional Park. In Fairview Park, this community has been disturbed and fragmented by past human actions, permitting invasion by a variety of non-native, ruderal (weedy) species. The dominant native plants are Bladderpod (*Isomeris arborea*), Coastal Prickly-pear (*Opuntia littoralis* var. *littoralis*) and California Encelia (*Encelia californica*). A few specimens of California Box Thorn (*Lycium californicum*) and California Wishbone Bush (*Mirabilis californica*) are present, and localized pockets of alkaline soils support Alkali Heath (*Frankenia salina*) and Woolly Sea-Blight (*Suaeda taxifolia*). Common ruderal components of this association include Tree Tobacco, Shortpod Mustard, Russian-Thistle (*Salsola tragus*) and, in moister areas near the base of the bluff, Common Poison-Hemlock. Non-native, annual grasses in this community include wild oats (*Avena* spp.) and brome grasses (*Bromus* spp.). This association covers approximately 2.4 acres in Fairview Park.

Developed Areas

Developed areas (e.g., planters, turf, parking lots) cover approximately 11.7 acres in the park.

Fairview Channel

"Fairview Channel" is a concrete-lined flood control channel that passes through the park near its northern and eastern boundaries. This channel possesses a concrete bottom upstream (east) of Placentia Avenue and a soft bottom downstream (west) of this road. Water is present year-round. The channel supports non-native plants such as Washington Fan Palm (*Washingtonia filifera*), Johnson Grass (*Sorghum halepense*) and Water Hyacinth (*Eichhornia crassipes*). Fairview Channel covers approximately 2.6 acres in the park.

Giant Reed

In 1995, essentially pure stands of Giant Reed, a non-native, invasive species, were established in three locations within Fairview Park: 1) sandy soils in the park's northwest corner, 2) the lower portion of the Placentia, and 3) the upper part of the Placentia Drain. These areas covered approximately 9.4 acres. Subsequently, the City of Costa Mesa has removed the stands of Giant Reed from the first two sites listed above, and has followed up initial removal with supplemental control efforts, as is needed to eradicate this tenacious species.

Habitat Restoration Sites

In recent years, small-scale habitat restoration has been attempted in two portions of Fairview Park. Several patches of hydroseed, covering a total of approximately 0.7 acre, are evident on a north-facing slope along the margins of a paved path leading from the mesa to the floodplain below. This seed mix included a variety of plant species native to Orange County, including California Buckwheat (*Eriogonum fasciculatum*) and Purple Sage (*Salvia leucophylla*). These seeded areas, some of which recently burned, are not presently maintained, and are overgrown with non-native forbs such as Sweet Fennel and Shortpod Mustard. Another site, covering approximately 0.25 acre, is located a short distance west of the park's main entrance. In winter 1994, this area was planted with several species native to Orange County, including Coastal Prickly-Pear, Coast Cholla (*Opuntia prolifera*), Bladderpod, California Sagebrush (*Artemisia californica*), Buff Monkeyflower (*Mimulus aurantiacus*) and Lemonade Berry (*Rhus integrifolia*). This area has been maintained periodically, and supplemental plantings have taken place each fall/winter.

Ruderal

Ruderal forbs are scattered throughout much of Fairview Park, occurring wherever past/ongoing disturbances (e.g., discing, placement of fill, farming) have allowed non-native species to become established. Stands of forbs that do not include any native species as dominants are classified as "ruderal."

The federally threatened Coastal California Gnatcatcher has been observed foraging in ruderal vegetation on the mesa, adjacent to saltbush scrub habitat that is apparently used for nesting. Southern Spikeweed, considered highly sensitive by the California Native Plant Society, is a common element within otherwise ruderal vegetation located near the

park's northern boundary, just west of Placentia Avenue.

In the park, widespread ruderal species include Shortpod Mustard, Common Poison-Hemlock, Russian-Thistle, Common Horseweed (*Conyza canadensis*), Bristly Ox-Tongue (*Picris echinoides*), Castor Bean (*Ricinus communis*), Crystal Ice Plant (*Mesembryanthemum crystallinum*) and Cheeseweed (*Malva parviflora*). Southern Spikeweed (*Hemizonia parryi* ssp. *australis*), a sensitive native plant, grows in a disturbed area classified as "ruderal" just west of Placentia Avenue, near the park's northern boundary. In Fairview Park, the difference between ruderal areas and annual grasslands (discussed previously) is somewhat subjective in many areas, and depends on the length of time since a given area was mowed. Together, annual grasslands and ruderal areas cover approximately 173.5 acres in Fairview Park.

Saltbush Scrub

Two limited patches of the native Brewer's Saltbush (*Atriplex lentiformis* ssp. *breweri*) occur in Fairview Park. One, covering less than 0.1 acre, exists on the west-facing bluff. The other, covering approximately 0.6 acre, has developed within piles of artificial fill placed on the park's mesa in recent years.

In recent decades, urban and agricultural development have fragmented and greatly reduced the extent of native upland scrub communities in southern California, with concomitant reductions in the populations of numerous plant and animal species associated with these communities. One such species, the Coastal California Gnatcatcher, has been federally listed as threatened, and is protected from unauthorized "take" pursuant to Section 9 of the Endangered Species Act (ESA). One pair of California Gnatcatchers currently resides at Fairview Park, apparently nesting in a patch of saltbush scrub that covers approximately 0.6 acre on the mesa; these birds also forage in adjacent ruderal vegetation and may also use coastal bluff scrub growing on the park's west-facing bluff.

Vernal Pools

Vernal pools are quite rare in southern California due to 1) the unique geologic conditions that must be present to form them, and 2) intensive human development of coastal areas. In Orange County, Fairview Park's vernal pools represent one of few known extant examples of this ecosystem. Due to these factors, many plants and animals that occur exclusively or largely in vernal pools are considered biologically "sensitive" by state and federal resource agencies.

The park's seven vernal pool basins and one vernal marsh basin meet federal wetlands criteria, and numerous wetland-dependent migratory birds use these areas for resting and foraging from fall through spring. The park's vernal pools, and patches of annual grassland between and around the pools, support several sensitive plants and the federally endangered San Diego Fairy Shrimp (*Branchinecta sandiegoensis*). Restoration of the largest pool which covers 2.07 acres is ongoing. Two phases have been completed, leaving a small portion of the historic basin below the debris piles. The remaining basins range in size from .9 acre to .01 acre and are in good condition. See Appendix C for more detail regarding the vernal basins.

Walnut Scrub

A small stand of Southern California Black Walnuts (*Juglans californica* var. *californica*) approximately 10-15 feet tall, grows in the upper part of a gully cut into the western bluff, near the park's southwestern corner. These trees cover approximately 0.05 acre.

Willow Scrub

Two small willow stands, including several Black Willows (*Salix gooddingii*) approximately 20 feet tall, exist in and near a seasonal drainage that runs along the base of the park's western bluff, adjacent to Talbert Regional Park. Understory dominants include Mugwort (*Artemisia douglasiana*), Castor Bean and Common Poison-Hemlock. These areas cover approximately 0.1 acre.

EXISTING WILDLIFE

This section discusses vertebrate wildlife species that have been encountered in Fairview Park, as well as species that have not been observed but that may occur in the park. Since common names of wildlife species are essentially standardized, scientific names are provided only for expected animal species; the wildlife species list at the end of Appendix C to the Master Plan includes scientific names for all animal species that have been observed on the site.

Butterflies

Ten common, widespread species of butterfly have been observed in Fairview Park, including Anise Swallowtail, Cabbage Butterfly, Monarch, West Coast Lady and Pygmy Blue. Many more species are expected to occur there, none of which are considered to be biologically sensitive.

Amphibians

Three widespread species of amphibian, Black-bellied Slender Salamander, Western Toad and Pacific Treefrog, have been observed in Fairview Park. Other species that may occur there include Pacific Slender Salamander (*Batrachoseps pacificus*) and Western Spadefoot (*Scaphiopus hammondi*), a sensitive species.

Reptiles

Three widespread species of reptile, Western Fence Lizard, Side-blotched Lizard and Western Skink, have been observed in the park. Other widespread species that may occur there include Southern Alligator Lizard (*Gerrhonotus multicarinatus*), Common Kingsnake (*Lampropeltis getulus*) and Gopher Snake (*Pituophis melanoleucus*). Sensitive species that may occur in the park include San Bernardino Ringneck Snake (*Diadophis punctatus modestus*) and Silvery Legless Lizard (*Anniella pulchra pulchra*).

Birds

Birds are the most conspicuous vertebrates on the project site. A variety of raptors forage in the park, including White-tailed Kite, Northern Harrier, Red-tailed Hawk and American Kestrel. Among the passerines, summer and year-round residents include Mourning Dove, Anna's Hummingbird, Black Phoebe, Cassin's Kingbird, House Wren, Northern Mockingbird, European Starling, Blue Grosbeak and American Goldfinch. When water is present in the park's vernal pools, a variety of wetland-dependent species forage in these pools. Such species include Snowy Egret, Mallard, American Wigeon, Greater Yellowlegs, Least Sandpiper, Common Snipe and Ring-billed Gull. In fall and winter, Long-billed Curlews and Marbled Godwits forage in turfed areas and ponded areas. One pair of California Gnatcatchers is resident in the park, and is believed to nest in a patch of saltbush scrub located on the mesa near the park's west-facing bluff. Winter visitors observed in the park include Say's Phoebe, Blue-gray Gnatcatcher, American Pipit, Savannah Sparrow, Lincoln's Sparrow and White-crowned Sparrow.

Mammals

The following native mammal species have been observed in Fairview Park: Audubon Cottontail, San Diego Black-tailed Jackrabbit, Beechey Ground Squirrel and Coyote. Other mammals expected to be present include Virginia Opossum (*Didelphis virginiana*), Striped Skunk (*Mephitis mephitis*), Western Harvest Mouse (*Reithrodontomys*

megalotis), Deer Mouse (*Peromyscus maniculatus*), and the introduced House Mouse (*Mus musculus*).

3.5.2 BIOLOGICAL CONSTRAINTS AND OPPORTUNITIES SUMMARY

This section, summarized from Robert A. Hamilton's 9 October 1995 biological report (Appendix C to the Master Plan) discusses planning constraints posed by sensitive biological resources, and opportunities to restore strategic habitat areas that are presently degraded. The Biosensitivity Map shows 1) areas of high, moderate and low biological sensitivity, and 2) areas of low biological sensitivity with good restoration potential.

Biological Constraints

A biological constraint is defined as an existing condition which may limit the options for park planning due to the desire or requirement for preservation of all or portions of the existing biological setting.

Areas of High Biological Sensitivity

Some portions of the park are considered to be highly sensitive based on:

- 1) federal, state or local laws regulating their development,
- 2) plant communities with limited global distributions,
- 3) and/or: the habitat requirements of sensitive plants or animals known or expected to occur there.

The following communities are considered to be of high biological sensitivity:

Alluvial Scrub (Pacific Pocket Mouse Habitat)

Saltbush Scrub (Occupied by Nesting California Gnatcatchers)

Vernal Pools and Associated Grasslands (Restoration is in progress)

Areas of Moderate Biological Sensitivity

Generally, plant communities in the park are considered to be moderately sensitive if they

- 1) are subject to federal, state or local laws regulating their development,
- 2) and/or have not been disturbed to the point where only ruderal species predominate.

In Fairview Park, virtually all areas designated as being of moderate sensitivity have good potential for habitat restoration/expansion.

The following communities are considered to be of moderate biological sensitivity:

Annual Grassland (West of Placentia Avenue)

Coastal Bluff Scrub - Disturbed

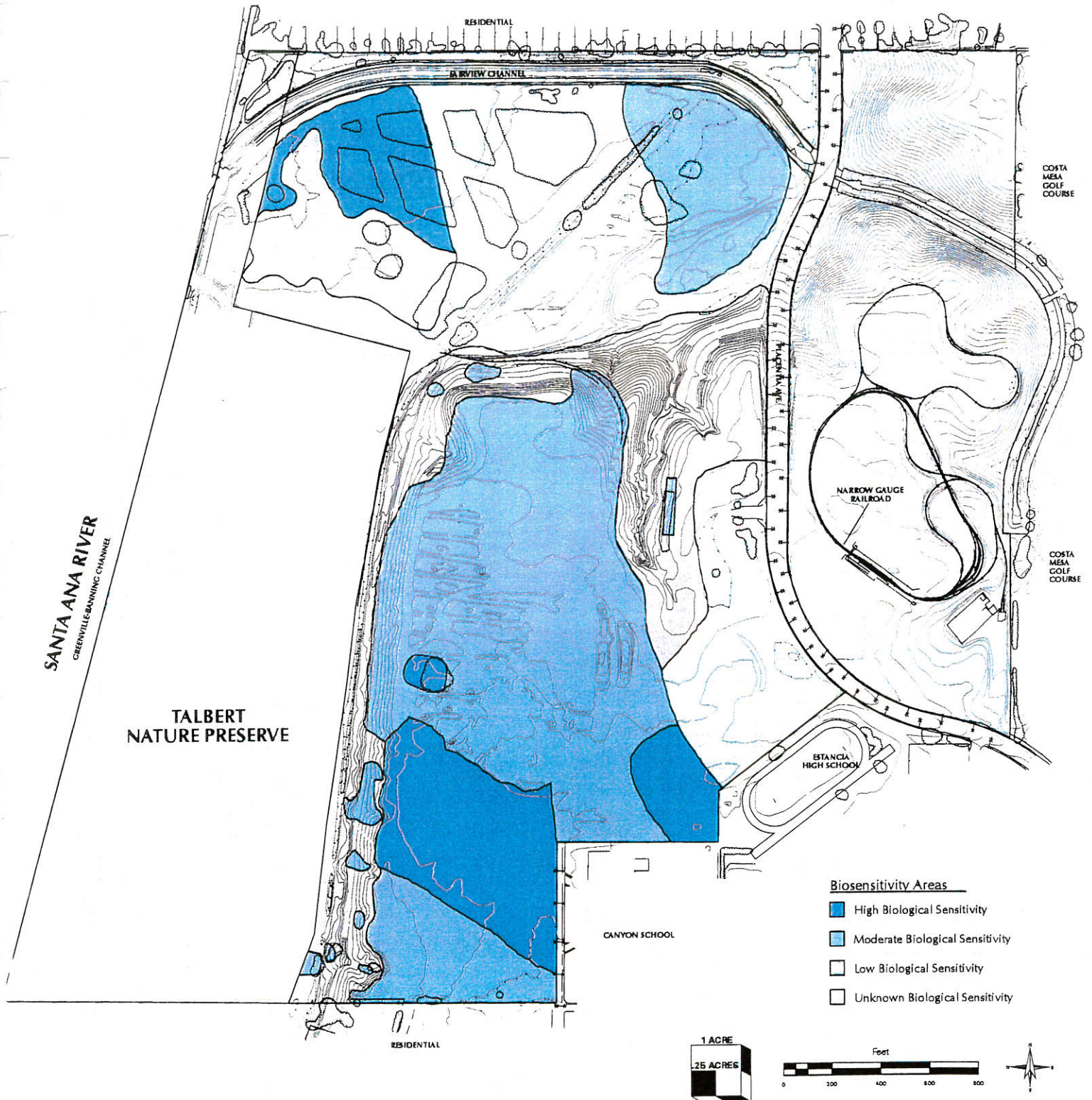
Habitat Restoration Sites

Ruderal (Some Areas) (Due to the presence of sensitive species)

Saltbush Scrub (Unoccupied by Nesting California Gnatcatchers)

Walnut Scrub

Willow Scrub (Due to their very small area)



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CITY OF COSTA MESA
FAIRVIEW PARK MASTER PLAN

BIOSENSITIVITY MAP

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Areas of Low Biological Sensitivity

Portions of the park are considered to be of low biological sensitivity if they meet one or more of the following criteria:

- 1) Areas that have been subjected to extensive past/ongoing disturbances (e.g., placement of artificial fill, discing for weed control).
- 2) Areas that are isolated from the lower Santa Ana River ecosystem.
- 3) Areas that are not known or expected to support sensitive plant or animal species.
- 4) Areas that are not subject to laws specifically regulating their development.

The following communities are considered to be of low biological sensitivity:

Annual Grassland (East of Placentia Avenue), Annual Grassland/Developed
Giant Reed
Ruderal (Most Areas)

Biological Opportunities

This section briefly discusses the restoration opportunities in portions of Fairview Park, including areas presently considered to be of high, moderate and low biological sensitivity. The Biosensitivity Map indicates areas of low biological sensitivity where habitat restoration may be most appropriate. Any restoration activities should be carefully planned and implemented with assistance of a biologist familiar with the park's native plant and animal communities.

A biological opportunity is defined as an existing condition which offers the opportunity to protect and restore a unique and valuable natural resource.

Alluvial Scrub/Giant Reed

Alluvial scrub in the northwestern part of Fairview Park has undergone extensive disturbance due to periodic discing for weed control; this has kept the native plants low and facilitated invasion by the non-native Giant Reed. In the short-term, cessation of discing in non-ruderal areas is recommended to permit the native alluvial scrub community to develop and to avoid impacts to sensitive species potentially present in this community, especially the federally listed Pacific Pocket Mouse. As noted previously, the U.S. Fish and Wildlife Service recently expressed a high degree of interest in restoring approximately 41 acres of alluvial scrub in the northern portion of Fairview Park in order to relocate this species to the park. In the future, a program of periodic, controlled disturbance may be desirable to mimic the natural flood cycle that would permit regeneration of this community in a natural setting.

Eradication of Giant Reed stands, a measure recommended in Mr. Hamilton's 1995 biological report, has been undertaken, and follow-up treatments for up to several years after initial removal may be required for complete eradication of this species.

Coastal Bluff Scrub - Disturbed

Two degraded areas within the park have good potential for restoration to coastal bluff scrub habitat. One is the park's western bluff, where the original coastal bluff scrub community has been invaded by ruderal forbs and grasses. The other area is a north-trending canyon near the park entrance, which is heavily disturbed and supports almost no

native vegetation. Due to the topography of these areas and the general difficulty of establishing coastal bluff scrub vegetation, successful restoration of these areas would be difficult and fairly costly, requiring 1) eradication of the existing ruderal vegetation, 2) planting and seeding of appropriate native species, 3) provision of irrigation during establishment of plantings, and 4) follow-up weeding for at least two or three years. The potential may exist for coastal bluff scrub restoration to be funded by outside sources, such as the NCCP program.

Vernal Pools and Associated Grasslands

Biologist Tony Bomkamp is directing removal of artificial fill from within approximately two acres of the park's largest vernal pool. The Master Plan contains provisions to limit human disturbance of the park's vernal pools in the future. Considering the presence of the federally endangered San Diego Fairy Shrimp within some of the pools, it is recommended that any required vector control activities within vernal pools be accomplished through introduction of chemicals that specifically inhibit development of mosquito larvae while permitting development of the innocuous invertebrate fauna that are natural components of the park's vernal pool ecosystem. A Memorandum of Understanding with the U.S. Fish and Wildlife Service may be required in order for vector control personnel to engage in activities that may affect fairy shrimp.

3.5.3 BIOLOGICAL RECOMMENDATIONS

Additional Studies

Three additional studies are recommended to help determine the full range of sensitive species present in Fairview Park:

- ~ Focused surveys for sensitive plants from April through June. These surveys should cover the entire park west of Placentia Avenue, focusing on alluvial scrub, coastal bluff scrub, vernal pools and grasslands.
- ~ Trapping studies for the federally endangered Pacific Pocket Mouse in the park's alluvial scrub community. While this mouse is unlikely to be present due to habitat fragmentation and disturbance, this area's sandy soils, plant species composition, and proximity to the ocean are consistent with this species' very specialized habitat requirements. To avoid potential impacts to Pacific Pocket Mouse, it is recommended that weed control activities be terminated in the park's alluvial scrub community until this species' status in the park is determined. Trapping should be conducted during the summer months by a biologist possessing a permit from the U.S. Fish and Wildlife Service to survey for this species; if the City of Costa Mesa agrees to plans to relocate Pacific Pocket Mice to the area, it may be possible that the U.S. Fish and Wildlife Service would conduct these preliminary trapping surveys at no cost to the City of Costa Mesa.
- ~ A one day study for the Western Burrowing Owl and letter report has been requested by California Fish and Game. This study should be conducted in April.

Interim Park Management

Until a new Fairview Park Master Plan is completed, it is recommended that the City review current management practices (e.g., weed control, vector control, mowing within pools) to avoid potential impacts to biological resources identified in the Master Plan as being highly or moderately sensitive. Beyond avoiding impacts, the City may consider implementing some of the restoration/ management recommendations discussed herein, as they have done by starting to eradicate Giant Reed from the park. As noted previously, any restoration activities should be carefully planned and implemented in consultation with a biologist familiar with the park's native plant and animal communities.

4. OPPORTUNITIES AND CONSTRAINTS ANALYSIS

Analysis of the overall natural setting and planning/jurisdictional context reveal many opportunities and constraints upon the planning of the park and the proposed uses. Many features considered are constraints to one form of development and opportunities for another and therefore are listed as both opportunities and constraints.

4.1 CONSTRAINTS

1. Placentia Avenue

The major vehicular arterial of Placentia Avenue divides the site into two distinct sections. This division will be somewhat relieved by the signalization of the existing park entrance intersection.

2. The Fairview Channel

The drainage structure and fences of the Fairview Channel divide the eastern portion of the site into north and south sections. The opening of a service bridge to pedestrian and bike traffic creates a link between these two sections of the park. On the western side of Placentia the Channel imposes less of a divisive element, but does create a 50 foot wide strip of land along the rear of homes facing Swan Drive which is unsuited to public uses due to the proximity to those homes.

3. Steep Slopes

The topography of the western bluffs constrain development of activities other than habitat restoration and enjoyment of the views afforded by their height. These bluffs must be protected from further free traffic by pedestrians, skate boarders, and bikers if erosion is to be arrested. The north eastern park area also contains steep slopes in the vicinity of the Fairview Channel.

4. Bluffs and Erosion

The bluffs contain several sites where erosion will require treatment in order to preserve the bluff and trails. With the absence of any restraint to traffic, vegetation has become compromised and erosion is developing deep canyons which threaten to continue to carve into the mesa.

5. Archaeological Resources

The important resources of the archaeological sites require protection and preservation. Development of active uses or buildings in the area of these deposits will require mitigation measures including extensive research and/or capping. The fill soils found on the CA-ORA 58 site were placed in response to active uses or ball fields once planned for this area. The CA-506 site exists in the northern vicinity of the train operation. Any new heavy construction in this area will require monitoring and study by a certified archaeologist.

6. Existing Park Entrance

The existing entrance represents significant prior investment, and is located in a suitable location for safety on Placentia Boulevard.

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7. Existing Fill Soils

The western portion of the site contains fill soils placed as a cap for the archaeological site CA-ORA 58. These soils were not graded smoothly when placed, and were further disturbed in the investigations to determine the boundaries of the site. The soils are known to contain asphalt, concrete, mortar and other construction debris in significant amounts. The existing condition is uneven fills, and piles of soil which prohibit any use other than the current open space. Prior to the discovery of the vernal pools as a sensitive natural resource fill soils were placed in portions of the largest pool. Portions of this pool have been restored by removing the fill soil, and as funds are available, this restoration of natural grade at the pools is to be continued. Due to the fill soils being contaminated and improperly placed an acceptable protective cap for the archaeological site has not been achieved.

8. Drainage and Flooding

The southern border of the site at Canyon Drive to Pacific Avenue experiences seasonal flooding which extends into the rear yards of adjoining residential properties. Care must be taken in correcting this problem not to disturb the vernal pools or to create bluff erosion.

9. Vernal Pools

The discovery of the vernal pools is significant to planning in the park. These resources fall under the protection and control of the Corps of Engineers and the US Fish and Wildlife Service. Not only are these important biological resources which should be preserved and restored, but the governmental restrictions on developing them for other uses are formidable and expensive to pursue. The pools are a good example of a design constraint which has been adopted as a design opportunity.

10. Existing Park Facilities

The park contains an existing thirteen acre area of lawn and trees with parking. The parking is well sited in the park; allowing access to all areas, and the area forms a buffer from Placentia Avenue for the natural areas of the park.

11. Existing Narrow Gauge Railroad

Beginning in 1988 the Orange County Model Railroad Engineers, Inc. were granted permission to construct a rail system in Fairview Park on the east side of Placentia. The Railroad Engineers is a club which is open to any member of the public. Over three miles of track have been constructed by the club. Free train rides are offered to the public on the third weekend of each month. The annual attendance at these weekends exceeds 50,000 persons per year. The presence of the tracks and the intermittent train traffic is consistent with the passive use goals of the park and is compatible with other uses such as walking, picnicking, and additional landscaping.

12. Sewer Connection

The Costa Mesa Sanitary District has studied the potential for sewer service to Fairview Park. The favored solution is to provide a gravity sewer main connecting to existing service in Pacific Avenue.

4.2 OPPORTUNITIES

1. Remnant Native Plant Species

All areas of the site have been changed from their natural conditions by the human activity. Pockets of remnant native plant communities exist on the site and the opportunity exists to preserve and restore these plant communities. Three plant communities are identified on the site west of Placentia Avenue: alluvial scrub, annual grassland, and coastal bluff scrub. Though all are disturbed and contain many non-native species, they indicate the potential for restoration of healthy plant communities and wildlife habitat.

2. Archaeological Resources

The existence of documented archaeological sites within the park presents strong opportunities for education and interpretation. The fact that CA-ORA 58, the bluff-top site has been well researched and documented will allow a rich story to be told concerning the people who occupied this site three thousand years ago. The preservation and protection of the archaeological sites is compatible with the passive uses proposed by the plan.

3. Trail Linkage

The Costa Mesa General Plan includes a Master Plan of Bikeways which call for connections to the Santa Ana River Trail system through Fairview Park. The Bikeway Plan also calls for a Class 3 bikeway connection in the vicinity of Canary Drive.

In the north-south direction the park trail system can offer trails allowing pedestrian and bike traffic to avoid the heavily traveled Placentia Avenue. In the east west direction the park can provide access to the extensive pedestrian and bike trails along the Santa Ana River. These trails are reached through Talbert Nature Preserve trails which connect to bridges over the Greenville-Banning Channel and the Santa Ana River. By connecting to the Talbert trails system access is also provided to the extensive hiking and interpretive opportunities within the Nature Preserve.

The Canary Drive pedestrian and bike trail connection is separated by a twelve to fifteen foot grade change at the park boundary. The opportunity exists for trail connection here if the obstacles of grade and water mains can be overcome.

Recently the bridge over the Fairview Channel which exists at the eastern tip of the site has been opened to pedestrian and bike traffic. The connection of trails to this bridge can provide an important link to the isolated northeast corner of the site from the railroad area.

4. Link With Adjoining Habitat Restoration

Talbert Nature Preserve is a 90 acre restoration of native habitat completed by the County of Orange. The opportunity exists to soften the hard edge boundary between these two parks and to expand upon the work which has been established in Talbert.

5. View Opportunities

The bluffs offer extensive views to the north and west over the Santa Ana River. These views can be enjoyed from trails along the bluff. The northeast corner of the park contains a high plateau which can be reached by new trails from Placentia Avenue or from the train

area via the bridge over Fairview Channel.

6. Existing Narrow Gauge Railroad

The existing railroad operation has become a popular feature of the park by providing free train rides to the general public one weekend a month and entertaining private gatherings at other times. The low traffic on the rails and minimal impact upon the landscape allow for the introduction of other low impact activities such as walking, a boat pond, a small picnic area, or a children's play area. These added activities can share parking facilities with the train area and enhance the train experience as well as function alone in this area.

7. New Traffic Signal at Entry

The existing park entrance to the central area of the western portion of the park from Placentia Avenue is scheduled to receive a traffic signal system. This signal will improve safety at the intersection and provide the opportunity to expand the intersection to allow safe access to the eastern portion of the park site. The resulting east and west access point will make a clear and safe method of park entry.

8. Existing Park Facilities and Parking

The existing 13 acres of lawn and trees with parking for 106 cars represents a sizable investment by the City. These facilities are able to be retained and planned as the core for future park development. Portions of the major north-south trail are in place and can be linked to new trails. An interpretive area for the total park can be located just outside of the existing park area, but within reasonable distance to existing parking.

9. Vernal Pools

The vernal pools have been listed as a constraint to some forms of active park development. When viewed in the context of a passive park development they can become an opportunity in that their restoration and protection as rare natural features offer unusual possibilities for observation and interpretation by the public. While the pools require protection from traffic, trails can be extended to their border areas allowing enjoyment of these interesting ecosystems.

10. Grades allow Placentia Avenue Crossing

North of the existing western entrance Placentia Avenue begins to descend in elevation. Approximately 300 feet north of the intersection adjoining grades in the park are 16 feet higher than the roadway. A bridge at this location would require minimal grading changes to provide adequate clearance above Placentia Avenue. A bridge over Placentia for pedestrian and bike traffic would be a very valuable asset in overcoming the barrier of this major arterial.

The Orange County Model Engineers, operators of the narrow gauge rail system, have expressed strong interest in seeking funding sources for this bridge. Their participation may assist greatly in constructing the bridge and allow for the extension of the rail system to the western portion of the park.

REDACTED DUE TO CONFIDENTIAL INFORMATION

5. DESIGN OBJECTIVES

The overall master planning goals and objectives are drawn from the writings, minutes and statements of the Fairview Park Citizens Advisory Committee, the physical analysis of the site and current planning conditions, and from citizen comment during the Master Planning process. The overwhelming consensus is to continue a park for passive use by individuals and small groups and to enhance natural environment of the park for those uses and as a habitat preserve.

Fairview Park is unusual in that even though the major portion of the site is "undeveloped," it has been open to the public for many years. Thus the public image of the park as being expansive, open and natural is well defined. The work of the Fairview Park Citizens Advisory Committee, biological and archaeological consultants and the master planning consulting team has developed scientific information about the site, documenting its valuable resources and its potential for habitat restoration. The conclusions of the research are in accord with the desires of the public for an open, natural site. The Master Plan chronicles the scientific basis for a naturally restored park, but in addition, a critical function of the Master Plan is to define ways of providing for public uses that are compatible with and complement the restored park concept. The following summarizes goals and objectives developed during the Master Plan process:

5.1 PUBLIC USE OBJECTIVES

Allow the park visitor to interact with a natural landscape and to experience a level of solitude which is rare in the urban environment.

- Provide opportunities for walking or bicycling throughout the site to experience a variety of landscapes and habitat areas.
- Provide for visual continuity and continued openness so that the totality of the park site can be readily experienced.
- Design park features to be subtle and low key, so as not to distract from the natural setting.

Inspire and educate the public regarding the historical, archaeological and biological significance of the site.

- Develop an interpretive program including signing, docents, programs for schools and the public.
- Encourage the development of a continuing non-profit support group.
- Provide interpretive signing in key areas of the park.
- Provide a central interpretive area as an introduction to major park features.
- Provide a museum site for local historical and/or natural history information and artifacts.
- Provide a California Botanic Garden to provide the opportunity to experience the wide variety of native plant communities

Provide for access, public facilities and developed park areas in a manner which is compatible with the natural habitat restoration and archaeological preservation to occur in the major portion of the site.

- Utilize the size and configuration of the site to separate more urban related uses from the more natural portion of the site.

For example:

Parking lots are to be sited adjacent to existing streets and access points and should not intrude into the more remote portions of site.

- Provide features for more intensive public use (such as lawn, picnic, and play areas) adjacent to the existing developed park site or existing more developed uses (such as the model railroad site, the school, and residential neighborhoods.)
- Provide park entrances and small developed park areas for adjacent neighborhoods to provide recreational opportunities and to create transitions from the urban area to the more natural areas in the rest of the park.
- Provide for the continuation of the organized uses that have historically occurred on the site, including model railroading, model airplane and model glider flying.
- Minimize addition of other similar organized uses that would require special park facilities or permanent allocation of park space.
- Provide for walking, running, and bicycling along defined trails.
- Utilize and improve existing trails as much as possible.
- Minimize creation of new trails.

Provide additional opportunities and services for low key park use:

- Provide an enhanced setting for the model railroad area.
- Provide a landscaped setting on the eastern area of the park that will provide continuity with the adjacent residential and golf course areas and tie to the natural habitat restoration on the western side.
- Enhance existing picnic areas and provide additional picnic facilities for small groups and on the eastern portion of the site.
- Provide additional children's play areas.
- Provide restrooms.

Provide for public safety

- Provide trail access for public safety and emergency vehicles.
- Stabilize the bluffs and provide safer access across them.
- Provide buffer areas for fire-wise planting adjacent to residential areas.
- Provide improved vehicular access from Placentia Avenue.
- Provide increased opportunities for walking and bicycling away from vehicular roadways.
- Maintain the open quality of the park which allows for visibility over the park area for observation of any public safety problems.
- Design park improvements in conformance with public safety codes and Americans with Disabilities Act requirements.

5.2 RESTORATION OBJECTIVES

Preserve the archaeological resources

- Remove existing artificial fill with minimal damage to the resources underneath.
- Protect archaeological sites from unauthorized collecting and damage.

Enhance and re-establish habitat for native plants and wildlife.

- Base restoration plans on scientific recommendations related to the existing site characteristics and the best available information on pre-existing natural habitat areas.
- Conform to the federal and state restrictions concerning existing ecological resources.
- Coordinate restoration plans with regional and adjacent restoration and preservation efforts, in order to provide continuity of habitat and address endangered habitat concerns.
- Protect restoration areas from damage and intrusion.
- Incorporate habitat restoration areas into the NCCP/HCP.

6. THE MASTER PLAN

The Master Plan presents a park for passive uses. The natural setting will dominate and provide the opportunity for walking, jogging, biking and quiet contemplation. The large size of the park allows for the inclusion of a model railroad, glider and kite flying, and a group picnic area without compromising the overall passive nature of the plan. The landscape includes play areas for children, lawn areas for play and picnicking, and large areas of restored native plant communities. A trail system will provide access by foot, bicycle, wheelchair, park maintenance, emergency and security vehicles. Interpretive opportunities are to be subtly provided as part of the trail system. Defined trails offer the possibility for a roaming walk among undeveloped nature for those seeking solitude or to explore the varied terrain of the mesa, bluffs, and low alluvial plain. Natural areas will contain extensive areas of local native plant communities, and a botanic garden will display a collection of California plants from many regions.

The plan is intended to provide a detailed framework for the restoration and construction work. Completion of the work will undoubtedly be by phases. Some change in anticipated uses may be expected, as in the case of the museum site. However, the overall policy direction for passive, natural preservation and restoration is to guide all detail development decisions. The Master Plan will guide the creation of a rich and varied park which will serve the residents of Costa Mesa for generations to come.

The following provides detail to the master plan by geographic section of the park.

6.1 PARK ENTRANCES AND PARKING

The major entrance to Fairview Park is planned to be at the location of the existing entrance to the western portion of the park from north or south bound Placentia Avenue. The existing entrance to Fairview Park is currently planned to receive traffic signals. This intersection is to be expanded to provide entrances to the eastern train area as well as the current western access.

Parking for 106 cars is currently provided in the existing 13 acre park area west of Placentia Avenue. These spaces are to be retained. Existing parking for 26 cars opposite Marion Parsons School is to be retained. An additional new parking area for approximately 35 cars is to be provided in the new group picnic area north of the existing entry and parking.

The new eastern entrance is to connect to parking for approximately 110 cars. This parking area will serve the train area, picnic areas and trail system in the eastern park. This parking area is to be connected to the current eastern signal controlled entrance in the southeastern corner of the park at the Estancia High School intersection. Parking for 20 cars is to be provided south of the existing train yard for the dog park.

Buses are to be unloaded in the paved parking areas near the interpretive area or near the train station. Buses are to be parked in car spaces or staged in nearby circulation areas. In order to make efficient use of parking and paving areas, no bus only parking is provided.

A new entrance is planned for the northwest lowlands from Placentia Avenue. This entry

will be accessed by a right turn only function from south bound Placentia Avenue and egress will be by right turn only into south bound Placentia Avenue. Deceleration and acceleration lanes will be required in Placentia Avenue. Parking for approximately 60 cars is to be provided near this entrance. This entry and parking is intended to give greater accessibility to the northwest low lying portion of the park, and to allow improved accessibility to Talbert Nature Preserve. The County of Orange has indicated a willingness to participate in the construction of this entry and parking due to the potential for shared use with Talbert Nature Preserve.

A cul-de-sac drop off entrance is to be created at the dead end of Pacific Avenue with parking for 10 cars including 4 handicap spaces. This entry is intended to allow handicapped access to the bluff trail and the local park improvements at the south boundary of the park.

The Master Plan calls for parking space for a total of 367 cars.

6.2 EAST OF PLACENTIA AVENUE

Canary Drive Access and Facilities

The area of the park which lies east of Placentia Avenue is further divided by the Fairview Channel, a concrete lined storm drain, which isolates the northern area of 9.8 acres. A trail connection to the end of Canary Drive is to be provided for local community access to Fairview Park. This access is to be accessible to the handicapped, if conflict with the grades and existing water mains can be resolved in an economically feasible manner. Facilities in this area must be kept very limited in scope in order not to attract vehicular traffic for which there will be no suitable parking. Benches are to be provided which allow for enjoyment of the expansive views available from this site. No play equipment, restrooms or group picnic facilities are planned for this area. The trail system will connect three points: the point where Placentia Avenue crosses the Fairview Channel, the end of Canary Drive, and the bridge over the Fairview Channel. Planting is to be an oak woodland as a portion of the California botanic garden which extends over the eastern portion of the site. The northern boundary is to be permanently irrigated 100 feet into the park in order to provide a fire barrier for the residential area.

Model Railroad Operations

South of the Fairview Channel and east of Placentia is the site of the existing model railroad operations. Over three miles of narrow gauge track, bridges, station paving and a work area (steaming bay) are in place. The railroad is operated by the Orange County Model Engineers, Inc., a club made up of enthusiasts who own the trains and have constructed all of the facilities at no cost to the City of Costa Mesa. The railroad is to be retained with its track system in its current location. The station area of the model railroad is expanded to include permanent toilet facilities and a children's play area. Space is available for minimal expansion of the station which provides shade for waiting passengers. An additional rail line planned to be north of the existing northern extension of the railroad will complete the track layout on the east side of Placentia Avenue. A bridge over Placentia Avenue will allow the train operation to reach the vicinity of the proposed interpretive center in the west portion of the park. At that point the track is to make a loop and return to the east side via the bridge. The train is not to extend into the

western habitat restoration areas. An interpretive program should be encouraged for the train operations offering passengers the opportunity to learn about the early human occupation of the site and the plant communities of the California botanic garden through which the tracks will pass.

Bridge over Placentia Avenue

The grade separation north of the existing park entry will allow the connection of the east and west portions of the site by a bridge passing above Placentia Avenue. By connecting the two site areas in this manner a safe passage is created; overcoming some of the division created by Placentia Avenue. The bridge is to be designed to carry rail traffic as well as pedestrian and bicycle traffic. Protective fencing will be required to guard the sides and to define the rail segment of the bridge. As the largest structure and most visible construction, the final design for the bridge will be an important element not only for establishing the image of Fairview Park but for the City. Careful attention will be required to provide safety, pleasure in its use, and an attractive image.

Food Kiosk

The plan provides for a small food kiosk which would sell sandwiches, soft drinks and snacks. This facility should not be larger than approximately 400 square feet and could be designed as a free standing element or combined with the station or restroom building.

Restrooms

Restrooms are to be provided in the vicinity of the train station and children's play area. The building should be planned with a relationship to the train station and food kiosk. Utilities serving this facility should include sewer, water and electricity.

Children's play area

A new play area with equipment for young children is planned for the area north of the train station, near restroom facilities. This area will serve children waiting for a ride on the railroad as well as those who utilize the other parking and facilities. A wrought iron fence is to enclose the play area due to the proximity of the train tracks and the entry road system.

Trails for cyclists and pedestrians

Trails south of the channel link five points: Placentia Avenue at the point of crossing the Fairview Channel, the bridge over the Fairview Channel, the main entrance and street level crossing to the western area of the park, the pedestrian bridge, and the Placentia Avenue Estancia High School entrance at the southern tip of the site. Major bicycle and pedestrian trails are indicated on the plan. With the detail design of the train area and the botanic garden elements, more pedestrian trails may be added in order to allow access to the botanic garden planting areas.

Pond

A pond is planned which will be suitable for model boat hobbyists. The pond, approximately 18" in depth will require a membrane, edge protection from erosion and a circulation/aeration system. Minimal paving will provide a safe access to the water edge for model boat launching. Picnic facilities in scattered sites adjoin the sides of the pond site. Lawn and trees in the picnic area may be used as an area for the presentation of nonamplified music.

Potential Museum Site

A site south of the rail station is retained for a museum function. This site could house the Costa Mesa Historical Society and a portion of this site area may be made available to house an operation such as the Orange County Natural History Museum. Such facilities would provide more active recreation, education and interpretation opportunities directly linked to the history and archaeology of the Fairview Park site. A site area approximately 100 feet square is indicated for the natural history function. An area is shown on the plan near the train station to relocate the former home of the Costa Mesa train station master. The house is currently located on Newport Boulevard in Costa Mesa and is privately owned. Detail planning will be required to site this facility if it were to become available for use.

Botanic Garden

Planting in the entire eastern park area is planned as botanical garden representing the plant communities found in all areas of California. Plant communities would present plants from the California coast, deserts, interior valleys, foothills, and mountains would be planted in distinct groups as they are found naturally. Access is by the pedestrian and bike trail system, and the railroad. Interpretive and identification signage are to be provided. The botanic garden element is to be an important aspect of the total park plan, tying together the varied uses of the eastern site area. The many plant communities provide variety, rich visual experiences, and interpretive opportunities.

Dog Park

3 ³/₄ acres in the central area of the train tracks, bounded by the Fairview Channel to the east is designated for use as an area for the running of dogs off-leash. Coordination will be required in the future for possible growth of the train rail system. A proposed trestle structure in this area is to be designed to accommodate pedestrian use of the dog park area.

Archaeological Site CA-ORA 506

Approximately the northern 5/8 of the eastern site is identified as a registered archaeological site. This site has been the subject of less detailed study than CA-ORA 58 which lies west of Placentia Avenue. Any active development of the site would require environmental work in conformance with the City of Costa Mesa, County of Orange Public Facilities and Resources, Historical Programs, and CEQA. This plan calls for no active development in this site. Trenching for irrigation may require archaeological monitoring.

6.3 WEST OF PLACENTIA AVENUE

Existing Park Improvements

The thirteen acres of existing lawn, trees and parking are to remain. As finances or volunteers are available, additional trees should be planned and planted in order to expand the single trees into groves. The western edge of the existing lawn is to be extended to join the trail system and include the glider launch and landing sites as shown on the master plan drawing.

Group Picnic Site

A new group picnic site is planned for the land north of the existing entrance adjoining the existing lawn areas. This area is to have parking for approximately 35 cars, shelter, grilles and tables to seat approximately 75 persons for picnics. A structure to provide shade and rain protection may be provided. The design of this structure should be simple, without walls, maintaining as low a profile as possible. New lawn and tree areas will surround the group facilities. Restroom facilities are also provided.

Interpretive Area

The central interpretive area is located west of the existing park lawn, near the existing parking. This area is to serve as a starting point for learning of the archaeology of the site, as well as the plant and animal communities. The center is not to contain buildings or other structures. The story of the site can be told through low level signage, footprints, castings of artifacts at ground level and limited modeling. The area should allow non-guided discovery suitable to children and adults. Sufficient paving can be provided to assemble a small group for a guided tour. Additional signage should be located at key locations around the site to explain the life of the vernal pools, the various plant communities and habitats, the shell midden, the prehistoric river setting, and the Spanish / Mission use of the site.

Restroom Facilities

Restroom facilities are near the interpretive area on the route to and from parking. This location will serve the existing developed park area, the trail system and the visitors to the interpretive area. This building should include a small storage area of approximately 125 square feet which could be used to store glider launch equipment. The restroom building is located within the lawn and tree active park area and should be a low profile building, perhaps partially enclosed by earth mounds.

Glider Launching Sites

There are two types of model glider airplane launch sites in use at Fairview Park: electric motor launch operations which take place in the morning when winds tend to be calm, and bluff top launches which take place in the afternoon when the prevailing wind creates a strong updraft at the bluff. Both operations are planned to be retained and provided for in the park.

The launch system of the larger planes which rise to ride the thermal columns of the early morning calm are driven by a small battery powered electric motor which reels in a string attached to the glider. While the launch string extends out 600 feet, the aircraft rises from the launch site at a steep angle requiring a small take-off area. The landing requires a separate small area which must be clear of pedestrian traffic. The laying out of the launch string can be accomplished in grassland without damage to either habitat or aircraft. Any clearing required for the launch string is not to exceed one foot in width. The plan calls for moving the current site to the east in order to remove the launch string systems from the vernal pools. A storage area for launch gear can be provided near the launch site south of the interpretive center, associated with the restroom building. This facility should not exceed approximately 125 square feet and is to be of a very low profile, as discussed under restroom facilities.

Bluff top afternoon launches are focused at the bluff near the southern boundary of the site. Due to extensive use of the area, a stabilized decomposed granite paving area should be provided in order to protect the site and the bluff edge. Signage or other vertical projections exceeding approximately 3 feet above grade should not be placed along any of the bluff edges.

Vernal Pools

The vernal pools are discussed in depth in Section 3.5.1 and Appendix C. The pools and basins are to be retained, restored and protected. Protection involves discouraging pedestrian bicycle and pedestrian traffic from entering the seasonal boundary of the pool or basin. A single or double strand of 1/4" aircraft cable supported by 1 5/8" diameter steel posts at 16 feet on center will deter all but the most determined while making only a limited visual intrusion. The plan calls for the fence to be located either at the trail edge, or in the vicinity of the basin.

Archaeological Site CA-ORA 58

The very rich deposit of evidence of early human use of the site adds an exciting and interesting element to the Fairview Park story. The core area covers 14 acres of the northwestern bluff edge and yet many pass by without any knowledge of culture which once flourished here. A program of signage and display at the interpretive center is to make this story part of the Fairview Park experience.

Appendix B discusses the treatment of this important site in detail. Due to the mixing of construction debris and other contaminants in the fill cap, the existing fill deposits are to be removed. Restoration of the native vegetation to the site will not require the replacement of the protective cap fill soils. The archaeologist requires that without the protective cap, access to the general area of the site is to be discouraged in order to restrain unauthorized gathering of artifacts. Trails are planned to cross through the core area. These trails are to be constructed by placing decomposed granite three inches deep over native soil. Delineation of the trails by double strands of aircraft cable as noted above to protect the vernal pools will be suitable for protection of the archaeological site. The bluff trail may remain on the midden layer composed of shells as a means of allowing a form of contact with this clear evidence of early human occupation of the site. If these trails begins to show signs of deterioration due to heavy traffic, the trail may require protection by means of a boardwalk.

Trail Delineation

During the planning process, the subject of defined trails has been questioned by individuals who seek a very free and random access to all areas of the park. While this desire for freedom is understood, parts of the landscape in addition to the archaeological site and vernal pools require some form of protection from bike and pedestrian traffic. Where trails pass through habitat restoration areas the route is to be defined by 1/4" aircraft cable 36 inches and 18 inches above grade supported on steel posts. This delineation system should be held back from the trail edge approximately 4 feet in order to recede into the planting as much as possible. This delineation system is not required in the existing lawn and tree park or east of Placentia Avenue. All pet animals brought to the park are to remain on leashes at all times.

Access to Talbert Nature Preserve

Trail access is provided to Talbert Nature Preserve at four points along the western boundary of the site. At the north a pedestrian trail passes through the alluvial scrub and coastal strand habitats to join the Talbert trail near the Greenville-Banning Channel. The major east-west trail through the northwestern lowlands meets the existing Fairview Park trail to join the Talbert trails at the main entry to the Nature Preserve. Two bluff routes are created on wooden stair structures to be constructed at the points of current heavy foot traffic and erosion: the north and south ends of the western bluff. The southern bluff stair system will require a small bridge over the Placentia Drain and coordination with the County of Orange for connection to the existing Talbert trail. An equestrian trail is provided from Pacific Avenue through the park to the north to connect to the equestrian trail in Talbert Nature Preserve and the Santa Ana River trail system.

Bluff Erosion and Access

Current use of the bluff face for recreational riding of bicycles, skateboards and climbing has created numerous areas of erosion and defoliation. The short term enjoyment which some derive from this destructive activity does not outweigh the need to restore and protect the remnants of sensitive coastal bluff scrub and the land form itself. By defining the trail at the bluff with a delineation system described above, providing educational signage and stair access at two locations, this random access is to be discouraged.

Section 3.3 and Appendix A discuss structural management measures which may be employed to control bluff erosion. The use of a "geoweb" or small check structure system will provide a measure of control without visual intrusion or heavy grading. The goal is to stabilize the bluffs at the current condition and allow for a vegetation cover and root systems to return.

Coastal Bluff Scrub Restoration on the Bluffs and Central Canyon

The slopes of the west and north facing bluffs are to be restored as coastal bluff scrub. This plant community is the natural vegetation for this soil, topography and exposure and is valuable as habitat for the endangered California gnatcatcher. As a sensitive habitat area, and with respect to the erosion conditions on the bluffs, this is a sensitive area and is to be protected from random traffic.

California Native Grassland Restoration on the Mesa

The southern portion of the mesa from the bluffs to the existing developed park retains many species of the native grassland. This area is to be restored as is the northern part of the mesa after the fill soil removal. The overall appearance of the restored area will retain the open heath like feel of a broad open wild area.

Children's Play Area at Pacific Avenue / Canyon Drive

The southern park boundary joins the residential community of Pacific Avenue and Canyon Drive. An irrigated border is planned to provide a small lawn and tree community park with a children's play area. A cul-de-sac at the end of Pacific Drive with parking for approximately 10 cars is to relieve the turn around in the dead end which currently exists.

Canyon Drive serves an existing Fairview Park parking facility for 26 cars west of Marion Parsons School. The trail connects to this parking area and returns to the bluff avoiding

the vernal marsh located in the south east corner at Canyon Drive. Grade for the children's play area should be established high enough to remain dry in the winter season and to assist in the diversion of runoff from the housing area at the southern boundary which currently experiences flooding .

The Northwestern Lowlands

Northwest Park Entrance and Picnic Area

As discussed in Section 6.1, a vehicular entrance is planned from Placentia Avenue to the low land area in the northwest area of the park. A small area of lawn and trees is planned to surround the parking area to accommodate heavy pedestrian traffic in the vicinity. Picnic tables and trash bins are to be placed on the edges of the small plateau formed by existing fill on this site. Restrooms are not indicated on the plan due to the other restroom facilities in the area and the absence of sewer service to this site. The major destination for persons using this parking is the trail system through the alluvial scrub restoration area and Talbert Nature Preserve. Restrooms are provided at the northern entrance to Talbert, which is one quarter of a mile from the parking area. If, in the future, the use of this area indicates the need for restrooms, facilities may be provided which do not require sewer service.

The Fairview Channel and Park Land to the North

The Fairview Channel has been the subject of studies to remove the existing concrete lining and create a more natural drainage. (Project Report Fairview Channel Facility No. D04 from Greenville Banning Channel to Upstream Terminus, County of Orange EMA, August 1991) This project was not carried out after the raising of the bank of the channel eliminated the threat of flooding to the north. The removal of the channel would be an expense which is not necessary for the success of Fairview Park.

The northern park boundary lies approximately 50 feet from the protective fence of the Fairview Channel. This strip of land 50 feet by 1600 feet has no appropriate public use other than as a visual barrier for the residences. A existing heavily used dirt path on the south side of the channel is included in the plan as a major bicycle and pedestrian route.

Neighborhood Park At Placentia Avenue near Swan Drive

The 1/3 of an acre triangle south of Swan Drive at Placentia Avenue is to be developed as a tree-planted barrier between the residences with a small lawn area and benches and one or two picnic tables. This area is accessible only from the sidewalk system of Placentia Avenue and is intended to serve the local neighborhood.

Riparian Zone Along the Placentia Drain

The Placentia Drain exists in the northwest lowlands and extends along the base of the western bluffs to the southern tip of the park where it continues into Talbert Nature Preserve. The presence of seasonal water flow and, to a lesser extent, year-round flows in the Fairview Channel indicates the potential for the introduction of a riparian area along the Placentia Drain. Connection of the drain to the Fairview Channel can provide year round water flow while limiting the volume of flow into this feature. The drain presents an additional habitat and plant community for exploration via the trail system. No membrane or artificial water holding basin is planned in order to avoid attracting non-

native frogs which could be harmful to other native species present in the area. Preliminary engineering study indicates that the riparian zone could be feasible and act as an asset to the wetlands in lower Talbert Nature Preserve by increasing the flow in the Placentia Drain.

Coastal Strand adjoining Talbert Nature Preserve

The northern boundary of the Talbert Nature Preserve contains the coastal strand, or dune, plant community. A small zone of this community is planned at this border line in order to make the property line less visible between the two parks.

Alluvial Scrub / Pacific Pocket Mouse Habitat

The biological study of the site has identified a remnant of alluvial scrub at the northwest lowlands. Plant materials and soil conditions define this 41 acre area. This habitat is significant due to the favorable conditions present for occupation by the Pacific Pocket Mouse, which is listed as endangered by the USFWS. This habitat is becoming extremely rare in coastal Southern California and is considered to be of great value.

6.4 PASSIVE USES AND CIRCULATION TRAILS

Passive uses for the park include walking, running, walking of leashed dogs, flying glider planes, flying kites, picnics, and other small group functions. Organized team sports requiring formal facilities or sports operated as a concession are not included. The natural areas of the park are reserved for running, walking, limited bicycle trails, and interpretive uses. Trails in the natural areas are planned to offer access to each habitat type, and in a quantity to allow variety to the frequent park visitor, but limited in order to provide large blocks of habitat undivided by trails or the interruption of human use.

A system of trails is planned to provide access to all areas of the park by pedestrian traffic. Major trails at the edge of the bluffs, the Talbert connecting trail at the base of the north bluff and the trail to the south of the Fairview Channel are recommended to be a minimum of eight feet wide to accommodate runners and walkers. Other trails are a minimum of five feet wide. Walking trails are surfaced with decomposed granite. The bluff trail in the archaeological site area is over shell midden and is to remain on this surface in order to allow the park user to experience this contact with evidence of much earlier human use. The midden trail and trails crossing the archaeological site will require monitoring for erosion or damage due to use. A board walk may eventually be required if the site is in danger of degradation. The bluff top trail is not included as a bicycle trail in order to avoid paving over this material and mechanical damage to the shell materials. Overlooks with benches are to be provided at intervals along the bluff and at the northwest area of the site. Bicycle trails are to be asphalt surfaced. A 5 foot wide equestrian trail is provided along the main north-south route in order to provide equestrian access from Pacific Avenue to Tallbert Nature Preserve. See also the Design Guidelines in Section 7.

The hours of operation of the park are to be from dawn to dusk. No artificial lighting is to be provided in the restoration areas.

6.5 INTERPRETIVE PROGRAM

The prehistoric and historic activity on this site combined with the restored habitat offer ample opportunity to relate a great deal of interesting information to park users. Section 6.3 describes a design direction for the interpretive center. As a subtle site feature rich in information and discovery opportunities, the facility will not attract needless attention to the itself. The signage elements of the interpretive program should follow this design direction: simple, low to the ground, clear and informative. The interpretive center should offer the broad picture and suggest information to be found on the trails; thus encouraging the seeking and discovering of knowledge from many locations on the site.

The interpretive program should be designed to allow for group tours to be conducted, but should be primarily aimed at self directed discovery. Due to the size of the site and the number of potential subjects to be addressed, it should be quite normal for the park visitor to require many visits before all of the elements are visited.

Subjects for the interpretive program should include:

- The natural river setting before the flood control projects - the setting for prehistoric and historic uses of the site.
- The periods of prehistoric use of the site - the village site and note of the National Register of Historic Places listing.
- The history of Spanish discovery and site use during the Mission and Rancho periods.
- The site of the Polloreno Adobe.
- The various native plant communities and resident animal and bird species.
- The history of archaeology on the site.

6.6 HABITAT RESTORATION - PLANT COMMUNITIES

West of Placentia - Habitat Restoration

The area of the park west of Placentia Avenue is dedicated to uses requiring few constructed facilities and is to be restored to its natural conditions. This area contains the vernal pools, fragments of other native plant communities and the CA-ORA 58 archaeological site, each of which require careful protection. The vernal pools are recognized as a significant and rare resource to be restored. General park use traffic is to be limited to the trails in the archaeological area and in the natural restoration.

Extensive trails allow access by foot, wheelchair or bicycle, but that access is to be limited to the trail systems, allowing vegetation to be restored while creating high quality habitat for birds and small animals.

The intent is to make a smooth transition to the ninety acre Talbert Nature Preserve which adjoins Fairview Park to the west at the base of the bluff.

An interpretive area is designated in the western section to illuminate the rich resources of natural history. The only building construction provided for in the western section of the park by the plan will be restrooms, a small glider storage facility and a shade structure for the group picnic area. These facilities are to be designed to have low visibility, be low key and have minimal impact on the visual image of the park.

A detailed Resource Management Plan is to be developed at the time of preparation of restoration documents and drawings. This plan is to specify methods for weed control, vector control, irrigation and monitoring of plants and wildlife.

Conceptual Restoration Plan Plant Palettes -- Fairview Park, Costa Mesa

The following provides conceptual native plant palettes for four new plant communities currently planned for restoration/establishment within Fairview Park in the City of Costa Mesa. The specified plants are found within the park and general vicinity (i.e., the lower Santa Ana River ecosystem). Final plant palettes, quantities, planting techniques, and other relevant information will be prepared as part of final restoration plans to be completed in the future. The Coastal Strand area adjacent to Talbert Nature Preserve is to repeat the plant species found to have been successful in this existing planting. Plant communities in the vernal pools are presently established by the current restoration biologist.

California Native Grassland

This plant palette is planned for the mesa, primarily in the area presently covered with fill. The existing fill should be removed from the site in order to return the mesa to its original, flat topography and to remove the extensive weed seed bed within the fill. Efforts to re-establish the mosaic of vernal pools on the southern third of the mesa have been started and are to continue until the natural grade and condition of the pools for the area is reached.

Common Name	Scientific Name
<i>Containers</i>	
Purple Needlegrass	<i>Nassella pulchra</i>
<i>Seeds</i>	
Meadow Barley	<i>Hordeum brachyantherum</i>
Vernal Barley	<i>Hordeum intercedens</i>
Coastal Goldfields	<i>Lasthenia californica</i>
Common Tidy Tips	<i>Layia platyglossa</i>
Bicolored Lupine	<i>Lupinus bicolor</i>
Blue-eyed Grass	<i>Sisyrinchium bellum</i>

Coastal Bluff Scrub

This plant palette is planned for hillsides and canyons, where patches of coastal bluff scrub vegetation presently exist, although in generally disturbed/degraded condition.

Common Name	Scientific Name
<i>Containers</i>	
Brewer's Saltbush	<i>Atriplex lentiformis</i> ssp. <i>Breweri</i>
Coyote Brush	<i>Baccharis p. Consanguinea</i>
Lance-leaved Dudleya	<i>Dudleya lanceolata</i>
California Fuchsia	<i>Epilobium canum</i> ssp. <i>canum</i>
Bladderpod	<i>Isomeris arborea</i>
Giant Wild-Rye	<i>Leymus condensatus</i>
California Boxthorn	<i>Lycium californicum</i>
Laurel Sumac	<i>Malosma laurina</i>
Purple Needlegrass	<i>Nassella pulchra</i>
Coastal Prickly-Pear	<i>Opuntia littoralis</i>
Coastal Cholla	<i>Opuntia prolifera</i>
Lemonade Berry	<i>Rhus integrifolia</i>
Mexican Elderberry	<i>Sambucus mexicana</i>
<i>Seeds</i>	
California Sagebrush	<i>Artemisia californica</i>
California Sunflower	<i>Encelia californica</i>
California Buckwheat	<i>Eriogonum fasciculatum</i>
California Poppy	<i>Eschscholzia californica</i>
California Everlasting	<i>Gnaphalium californicum</i>
Coastal Goldenbush	<i>Isocoma menziesii</i> var. <i>venetus</i>
Coastal Goldfields	<i>Lasthenia californica</i>
Common Tidy Tips	<i>Layia platyglossa</i>
Deer Weed	<i>Lotus scoparius</i>
Bicolored Lupine	<i>Lupinus bicolor</i>
Small-flowered Melic Grass	<i>Melica imperfecta</i>
California Wishbone Bush	<i>Mirabilis californica</i>
Blue-eyed Grass	<i>Sisyrinchium bellum</i>

Alluvial Scrub

This plant palette is planned for the alluvial plain in the northern portion of the park. Plans for this portion of the park (up to approximately 50 acres) will depend on whether the U.S. Fish & Wildlife Service (USFWS) determines that this site should be used as a Pacific Pocket Mouse relocation site. If so, treatments within this portion of the park would be carefully planned with USFWS biologists to help ensure the site's suitability to support this endangered species. In any case, it will be important to completely eradicate approximately nine acres of Giant Reed (*Arundo donax*) in this area that were knocked down in the past year.

Common Name	Scientific Name
<i>Containers/Cuttings</i>	
Emory Baccharis	<i>Baccharis emoryi</i>
Mulefat	<i>Baccharis salicifolia</i>
Alkali Heath	<i>Frankenia grandiflora</i>
Bladderpod	<i>Isomeris arborea</i>
California Boxthorn	<i>Lycium californicum</i>
Coastal Prickly-Pear	<i>Opuntia littoralis</i>
Coastal Cholla	<i>Opuntia prolifera</i>
Sandbar Willow	<i>Salix exigua</i>
<i>Seeds</i>	
Chaparral Sand-Verbena	<i>Abronia villosa</i>
California Sagebrush	<i>Artemisia californica</i>
California Croton	<i>Croton californica</i>
California Sunflower	<i>Encelia californica</i>
California Buckwheat	<i>Eriogonum fasciculatum</i>
Coastal Goldenbush	<i>Isocoma menziesii</i> var. <i>venetus</i>
Bicolored Lupine	<i>Lupinus bicolor</i>
California Evening-Primrose	<i>Oenothera californica</i>

Riparian Scrub

This palette is for the Placentia Drain, a gully located along the western project boundary (adjacent to Talbert Regional Park), and potentially in a riparian area that may be created using water from Fairview Channel; ideally, the new drainage course would emerge from Fairview Channel near Placentia Avenue, travel across the alluvial scrub restoration area, and enter the western gully, ultimately draining into the southern end of Talbert Regional Park.

Common Name	Scientific Name
<i>Containers/Cuttings</i>	
Emory Baccharis	<i>Baccharis emoryi</i>
Mulefat	<i>Baccharis salicifolia</i>
Bladderpod	<i>Isomeris arborea</i>
Giant Wild Rye	<i>Leymus condensatus</i>
California Rose	<i>Rosa californica</i>
California Blackberry	<i>Rubus ursinus</i>
Sandbar Willow	<i>Salix exigua</i>
Arroyo Willow	<i>Salix lasiolepis</i>
Mexican Elderberry	<i>Sambucus mexicana</i>
<i>Seeds</i>	
Meadow Barley	<i>Hordeum brachyantherum</i>
Coastal Goldenbush	<i>Isocoma menziesii</i> var. <i>venetus</i>
Bicolored Lupine	<i>Lupinus bicolor</i>

6.7 EXISTING FILL SOIL REMOVAL

The western portion of the site contains fill soils placed as a cap for the archaeological site CA-ORA 58. These soils were not graded smoothly when placed, and were further disturbed in the investigations to determine the boundaries of the site. The soils are known to contain asphalt, concrete, mortar and other construction debris in significant amounts. The existing condition is uneven fills, and piles of soil which prohibit any use other than the current open space. Prior to the discovery of the vernal pools as a sensitive natural resource fill soils were placed in portions of the largest pool. Portions of this pool have been restored by removing the fill soil, and as funds are available, this restoration of natural grade at the pools is to be continued. Due to the fill soils being contaminated and

improperly placed an acceptable protective cap for the archaeological site has not been achieved. Due to the proposed passive use of the site, a new cap is not required if the conditions outlined in Section 3.4 are met. The master plan calls for the removal of the fill soils after the development of a phasing plan aimed at protecting the existing wildlife in this area.

6.8 DRAINAGE ISSUES

6.8.1 GENERAL

The site contains two areas where erosion is a concern. Both areas are discussed in Section 3.2. The bluff erosion is addressed by discouraging park users from walking on the bluff faces at points other than stairs or trails, and by providing erosion control devices in the areas of current severe erosion. The flooding of the southern boundary of the west side is addressed by installing a drain to base of the bluff or to Canyon Drive where it may be drained off of the site. Care must be taken in any drainage measure to study possible effects upon the vernal pools and their drainage and watershed.

6.8.2 EROSION CONTROL MEASURES

Bluff Erosion

The erosion of the bluff face is a natural process which has been accelerated through public use and activities within the park. The characteristics of the bluff affecting erosion include the soil type and topography. Additional runoff tributary to the bluff face will also accelerate the development of erosion features. The exposed face of the bluff area is naturally susceptible to (1) sheet erosion, (2) rill erosion, and (3) gully erosion. Pedestrian traffic along the bluff face and mountain bikes have caused additional aggravation of the erosion process, mechanically dislodging the material of the bluff face.

Erosion Control Measures and Suggested Recommendations

Erosion control features can be installed as part of the park master plan implementation which will assist in minimizing the amount of erosion of the bluff, bluff canyons or arroyos, and the natural canyon areas. The bluffs are important natural features to be preserved. The amount of erosion which occurs to the bluffs is partially dependent upon the amount of runoff which discharges over the bluff face or tributary to the bluff erosion features. Runoff over the bluffs is partially a natural feature of the site and is unavoidable. Restoration of the site to its historical grade elevations will relieve existing drainage patterns caused by the placement of fill soils. A management measure is to minimize public access to the bluff face and direct foot traffic to specific access point down the face of the bluffs. This is accomplished through defining the trail along the top of the bluff and by the addition of wooden stairway systems.

Vegetation of exposed earthen areas and slopes will greatly assist in maintaining the natural areas which are experiencing surface erosion. In addition, the vegetation can also be re-established within the arroyos or bluff erosion features to provide ground cover and reduce the velocity. A summary of the management principles associated with erosion control for the site include:

1. Retain the natural vegetation
2. Minimize grading
3. Vegetate denuded areas
4. Divert runoff away from exposed slopes where consistent with natural grade
5. Keep runoff velocities low
6. Prepare drainage systems to handle the concentrated flow

The existing natural arroyos which have eroded within the bluff areas can be protected through structural management measures in order to prevent continued erosion. Two different treatments are recommended which will have a low visual impact upon the site. These control measures include:

Geoweb: This is a material which can be utilized to stabilize the bluff face and the bluff erosion features. The material is a plastic interlocking web consisted of diamond shapes which are about 8 inches square, creating large connected cells. The material is placed on the slope or drainage courses to provide a flexible revetment. The cells are then filled with soil or gravel and then vegetation is established in the cells. This material has recently been applied on a large slope failure in the Newport Beach back bay area adjacent to the bike trail. After completion, it is not possible to see the material, however, it provides an excellent stabilization system which would also integrate well with the natural park setting.

Check Structures: A "check" is a small grade control structure placed across the stream which slows the water velocity and creates a permanent stream elevation at that location which cannot be eroded. A series of checks can be constructed along these drainage features to maintain a low velocity. A new material which has been implemented to construct the checks is a vinyl sheet interlocking sheet pile. The vinyl material is light weight which allows the material to be installed by hand and is inert so that it has a high longevity. The checks can also be constructed of rock, timbers, or other material.

6.8.3 DEVELOPED PARK DRAINAGE AND HYDROLOGY

Proposed or Modified Drainage Patterns

The park master plan proposes to perform minimal grading to implement the proposed facilities and maintain the existing topographic/drainage patterns as much as possible. One of the primary considerations for maintaining the natural drainage patterns is associated with the bluff top area and the existing vernal pools. The vernal pool habitat is extremely sensitive to surface drainage and is dependent upon this runoff to sustain itself. It is critical within this area that the natural drainage boundaries which have been identified, be maintained to the maximum amount possible. There are some disturbed areas of deposited fill soils within these areas. It is proposed as part of the grading for the park that these areas would be returned to the original historic condition with the natural drainage patterns.

The only significant change through the grading involves the establishment of the riparian area in the location of the existing Placentia Drain. This earthen ditch drain was created during agricultural uses of the site collecting water from the northern low areas and draining south along the bluff face to what is now the south end of Talbert Nature

Preserve. The drain has not been maintained and is filled at several trail crossings. A riparian area in the drain is to be enhanced in the south and created in the north by connecting the drain to a constant water source in the Fairview Channel, and restoring the flow line of the Placentia Drain.

Existing Identified Drainage Deficiencies

The primary drainage deficiency which has been identified through this qualitative evaluation is an area located in the southern portion of the site, near the existing residential area at Pacific Avenue. The runoff generated from a 16 acre portion of the bluff top area drains toward the residential area at Pacific Avenue. The natural topography within this area causes the runoff to be directed towards a low point near Canyon Drive and Pacific Avenue. This area does not have any direct outlet and has caused flooding problems for the adjacent buildings, which appear to have been constructed below the grade of the park.

The remainder of the park site appears to be adequately drained through the natural topography. The vernal pools are self-contained drainage catchments and do not have outlets, but this is an integral part of this natural feature. Regional flood protection for the area is provided through the Fairview Channel and the County of Orange has prepared a preliminary design study, dated August 1991, which has evaluated the flood protection levels provided by the channel. The projects contemplated in this report have been permanently shelved due to the fact that flooding in the area of the Channel is not a high risk and not related to channel capacity, but to backing up in the Greenville Banning at times of maximum flow.

Recommended Drainage Features

Proposed permanent public facilities constructed as part of implementing the park master plan should investigate the local drainage requirements and ensure that the proposed grading provides positive drainage. The fill removal activities should maintain the natural drainage patterns and reduce the potential for erosion. Any large proposed impervious areas such as parking lots should include appropriate surface drainage collection facilities which may only require curb and gutters. New active park areas which are grassed for public use, such as picnic areas, should be graded to ensure positive drainage and should have a slope greater than 2%. Erosion control features and best management practices should be applied during the construction period in order to minimize the sedimentation impacts.

It is recommended that the existing surface drainage deficiency be corrected that has been identified as part of this evaluation. Construction of an underground storm drain is feasible to achieve the desired level of flood protection, and should prove to be desirable in consideration of the vernal pools.

Development of Riparian Scrub in the Existing Placentia Drain

Fairview Park has the required elements to allow the opportunity for the development of a limited riparian zone as part of the park master plan. A existing drainage ditch, the Placentia Drain, cuts diagonally to the southwest through the northwest lowlands and runs along the base of the western bluffs to Talbert Nature Preserve. The drain has been partially filled in numerous locations. With cleaning and restoration of the flow line this

drain would deliver rainfall runoff from the park site to Talbert and its planned wetlands. Due to the sandy soils in this drain area, low flow volumes of water are not anticipated to reach Talbert in the dry season.

The adjacent Fairview Channel could provide a sufficient year-round water supply by intercepting the nuisance water or "low-flows" conveyed by the channel and diverting this runoff to the northern end of the Placentia Drain at an elevation below the invert of the Fairview Channel. Runoff may be allowed to drain to the southern part of the Placentia Drain and to Talbert Nature Preserve wetlands.

Fairview Channel Diversion System:

The ability to construct the diversion system in the existing flood control facility must be approved by the County of Orange and initial discussions should be conducted as early as possible during the planning process to ensure that all design requirements are incorporated. Different configurations for a diversion system are possible but one of the primary design considerations is that it cannot interfere with the level of flood protection or reduce the hydraulic conveyance capacity of the Fairview Channel.

A potential recommended configuration of a diversion system which has been utilized for diverting low-flows on another flood control channel in Orange County involves the construction of an intercepting "trough" within the bottom of the Fairview Channel which is below the channel invert. The "trough" would be located perpendicular to the direction of flow and extend across the entire channel bottom in order to intercept the maximum amount of nuisance flows. The trough would be of sufficient width to intercept shallow depths in the channel and have a slight slope to one side of the channel where it would be connected to an underground storm drain. A manual slide gate would be provided near the connection point for maintenance and to regulate the flow entering the drain if required.

6.9 SECURITY AND FIRE PREVENTION

Security

Designated trails are wide enough to allow for patrol vehicles to reach most areas of the park.. All trails are accessible by foot and bicycle patrol. The hours of the park are to be from dawn to dusk, and security lighting is not to be provided with the exception of the train station and maintenance yard, and museum facilities.

Fire Prevention

Fire vehicles will be able to utilize the designated wide trails in the event of medical aid or fire emergencies. Gates are to be placed at intervals in the trails delineation system for emergency fire access to restoration areas. At the time of detail design of the infrastructure water system, hydrants are to be provided over mains.

The plan calls for irrigated zones to join the residential interface at Canary Drive, Swan Circle and at Pacific Avenue and Canyon Drive. The strip of land between the Fairview Channel and Swan Drive is to be disked periodically to prevent the growth of seasonally dry vegetation in the vicinity of the residential community on Swan Drive. The trail system breaks the restoration areas into segments which will replace the current practice of disking bands of vegetation.

7. IMPLEMENTATION

7.1 NATURAL COMMUNITY CONSERVATION PLAN & HABITAT CONSERVATION PLAN (NCCP/HCP)

The California Legislature enacted the NCCP Act in 1991 declaring that that "there is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth." The NCCP provides a means of setting aside specific areas of habitat while permitting the "taking" of other areas of habitat. By taking a long term regional view, rather than a project by project approach to this preservation and taking, there is improved opportunity for success in the preservation of species, endangered and otherwise.

In 1996, the County of Orange NCCP/HCP Central & Coastal Subregion was established encompassing 208,000 acres (about 325 square miles) which includes the central portion of Orange County from the coast line to Riverside County. The City of Costa Mesa lies within the boundaries of this subregion.

Within this sub-region, a habitat reserve system has been created which identified 38,738 acres which would remain as more or less undisturbed or re-established habitat. The reserve is in two separate areas: the Central sub-area in the vicinity of Irvine Lake running along Lomas Ridge, and the Coastal sub-area near Laguna Beach extending from Laguna Canyon Road to the coast. The County of Orange park lands along the Santa Ana River including Talbert Nature Preserve are included in this somewhat isolated part of the reserve. Fairview Park has 4,500 feet of boundary in common with Talbert Nature Preserve.

State and Federal Regulatory Framework

The regulatory framework within which the NCCP/HCP and the Joint EIR/EIS were prepared includes:

- the NCCP Act of 1991, which facilitates long-term regional protection of natural vegetation and wildlife diversity while allowing compatible land uses and appropriate development and growth.
- the March 30, 1993 listing of the coastal California gnatcatcher as a "threatened" species; the September 29, 1994 listing of the Pacific pocket mouse and the December 16, 1994 listing of the southwestern arroyo toad as "endangered" species under provisions of the Federal Endangered Species Act (FESA).
- the Special 4(d) Rule enacted by the Department of the Interior to encourage preparation of NCCPs by establishing the NCCP Act as a primary program for addressing the federal listing of the gnatcatcher.

The two agencies responsible for implementing the Endangered Species Acts are California Fish and Game(CDFG) and the U. S. Fish and Wildlife Service (USFWS). The County of Orange has been the lead agency in preparing the EIR. The USFWS has been the lead agency responsible for managing the preparation of the EIS.

When the NCCP/HCP Implementation Agreement was approved by the participating

agencies and landowners on July 17, 1996, CDFG issued permits required by the California Endangered Species Act to allow the taking of specified areas of habitat.

Current Participants in the NCCP

The Central and Coastal Subregion of the NCCP contains all or portions of 16 cities and unincorporated Orange County. The habitat reserve system is located in eight of these cities. The City of Costa Mesa is one of these cities due to the incorporation of Talbert Nature Preserve and the area around Talbert Pond.

The NCCP is directed by a non-profit corporation governed by a Board of Directors composed of representatives of major public and private landowners of Reserve lands, the USFWS, CDFG, local jurisdictions that are signatory to the Implementation Agreement and own lands within the Reserve System. The City of Costa Mesa would fall within the last category if they choose to sign the Implementation Agreement.

The current Board of Directors of the NCCP are representatives of the following entities:

U. S. Fish and Wildlife Service	Transportation Corridor Agency
California Department of Fish and Game	City of Irvine
California Department of Parks and Recreation	University of California, Irvine
County of Orange	Chandis-Sherman
Irvine Ranch Water District	3 At-Large Directors
Metropolitan Water District	Ex-Officio Directors:
Southern California Edison	Coastal Greenbelt Authority
Santiago County Water District	California Department of Forestry
The Irvine Company	Orange County Fire Authority

The Process for Incorporating parts of Fairview Park into the NCCP

The City of Costa Mesa may incorporate appropriate habitat restoration areas into the NCCP by signing the Implementation Agreement. Upon signing as a Local Government owning land within the Reserve System, the City of Costa Mesa will be entitled to a seat on the Board of Directors under section 5.1.2 of the agreement. The terms of the agreement call for the lands to remain in the Reserve System for a term of 75 years starting from July 1996.

City of Costa Mesa Responsibilities if becoming Signatory to the NCCP

Each city which signs the Implementation Agreement has the responsibility for conducting some or all of the following actions, depending on whether portions of their jurisdictions are included within the Reserve System or when "take" of Identified Species will occur within their jurisdiction per section 4.4.2 of the Implementation Agreement:

1. Consideration of amendments to the general plan, zoning, or other implementing ordinances to comply with state planning and zoning requirements, to officially designate the Reserve System.
2. Adopt fuel modification ordinances/standards consistent with the NCCP/HCP fuel modification policies (to be developed by CDF and OCFA) that will be applicable to areas bordering the Reserve System, and within Special Linkage Areas and Existing Use Areas.

3. Make best efforts to obtain conservation easements over privately owned lands within the Existing Use Areas owned by non-participating landowners. Should a change be proposed in the future within the Existing Use Areas, local governments are to use their best efforts to exercise local land use authority consistent with the policies of the NCCP/HCP.
4. In cooperation with the appropriate reserve owner/manager, review project proposals within the Reserve System on lands, managed by the particular local government to assure consistency with the NCCP/HCP
5. Assure that the non-participating landowners provide evidence of payment of the Mitigation Fee to the NCCP Non-Profit Corporation where the landowner elects to use the mitigation fee option for Take of listed Coastal Sage Scrub species.
6. Record / Compile Identified Species, Coastal Sage Scrub species and Covered Habitats impacts within its jurisdiction annually reporting losses/mitigation to the County to enable the County, as lead agency to compile subregional data for transmittal to CDFG and the Service.
7. Ensure that NCCP construction related minimization measures (set forth in Chapter 7 of the NCCP/HCP EIR/EIS) are included as conditions of approval in Local Government actions approving development which may result in Take of Coastal Sage Scrub species and ensure that such measures are enforced.
8. For those Local Governments owning land within the Reserve System, formally commit such lands to the Reserve System, and manage such lands in accordance with the NCCP/HCP
9. For those Local Governments owning lands within the Reserve System, serve as a member of the Board of Directors of the NCCP Non-Profit Corporation.
10. Accept and use the NCCP/HCP EIR/EIS as the CEQA program EIR, and commit to the coastal sage scrub, Identified Species and Covered Habitat mitigation requirements, while also, recognizing the mitigation values of preservation of non-coastal sage scrub resources.

Permitted Uses within the NCCP Reserve

Per Section 5.3.3 of the agreement:

The following is a summary of the permitted uses in the Reserve System that shall constitute Planned Activities on the part of Participating Landowners and permitted uses on the part of the NCCP Non-Profit Corporation as more fully described and provided for in the NCCP/HCP:

- Adaptive Management Activities
 - monitoring target species and related habitat conditions
 - monitoring non-CSS and non-targeted species conditions
 - habitat enhancement, restoration and re-creation
 - other management activities designed to implement NCCP policies, objectives (e.g. cowbird trapping, Pacific pocket mouse propagation and weed abatement)
 - inventorying for non-target species.
- Habitat Mitigation Related to Take of Listed CSS Species outside of the Reserve System, consistent with the provisions of the NCCP/HCP
- Habitat mitigation for Take of non-CSS Species outside of the reserve system consistent with the NCCP/HCP and state and federal mitigation policies (e.g. wetlands, least Bell's vireo)

- Field research and field studies designed to further long-term protection of habitats and species included within the Reserve System owned by the participants.
- Fire management Activities Consistent with the NCCP/HCP and fire management plan
- Ongoing grazing activities consistent with the NCCP/HCP Grazing Plan
- Public access and recreation consistent with the provisions of the NCCP/HCP
 - recreation Management Program
 - passive recreation, including hiking, nature interpretation, picnicking
 - equestrian activities on designated trails, and designated new staging areas and facilities
 - mountain biking on designated trails
 - camping in designated locations
 - construction, operation, maintenance and concession activities associated with recreation facilities designated as permitted uses within the NCCP/HCP
 - pre-existing park facilities and uses within disturbed areas, provided that existing active facility expansions, or conversions of passive use facilities to active use must be consistent with the NCCP/HCP
 - within the Coal Canyon Ecological Reserve, public access and hunting as determined appropriate by CDFG
 - park and reserve administration and interpretive facilities
- Activities related to provision of those necessary infrastructure facilities identified in chapter 5 of the NCCP/HCP
 - consistent with the provisions of the NCCP/HCP, operation, maintenance, repair and reconstruction of existing infrastructure as depicted on figure 27 (of NCCP documents) or if not addressed by the NCCP/HCP otherwise a matter of public record
 - construction of those new infrastructure facilities identified in figure 28 (of NCCP documents) consistent with adopted County and city general plans and the provisions of the NCCP/HCP
 - ongoing operations and maintenance , repair and reconstruction activities related to the new infrastructure facilities, consistent with the provisions of the NCCP/HCP
 - emergency activities related to existing or new infrastructure facilities
- Existing uses consistent with Chapter 5.11 (Existing Use Policies) of the NCCP/HCP

Potential Advantages of Inclusion in the NCCP

1. There is the potential for obtaining funding through the NCCP Non-Profit Corporation for assistance in restoring habitat, which is a significant part of the park construction cost.
2. Being a part of the well recognized NCCP program may be of assistance in attracting funding, grants or mitigation funds from other agencies or corporations for restoration of habitat/construction.
3. The master plan for the restoration areas would become protected from active development by the Reserve System commitments.
4. A possible smoothing or clarifying of the permitting process for park restoration and

trail construction in the area of sensitive habitat.

Potential Disadvantages of Inclusion in the NCCP

1. Some restrictions on land use for included areas.
The uses for the restored areas would be all passive uses and would be in compliance with the previously stated approved land uses. None of the stated goals for the use of these lands would be in any way restricted.
2. Obligations for maintaining and caring for the restored habitat areas.
The City of Costa Mesa would make a commitment do this work in any case. There would be no obligations which would be new due to inclusion in the NCCP.
3. The master plan for the included areas is committed for the duration of the NCCP agreement of 75 years. This item is also listed as a benefit of inclusion. There could be point of view that some flexibility for changing the habitat restoration areas to more active developed uses would be positive. The habitat areas of Coastal Bluff Scrub, Alluvial Scrub, and Vernal Pools with their surrounding Grassland are considered to be very sensitive. In the event an effort were to be made to convert these areas to more active park uses, it is likely that current federal and state regulations would prohibit this action. Mitigation funds have been used to restore portions of the vernal pools in 1996-97. These areas were committed to permanent restoration prior to consideration of the NCCP inclusion.

Recommendation for Inclusion of a Portion of Fairview Park in the NCCP

It is recommended that the areas of Fairview Park which this plan designates as passive use habitat restoration areas be included in the NCCP Reserve System.

These areas are:

Northwest lowland alluvial scrub, dunes, riparian scrub	41 acres
Western grasslands, vernal pools and bluffs	70 acres

Total area	111 acres
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These area have been selected because they will contain habitat which is addressed by the NCCP and planned public use which is compatible with the guidelines of the NCCP.

REDACTED DUE TO CONFIDENTIAL INFORMATION

7.2 DESIGN GUIDELINES

The detailed design decisions are critical to implementing the Master Plan Objectives and assuring that the vision of Fairview Park is fully realized. The following guidelines are intended to serve as parameters for future designers and City decision makers during implementing phases of the park plan. They are both reminders of the types of features discussed to be included in the park during the Master Plan process, and further elaboration from a design standpoint on methods for achieving the intent of the Master Plan. The overriding factor to be considered in the design is the desired natural, low-key character of the park. The man-made features and improvements should, as much as possible, allow nature to speak for herself. The recommended materials and design suggestions are intended to allow the designed features to blend with the natural areas, to be substantial and functional while providing a consistent, quality appearance.

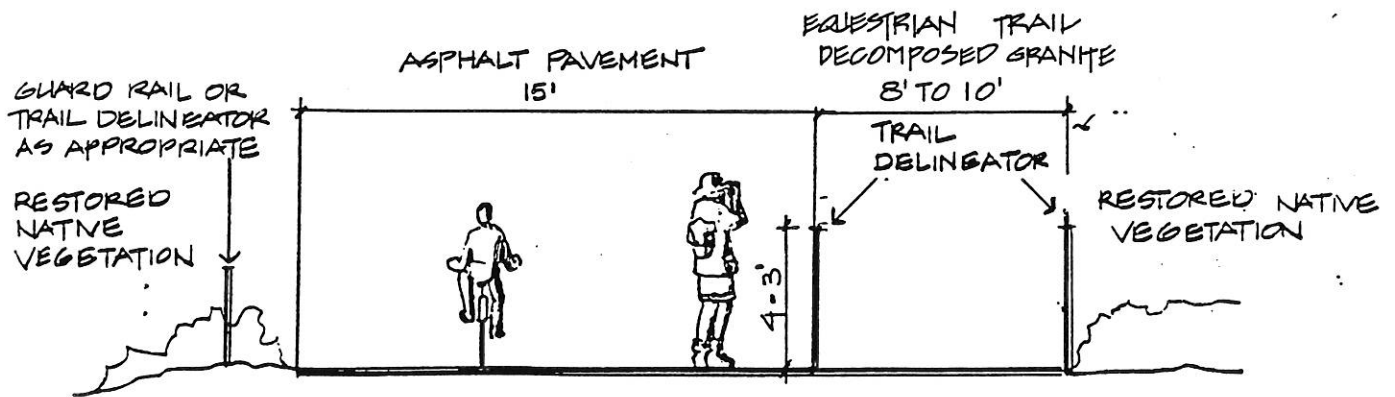
Trails

Trail design varies depending on type and intensity of use and location:

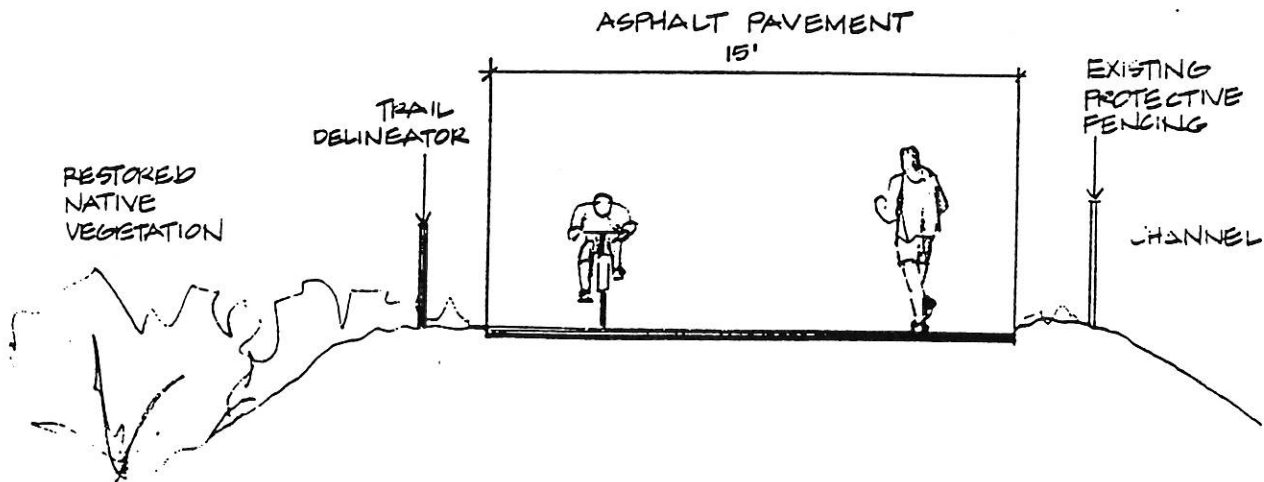
Trail Type	Width	Surfacing material
Pedestrian Trail	5'-8'	Decomposed granite
Multi-purpose Trail (A) security and emergency vehicles	15'	Asphalt Paving
Multi-purpose Trail with Equestrian Trail (A*)	25'	Asphalt, Decomposed granite
Multi-purpose Trail (B) Adjacent to Channel 15' security and emergency vehicles		Asphalt Paving
Multi-purpose Trail (C) Bluff Top	15'	Decomposed granite, shell midden where these materials are exposed. Boardwalk may be installed as a mitigation if midden area becomes degraded from public use.
Multi-purpose Trail (D) Topo Constraints	5'-10'	Asphalt Paving
Multi-purpose Trail (E) Separated bike and pedestrian	5' and 10'	Asphalt Paving and Decomposed granite



PEDESTRIAN TRAIL



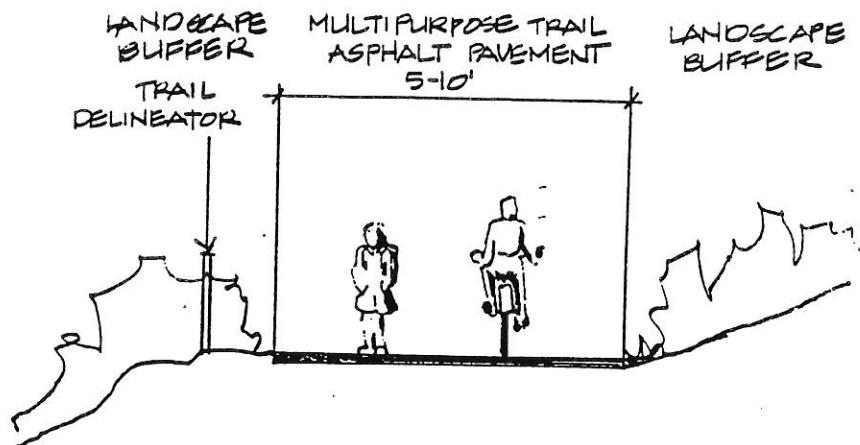
MULTI-PURPOSE TRAIL, Type A



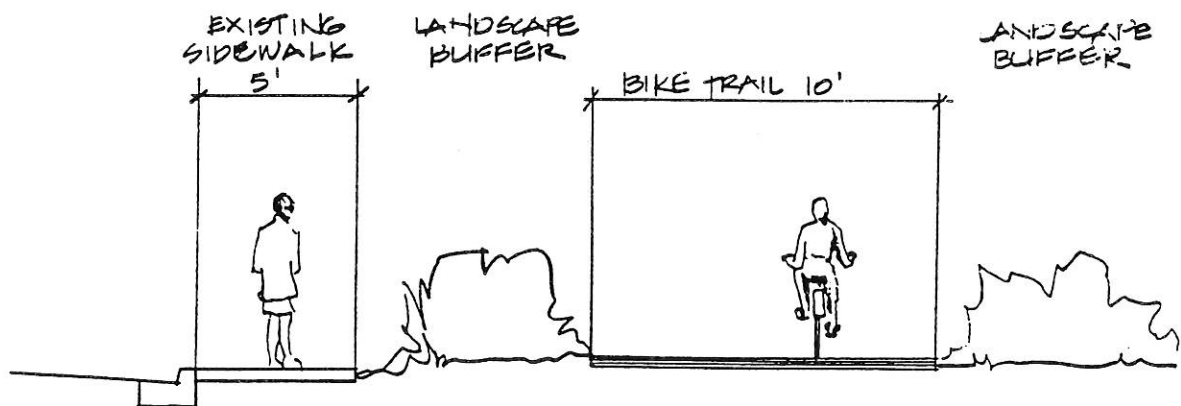
MULTI-PURPOSE TRAIL, Type B--Adjacent to Channel



MULTI-PURPOSE TRAIL, Type C--Blufftop



MULTI-PURPOSE TRAIL, Type D--Topography Constraints



MULTI-PURPOSE TRAIL, Type E--Bicycle Trail Separated from Walkway

Trail Delineation

Where trails pass through habitat restoration areas and sensitive portions of the botanic garden the route is to be defined by double strands of 1/4" aircraft cable 36" and 18" above grade supported on 1-5/8" diameter steel posts 16 feet apart. Posts in the archaeological area are to be driven, not excavated and placed in concrete. In other areas, concrete may be used as a post footing. Trail delineators are to be placed five feet off the edge of trails, with planting between delineator and trail. In planting areas where the plants are too low to obscure the cable system, such as the grassland, portions of the delineator may be removed after the establishment of the vegetation. If no significant intrusion is apparent into the restoration areas by bicycles or pedestrians into the archaeological areas, vernal basins, or sensitive restoration areas, the delineators may be removed. Annual monitoring of intrusion into restoration areas should be implemented by the City of Costa Mesa with a biologist in order to evaluate the need for trail delineation. Each year sections of the delineator may be removed on a trial basis. The goal for this program is to maintain vigorous vegetation, stop erosion, and protect the vernal basins and archaeological sites with as little physical intrusion on the natural environment by way of delineators as is possible.

Park Furniture

Benches and picnic tables should be rustic in character and should be able to be installed without concrete footings, in order to avoid excavation into the archaeological remains. Wood and concrete should be the predominant materials. Wood should have a stained rather than painted surface. The same furniture should be used throughout the park. Trash receptacles should be simple metal trash can with restraints. Drinking fountains should be sandblasted exposed aggregate concrete.

Lighting

Pedestrian scale security lighting should occur only in the developed parts of the park site (the neighborhood parks on the north and south, the entrance and picnic areas on the west side, and the parking lot and train station area on the east side). The parking area north of the bluff on the west side, the restored areas and botanic garden should not be lighted and should be closed to the public after dark. Light fixtures should be chosen which repeat the sandblasted exposed aggregate concrete and wood materials of the other park furniture.

Stairways

Stairways down the bluff should be wood, elevated above the ground surface and supported by concrete footings. Variety should be designed into the stair climbing and descending experience by incorporation of directional changes, landings, and look out points. The stairway should follow the existing grade as closely as possible. The approach to the stair and the adjacent trails should be designed to discourage use of informal trails on the bluff surface. Wood should be stained to match tables and benches.

Play Areas

Play areas should be designed with recognition of the overall park theme. Children's activities could be planned to stimulate questions and exposure to ideas that are part of the park's interpretive story. Corresponding equipment could be reminiscent of some of the park history, the archaeological artifacts or the plants and wildlife of the site. The furniture of the play areas should be the same as the rest of the park furniture.

Interpretive Area and Signing

The central interpretive area is intended to serve as a starting point for learning about the archaeological and natural features of the site. This area is not to contain buildings or tall structures. It is intended that the interpretive information be conveyed through low level signage, castings at ground level and limited modeling. These components should be integrated into a flowing sculptural design that will draw visitors easily through the space.

It should provide seating and provide space sufficient for small classes to gather and listen to a docent or experience the features being displayed.

Signing throughout the site should be low level, visible, but inconspicuous. Low tilted bases of sandblasted concrete with brass or porcelain enamel signing should be considered.

Park Structures

On the west side of the park only three structures are planned in recognition of the goal to keep the park open and natural. There is a restroom planned in the southwestern portion of the existing developed park and another smaller one as part of the group picnic area to the north of the present park entrance. These structures should be the minimum size needed to perform their function. They should be visible for access and surveillance purposes, but they should not be prominent visual features. Curving sculptural shapes of sand finished natural concrete color stucco for walls, with wood roof/trellis detailing to match other site wood features should be considered.

A picnic shelter is suggested for the group picnic area. This is primarily a roof cover with a provision for a large barbeque and countertop area. The design should use the same considerations and vocabulary as the restrooms. On the east side of the park structures should reflect the model railroad and historical theme. Particularly if the Station master's house is relocated to the site, the other buildings should be designed to be compatible with this structure and reminiscent of the early depots of southern California.

Entrance

As the site architecture and interpretive theme presentation is developed, the design vocabulary will be further refined. The entrances, both to east and west should be designed to echo the other designed elements. They should also introduce plantings that will occur in the naturally restored areas of the rest of the site.

Pedestrian Bridge

The pedestrian bridge is an opportunity not only to physically join the two sides of the park site now separated by Placentia Avenue, but to present a unifying and image making statement about the park to travelers below. The arches and rough concrete texture of the Arroyo Parkway bridge in Pasadena and the Bayside Drive bridge in Newport Beach, with its climbing and cascading vines, are suggested as prototypes.

Parking Lots

Parking lots should be as rustic in character as their function will allow. The most northerly parking lot on the west side, for example could be built with an asphalt driveway and center aisle, gravel or decomposed granite parking areas and railroad tie boundaries. The additional parking to be added for the group picnic area and the east side model

railroad area should be similar to the existing adjacent parking lot but with additional planting areas included. In all cases an abundance of trees should be incorporated within the parking lots to relieve the urban appearance.

Plant Palette

Much of the plant palette is determined by the criteria for restoration, and the concept of the California botanic garden. Plantings within the developed park areas should relate to these themes, but the variety of plants can be increased in order to provide for functions such as shade, color, screening, and definition of space.

Plant Palette for Botanic Garden

Coastal Sage Scrub:

Artemisia californica
Salvia apiana
Salvia mellifera
Salvia leucophylla
Eriogonum fasciculatum
Rhus integrifolia
Encelia californica
arra

Southern Oak Woodland:

Quercus engelmannii
Quercus agrifolia
Juglans californica
Ceanothus spp.
Rhus spp.
Ribes spp.
Heteromeles arbutifolia

Riparian Woodland:

Acer macrophyllum
Acer negundo spp. *californicum*
Fraxinus velutina
Platanus racemosa
Populus fremontii
Quercus agrifolia
Baccharis spp.
Salix spp.
Vitis girdiana

Island Chaparral:

(Perhaps have areas specific to each off shore island)

Cercocarpus traskiae
Crossosoma californicum
Eriodictyon traskiae
Prunus lyonii
Rhamnus pirifolia
Adenostoma fasciculatum
Quercus dumosa
Heteromeles arbutifolia
Malosma laurina
Rhus integrifolia
Rhus ovata

Desert Related Plants

Cercidium floridum
Chilopsis linearis
Agave deserti
Cleome isomeris
Dalea spinosa
Encelia farinosa
Yucca spp.
Larrea tridentata
Opuntia spp.

Additional Plants to include:

Pinus torreyana
Sequoia sempervirens
Cercidium floridum
Lyonothamnus floribundus asplenifolius
Cercis occidentalis
Romneya coulteri

Irrigation

Temporary irrigation systems will be needed to establish the native habitat areas. These systems should be installed with pipe on grade so that excavation in the archaeological area will not be needed, and so that the piping can be removed without damaging the plants when the growth is established. Where permanent irrigation system are to be installed, monitoring of the trenching should occur per the recommendations of the archaeological report. The City standards for irrigation equipment and installation will be applied.

7.3 PHASING OF CONSTRUCTION

The plan has been divided into areas for phased construction based upon type of use or type of habitat restoration. The order of construction is suggested with priority given to areas which establish the theme or concept of the total project. A site plan with the area designations accompanies this section. The following is a suggested order of construction.

The sequence recommended here attempts to tie habitat restoration areas together in order to create ever larger blocks of unbroken restored land. If the order of construction is to vary due to funding, every effort must be made to expand upon initial steps to create meaningful and viable blocks of habitat and not to leapfrog over the site.

It will be advantageous and necessary for the City to pursue outside funding through grants, other public agencies, and private corporations for all portions of the park. Funding may become available for any segment of the plan due to a special interest on the part of an agency or corporation. The suggested order of phasing given here should not restrain any interest in contribution. With the exception of the infrastructure phase, each area could be implemented independent of the other and should proceed when funds are available.

1. Infrastructure

Utilities and restrooms

This phase would include construction of the underground electrical service, sewer lines, potable water and reclaimed water lines which will serve the eastern and western sectors of the park; restrooms in the train area, the central area near the glider operations, and the proposed group picnic area; fire hydrants; and electrical service to the restroom areas.

Erosion and drainage control

Construct erosion control measures along the western bluff. This measure will arrest the deteriorating land area and protect the CAL ORA-58 archaeological site. Stairs which are planned for these areas may be added at a later date.

Construct the proposed drain in the area of Pacific Avenue. This improvement will relieve the flooding which occurs in the southern portion of the site which is periodically affecting adjoining property.

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Removal of fill soils

Remove the fill material which was deposited as a cap for the CAL ORA-58 archaeological site. This material contains asphalt, concrete and other foreign material which may further degrade the site. The removal of this material will be necessary before any restoration may begin in this area. Prior to the removal of the debris a phasing plan is to be developed which is to develop methods for preserving species of wildlife currently occupying the uneven terrain. Once the fill soils are removed, restoration of vegetation and protective trail delineation must be immediately commenced in order to protect the archaeological site

2. Area D Western Grassland And Bluffs

This area includes the vernal pools, coastal bluff scrub, and large areas of native grassland restoration. These are among the most sensitive areas in terms of important and unique habitat. This area would establish a firm direction for the total project, create interpretive opportunities and offer important bluff top trails for public use. At the time of the fill soil removal from the area of the archaeological site, restoration of the native grasslands must be started.

Due to the presence of vernal pools, this area may also offer the greatest opportunity for attracting outside financial participation.

3. Area F Pacific Avenue / Canyon Drive Active Park

This relatively small area will establish a strong link to the community to the south and offer active uses for children. Parking for the handicapped at the end of Pacific Avenue will provide important access to the bluff trail.

4. Area A and C Northwest Lowlands

This area also offers large areas of sensitive habitat restoration as it will contain, alluvial scrub, and coastal strand. The area also will serve as the link to Talbert Nature Preserve to the west and south. With the completion of this segment, the major portion of the western park area will be completed as a contiguous habitat.

The completion of the link to Talbert will provide needed parking for that facility, and again expand upon the block of habitat restoration.

5. Area E Group Picnic Area

This area will add parking, an area for group picnics. Trail connections can be completed and overlooks will allow views of the restored northwestern lowlands. With the completion of this area, the total western park south of the Fairview channel will be complete.

6. Area B Neighborhood Park At Swan Drive

As a small phase, this area may be completed at nearly any stage. The area will establish a link to the residential communities to the north in the area of Swan Drive with the neighborhood park.

7. Area H The California Botanic Garden / Train And Pond

As the first area of construction on the eastern side of Placentia, this area would provide

active recreation uses of the large pond, picnicking, extensive trail systems for hiking and biking, and enhancement of the environment of the train rail system. Completion of this area is given priority over station improvements in the belief that the quality of the train ride is of greater importance than the station facility.

Area H-1 is the 3 ¾ acre dog park. This lawn and tree area may be constructed independent of other phases. Parking for the dog park has been designated as separate from the train area parking in order to eliminate an interface between dogs and children.

8. Area I Train Station / Museums

Believed to be more complicated in terms of assembling museum users and funding, this area has been placed well into the future phasing. In the event that funding is located for these features, this phase should be moved forward.

9. Area G Northeast To Canary Drive

The link to the community to the north and east is important to the park as well as the adjacent residents. Until the areas immediately to the south (Areas H and I) are complete, this link appears to have less value than when the improvements are completed.

7.3 COST SUMMARY

Mark	Area Name	Area	Unit	Unit Cost/Acre	Amount
	Infrastructure	NA			1,050,000
A+C	Northwest Area	41.8	Acre	28,857	1,206,260
B	Boundary	3.11	Acre	75,218	233,930
D	Western Grassland + Bluffs	69.64	Acre	23,003	1,601,956
E	Group Area	2.07	Acre	186,915	386,915
F	Border at Pacific	1.84	Acre	105,132	193,443
G	Northeast at Canary	9.29	Acre	36,963	343,390
H	Botanic Garden	33.52	Acre	81,127	2,677,191
H-1	Dog Park	3.75	Acre	25,000	93,750
I	Train Area / Museum Site	8.2	Acre	85,962	704,595
	Total General Areas A to I	173.22	Acre	39,474	7,441,430
	Placentia Median				282,850
	Train / Pedestrian Bridge				205,000
	Total Median and Bridge				487,850
	Total all Phases				8,979,280

8. DESCRIPTION OF ALTERNATIVE I, II & III

8.1 ALTERNATIVE I

SOUTH WEST QUADRANT: Bluffs to Placentia:

Major habitat / plant communities:

1. Maintain and restore vernal pools providing fencing around each pool.
2. Establish grasslands along upper bluff areas.
3. Re-vegetate bluffs with Coastal Bluff Scrub.
4. Establish Coastal Bluff Scrub community in the north-south canyon.

Circulation Routes:

1. Establish new pedestrian trails at top of bluffs and stairway at southwest corner.
2. Establish north-south circulation for bicycles, security, maintenance and joggers.

Facilities

1. Maintain active park along Placentia Avenue in its present condition.
2. Add a restroom in the active park area.
3. Add a visitor information facility to acquaint visitors with the park and its features.
4. Maintain the glider facility in the southwest portion of the park.
5. Correct flooding at west of Canyon Drive - provide new surface drain south of vernal pool to bluff and pipe drain from southeast corner near apartments to drain to bluff / Placentia Drain. Protect from further erosion at bluff.
6. Stop erosion at north end of bluff to protect archeological site.

NORTH WEST QUADRANT: Fairview Channel to bluff, Talbert Nature Preserve to Placentia

Major habitat / plant communities:

1. Develop Riparian Community south of Fairview Channel (remove south portion of berm and reconstruct same further south into park. Enhance the water course.
2. Establish Coastal Dune and Alluvial Scrub community to maintain pocket mouse habitat.
3. Establish Grassland community.

Circulation Routes:

1. Establish circulation connecting Talbert Nature Preserve trails with Placentia Avenue including bicycles, security, maintenance and jogging.
2. Establish pedestrian trails along Riparian Area and Coastal Dunes.

Facilities

1. Add parking along Placentia Avenue with a picnic area and 'Dog Park'.
2. Add picnic area between Fairview Channel and residential community along north edge of park.

NORTH EAST QUADRANT: Canary, Fairview Channel to golf course

Major habitat / plant communities:

1. Establish Oak Woodland plant community on slopes.

Circulation Routes:

1. Establish circulation in the park for bicycles, security, maintenance and jogging. park with lawn and tot lot at the end of Canary Drive.
2. Establish pedestrian trail connecting Canary Drive to Fairview Channel Bridge.

Facilities:

1. Establish neighborhood local neighborhood play area.

starts at a pipe outlet and runs east to the low spot at the driveway. The outlet pipe enters the park from under a roadway that ends at the park. Against the fence that separates the park from the apartments are large trees. Grass is growing around the stream that runs in back of the apartments.

West Side of Bluff - Subarea C & H

The west side of the bluff contains sections of bad erosion. The soil is mostly sand containing some sea shells. Along the bluff banks natural grass is found growing with some patchy scrubs. From the field analysis and looking at the site topography there is not a large overland flow toward the bluff slopes. The runoff that will go down the slopes comes from the mounds and runs between them out onto the bluff edge. At the northwest end of the bluff there is a particularly large eroded slope which is turning into an eroded canyon.

Parking Lot - Subarea F

The lawn covered mounds enclose this part of the park from surrounding areas. The asphalt parking lot sits below the mounds. Trees are part of the landscaped area. The lawn is irrigated by reclaimed water. All runoff is contained within this area. Surface drainage inlets have been placed around the parking lot to intercept storm water runoff generated from this area.

Little Canyon - Subarea E

This area is located between the parking lot and bicycle trail. The flow goes through the canyon and releases at the bottom of the north side of the bluff. At the release point the water can get caught in a small pool located at a low spot. On the day of the field research there was the remainder of a pool left from surface runoff. An area is in use as a test area for establishing selected native plant material.

Northwest End - Subareas J, K, L & M

The soil in this portion of the park is sand. These areas are drained by the Placentia Drain which cuts diagonally toward the bluffs. This drain has not been maintained along its full length and will require minor grading to establish a flow line to the south.

North of Fairview Channel - Subareas N & O

This part of the park is completely covered by low growing vegetation. It is bordered by a golf course to the east, residential homes to the north, Placentia Avenue to the west, and the Fairview Channel to the south. The north half of the drainage area drains down the west slope toward the intersection of the park, Placentia Avenue, and the residential homes. The south half drains toward the storm channel and along the bank near Placentia Avenue is an inlet to allow the water into the channel.

Southeast - Subareas P, Q, R & S

The vegetation in this part of the park is short non-native grasses. The railroad takes up most of the space in this section. The section is bordered by the storm channel, golf course, and Placentia Avenue. All the water drains to the storm channel. Along the edge of the fence line to the channel are inlets to allow water into the channel. In the vicinity of the railroad are drains pipes that flow under the railroad and release out into the open. The runoff then flows down into the channel. The northern section of this part of the park drains into an inlet that is attached to the storm drain line which is connected to the channel. The inlet is located at the intersection of the park, Placentia Avenue, and Fairview Channel.

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into the channel at the 10' (w) x 6' (h) box culvert crossing for the road. This storm drain begins on the west side of the road near the top of the bluff and angles across the street in a northerly direction. On the east side of the street the storm drain releases into the gutter and travels down the road until the runoff is caught by a catch basin at the bottom. The catch basin is attached to the storm drain that connects directly to the channel. Also connected to the storm drain is a slope drain that catches runoff from the northeast end of the park.

Hydrologic Soil Type

The park area is dominated primarily by hydrologic soil types which can be characterized by low infiltration rates based upon field surveys performed by the Soil Conservation Service. The low infiltration rates predominate the bluff areas. Portions of the lower area of the park have soils which are slightly sandy and are characterized by high infiltration rates. These areas are located adjacent to the Fairview Channel in the northwest low area.

Drainage Patterns and Watershed Delineation

The existing surface drainage patterns associated with the park area were evaluated utilizing current aerial topographic mapping which was verified through field investigation.

The majority of the area has clearly defined surface drainage patterns, except locations of limited topographic relief and where vegetation has obscured the ground surface.

North End of Bluff - Subareas G & I

The dominant vegetation is non-native grasses. The soil is a compacted sandy material. Along the north bluff the area drains directly from the bluff and does not take water from any other areas. The north bluff drains directly onto the asphalt bike trail and the trail carries the runoff down the slope. As the trail reaches the bottom of the bluff, it passes over a corrugated metal pipe culvert. The trail runoff enters the stream that passes under the bike trail. The stream carries water from the northeast side of the park under the trail and between the bottom of the bluff and Talbert Regional Park.

Vernal Pools - Subareas B & D

The bike trail that extends from the southern most parking lot located next to the elementary school to the T-intersection between the two parking lots acts as a ridge for the vernal pool backed up against the high school playing fields. At the T-intersection the trail headed east towards Placentia Avenue continues the ridge for this drainage area. The pool is enclosed by the trail and the fence that borders the high school. The ground is covered by low growing vegetation. The large vernal pool between the school and the west edge of the bluff is less contained. Short mounds rise above the bluff and between these mounds exist low spots for the water to settle. On the mounds grass and small shrub bushes are present. The water drains between the mounds toward the pool in the center of the bluff. Within this section there has been a patch cleared with the topsoil exposed. Containing the pool is a dirt path cut through the grass. The path runs between the west edge of the bluff and the asphalt trail. This path acts as a ridge keeping water in the center of the bluff and allowing water to drain toward the south end.

Southwest End of Park - Subarea A

The south end of the west side of the park is adjacent to apartment complexes and is between the west edge of the bluff and the driveway to the parking lot of the park. Runoff slopes from the edge of the bluff and from the dirt path separating this area from the vernal pools to the southeast corner at the intersection of the apartments and the driveway. The average slope between the trail and the south end is very gradual, almost flat. Short, dry grass is found in this part of the park. Water drains through an inlet on the edge of the roadway. Behind the apartments, but on the park property is a stream that



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CITY OF COSTA MESA
FAIRVIEW PARK MASTER PLAN
 COMPOSITE OF ALTERNATIVES I, II, & III
 12/9/96
 SITE MAP

APPENDIX A

Existing Site Drainage and Hydrology

Prepared by: Robert Bein, William Frost & Associates

Introduction

The purpose of this investigation is to provide a qualitative evaluation of the surface hydrology and potential drainage requirements associated with the development of the master plan for Fairview Park. The primary focus of the evaluation includes three primary areas related to drainage which include: (1) bluff area and erosion, (2) vernal pools, and (3) existing local drainage deficiencies. The study provides a minimum technical foundation to assist in the master plan formulation so that the surface drainage and erosion can be addressed at this initial planning stage. Additional detailed engineering analysis should be completed as a part of the final design in order to support implementation of the park master plan.

General Description

The natural watershed associated with Fairview Park consists of approximately 196 acres of primarily undeveloped area, including bluffs and bluff top areas, and natural canyons. The park is bordered by residential homes in the north, Estancia High School and apartments in the south, Costa Mesa Golf and Country Club in the east, and the Talbert Regional Park and Greenville-Banning Channel in the west. Placentia Avenue bisects the park into two parts, the western and eastern sections. The Fairview Channel is a regional flood control channel which conveys storm water to the Greenville-Banning Channel. The watershed associated with the Fairview Park is relatively self-contained, with limited off-site drainage area tributary to the park boundaries. The Fairview Park area has limited existing drainage improvements and the majority of the surface runoff generated by the site follows natural drainage courses until it is intercepted by the Fairview Channel or discharges to the Talbert Regional Park area via the Placentia Drain. The natural topography of the park has created unique surface drainage features and drainage patterns which include the vernal pools adjacent to the bluff top area, erosion features, and natural drainage courses.

Fairview Channel

The Fairview Channel, Orange County Facility D04, is a regional flood control facility which is a significant drainage feature and traverses a portion of the park perimeter, creating the north boundary for the western half of the park. The majority of the channel is a concrete lined trapezoidal channel which confluent with the Greenville-Banning channel, Orange County Facility D03. The Fairview Channel is an open channel from the Greenville-Banning Channel, extending upstream past Placentia Avenue. The cross section of the channel varies in base width from 8 to 6 feet and the depth also varies from 14 to 5 feet. The Greenville-Banning channel is the west boundary of the park and is parallel to the Santa Ana River. The estimated design discharge for 100-year frequency storm is 2,400 cfs based on data from studies prepared by the Army Corps of Engineers. A 72" and 114" diameter RCP outlets into the channel at the upstream end. Along the channel is another 42" RCP that outlets into the channel. Downstream of Placentia Avenue are two other pipes that release storm water from the residential homes which border the channel. Also included along the channel are inlets that drain from the top of the channel bank. The existing storm drain system located in Placentia Avenue discharges

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8.4 ALTERNATIVE COMPOSITE OF I, II AND III

All items as included in Alternate I, II and III with the following additions / changes

SOUTH WEST QUADRANT: Bluffs to Placentia Avenue:

Facilities:

1. Change parking along the south property line at Pacific Avenue.
2. Dog park added near Estancia athletic field.
3. Added group picnic area.
4. Added raptor roosts.

NORTH WEST QUADRANT: Fairview Channel to bluff, Talbert Nature Preserve to Placentia

1. Added pond and riparian / wetlands area.
2. Deleted dog park.
3. Added high speed bike path north of Fairview Channel.

NORTH EAST QUADRANT: Canary, Fairview Channel to golf course

1. Added a view area and tot lot.

SOUTH EAST QUADRANT: Railroad area, Placentia to the golf course

Facilities:

1. Redesign of parking areas.
2. Added play area in train area.
3. Defined more museum functions.

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8.3 ALTERNATIVE III

All items as included in Alternate I and II with the following additions / changes

SOUTH WEST QUADRANT: Bluffs to Placentia:

Facilities:

1. Add parking along the south property line between Canyon Drive and Pacific Avenue.
2. Propose an alternative glider take off zone north of the landing zone to help protect sensitive grass communities south of the vernal pool.
3. Add a second stairway down the bluff at the northwest end of the bluffs.
4. Relocate parking in the active park to allow for the addition of a soccer field and a baseball diamond.
5. Add additional narrow gauge rail line in this quadrant.

NORTH WEST QUADRANT: Fairview Channel to bluff, Talbert Nature Preserve to Placentia

1. Same as Alternate I.

NORTH EAST QUADRANT: Canary, Fairview Channel to golf course

1. Same as Alternate I.

SOUTH EAST QUADRANT: Railroad area, Placentia to the golf course

Facilities:

1. Extend Narrow Gauge Railroad further north into Oak Woodland.
2. Add a bridge across Placentia Avenue for the railroad and pedestrians.
3. Add a median in Placentia Avenue with trees, groundcover and shrubs.

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SOUTH EAST QUADRANT: Railroad area, Placentia to the golf course

Major habitat / plant communities:

1. Establish Oak Woodland plant community on slopes.
2. Establish botanic garden throughout Narrow Gauge Railroad.

Circulation Routes:

1. Establish circulation for bicycles, security, maintenance and jogging which connects new signaled intersection with Fairview Channel. Extend same circulation south along Placentia Avenue to second signaled intersection across from Estancia High School.

Facilities:

1. Retain Narrow Gauge Railroad.
2. Construct new ponds.
3. Retain gravel parking lot for railroad.

8.2 ALTERNATIVE II

All items as included in Alternate I with the following additions / changes

SOUTH WEST QUADRANT: Bluffs to Placentia:

Facilities:

1. Retain glider landing zone, but move further north into park. (East of vernal pool).
2. Add glider equipment storage facility.
3. Add Children's play at Canyon Drive entry.

NORTH WEST QUADRANT: Fairview Channel to bluff, Talbert Nature Preserve to Placentia

1. Same as Alternate I.

NORTH EAST QUADRANT: Canary, Fairview Channel to golf course

1. Same as Alternate I.

SOUTH EAST QUADRANT: Railroad area, Placentia to the golf course

Facilities:

1. Add 'Historic Village' comprised of train station, cafe/restroom, Historic Society headquarters, Natural History office headquarters. (The Village is thought of as a 'home' for historic buildings needing relocation from their present sites in the County). New parking areas and possibly sites for small social functions could occur in this location.

**Table No. 1 - Summary of Existing Condition Drainage Patterns
Fairview Park Master Plan**

Drainage Area	Area(ac)	Ground cover	Flow Pattern
A	16.2	grass	relatively flat, drains to a catch basin in southeast corner
B	5.3	grass	vernal pool confined by school and bike trail
C	15.3	grass and scrubs	flow comes directly from bluff, not from sheet flow
D	8.0	grass and scrubs	vernal pool on bluff confined by mounds and dirt path
E	22.8	grass and scrubs	area drains through canyon
F	9.6	parking lot and landscaped lawn	drainage confined to this area only, drains placed around parking lot
G	9.5	grass	drains from bluff down and over bike path
H	6.2	grass and scrubs	area drains to northwest end of bluff causing canyon to erode
I	2.6	grass	drains off of north bluff down bike trail
J	7.1	sand and patches of grass	flat area below north bluff, drains to culvert under bike trail
K	18.3	tall reeds and sand	northwest corner of park, flat
L	13.2	sand	north end of west side of park, flat
M	11.6	sand and saltbush	northeast corner of west section which includes streambed
N	4.8	grass	north of channel, drains down west slope
O	5.3	grass	north of channel, drains into channel
P	6.7	grass	south of channel, flows to slope drain
Q	12.1	grass	adjacent to Placentia Ave. flows to slope drain
R	14.3	grass	southeast corner of park which drains into channel, runoff comes from area around building near train track
S	8.7	grass	train track included in this area with drains put in to protect tracks, drains into channel

APPENDIX B

Modifications to Recommendations Contained in the CA-ORA-58 Test Level Site Assessment Document (Koerper 1993)

By Henry C. Koerper, Ph.D.

Introduction

Three levels of archaeological investigation are designated to cover the vast majority of effort in Cultural Resource Management (CRM) work. Phase I activities include locating and recording sites of past human activity. Documentation entailing initial descriptions, assessments, and site location is deposited with an archaeological clearing house. Phase I work ideally avoids subsurface exploration; rather, it is in Phase II work that excavation is normally initiated. Test units may then be employed, often in combination with other procedures, to more fully develop a picture of vertical and horizontal extent of a site and to characterize temporal and cultural associations. These data, set against regional research questions provide the foundation for a research design to maximize scientific investigation of a site. In Phase II work, determination of site significance is a major goal.

Phase III archaeology is the final step in mitigating the impact of development on nonrenewable cultural resources and involves excavating, analyzing, and interpreting a scientifically valid sample and/or protecting and maintaining the scientific integrity of a site or portion of a site. Thus, putting a protective cap on a site, implementing an avoidance plan (e.g. maintaining a site as open space), or implementing a conservation easement program would all fall to the archaeological ideal, site protection.

Over three years ago, the Department of Community Services for the City of Costa Mesa received a "Report on Investigations to Delineate Site Boundaries and Further Characterize Cultural Remains at CA-ORA-58, Costa Mesa, California" (Koerper 1993), prepared by The Keith Companies (2955 Red Hill Avenue, Costa Mesa, CA 92626). The report described itself as a "limited Phase II research" document, owing especially to the fact that the city intended for Ora-58 to be protected with only minimally adverse effects to the site from park development. Accordingly, the Phase II plan was constrained largely to delineating the horizontal range of artifacts and ecofacts (e.g., shell remains) with a further breakout of the core area from a more peripheral area. This precluded any need to dig standard test units. Further, no research design was warranted, although Dr. Keith Dixon, it is assumed, would senior author an Ora-58 site report incorporating data recovered by his and other investigators' college field classes. It was presumed that a formal research design or its functional equivalent would accompany Dixon's site report.

When The Keith Companies was handed the task of carrying out limited Phase II research, the City of Costa Mesa anticipated using the site area, once capped, for both passive and non-passive recreational use. The Keith Companies' report thus contained recommendations regarding capping and subsequent treatment of the site to protect especially the core area or zone of relatively high concentrations of artifacts and other indicators of past human behaviors.

Non-passive but relatively unintrusive recreational use was explained to the principal investigator by City personnel (e.g., David Alkema and Perry Grant) as most likely including activities associated with sports facilities (softball diamonds and soccer fields), exercise paths (for bikers and pedestrians), and dog walks. The Fairview Park Negative Declaration, which recognized that a cap of soil provided the best practical solution for protecting and preserving Ora-58, also assumed, at most, relatively passive recreational use of the land. Appendix K of the California Environmental Quality Act favors capping an archaeology site with a layer of soil before building, for instance, tennis courts (see also de Barros and Weber 1993).

Recently, the principal investigator was made aware that the site core area was under consideration for a mostly cordoned off open space status, the area planted with natural vegetation and off-limits to all activities that would require extensive soil capping under CEQA guidelines (Bruce Newell, personal communication 1996). It was suggested that a path leading along the northern and western peripheries of the core zone might provide an avenue to guide park visitors across areas of archaeologically rich midden, providing pedestrians with a more scenic and educational route for their physical recreation.

Since previously anticipated impacts to Ora-58 have changed dramatically, there are reasonable grounds to reconfigure recommendations regarding mitigation measures. The California Environmental Quality Act (CEQA) recognizes that such modifications are allowed in the event of proposed changes in land use. Indeed, the preferred type of mitigation under CEQA is avoidance of the site (see de Barros and Weber 1993). New recommendations and requirements are set forth below to address protection and preservation issues.

Revised Requirements and Recommendations

The 1993 CRM report devised a preservation and protection plan having four parts. The first part outlined requirements to maintain the archaeological integrity of both the core and peripheral areas and to safeguard midden in the area of auger hole No.48. It also included suggestions regarding plant cover that would grow atop cap fill. The second part addressed the monitoring of capping activities. The third part covered curation of artifacts and ecofacts recovered during the limited Phase II operations. The last part set forth requirements in the event of future impacts from park development or archaeological investigations.

Changes to Part 1

Originally the core area was to be protected by a three foot deep layer of clean fill dirt, and it was recommended that a six inch layer of sterile sand be placed atop the midden to mark the interface between the archaeology site and its cap. Now it is recommended that no cap dirt be placed over the site if the following requirements are met:

- 1) The core area shall be cordoned off with suitable fencing to keep park visitors off of the vast majority of the midden surface, core and peripheral areas.
- 2) A walkway is recommended to guide people around the northern and western margins of the site. This pedestrian trail shall be a roadway within the midden no more than three to five meters in width. Pedestrian access to the site surface would be

restricted by suitable fencing along the course of the roadway, probably not unlike the fencing cordoning off the site boundaries.

- 3) Signs shall be posted to direct people to stay outside of the cordoned area and to remain on the pedestrian trail. Park employees shall regularly inspect and note any adverse impacts. If obvious adverse effects can be documented for the pedestrian trail, a boardwalk or other suitable protective covering should become the walking surface of the trail. Other suitable cover might possibly include a two to three foot cap of culturally sterile, chemically inactive dirt.
- 4) The core area shall be planted with vegetation indigenous to the pre-contact period habitat.
- 5) The peripheral area is to be similarly planted with natural vegetation.
- 6) Fill material previously dumped on Ora-58, much of it chemically active, must be removed from the property.
- 7) All reasonable efforts shall be made to minimize compaction damage from equipment employed to remove previously dumped material, for instance, such equipment shall not operate when the ground surface is wet, and removal equipment shall not be excessively heavy.
- 8) Regarding the area around auger hole No. 48, if any subsurface disturbance of this midden deposit is anticipated, a three foot deep cap of sterile, clean fill dirt is required for protection. If no such disturbance is anticipated, a one and a half foot deep layer (clean sterile fill) is required as a cap. (This area is likely a westerly manifestation of Ora-506).
- 9) It is recommended that a mix of indigenous coastal sage scrub (see Hillyard 1990) and indigenous grassland-herbland species be planted over the core area.

Changes to Part 2

Part 2 no longer applies to the monitoring of capping activities, but monitoring will now be required to oversee the removal of the fill material as well as the discing attendant to eradication of naturalized and other undesirable plant species growing over the archaeological midden.

A County-certified archaeologist shall be retained to assist equipment operators in their work to remove fill material with minimal disturbance to midden deposits. When the supervising archaeologist cannot be present on site, a qualified archaeological monitor, under the authority of a supervising archaeologist, should be in the field. The supervising archaeologist and his/her surrogate, the qualified monitor, should meet on site with those persons (administrators and field personnel) charged with the duty of fill removal. The supervising archaeologist will

explain his/her concerns and duties regarding maintenance of the scientific integrity of the cultural resources.

If the supervising archaeologist cannot be present on site, the qualified archaeological monitor will be on site. The qualified monitor will report daily to the supervising archaeologist. Either the supervising archaeologist or his/her designee will be present during fill removal in conformance with the need to monitor as assessed by the supervising archaeologist in consultation with the proper representative of the City of Costa Mesa Department of Community Services.

The principal investigator understands that vegetation on the site will be removed by repeated discing and watering of the field (Bruce Newell, personal communication 1996). After each regrowth occurs, the field will be disced before the sprouted species go to seed. Discs should not penetrate the site surface any deeper than the discing that occurred when the land was farmed. This is estimated to have been not deeper than 25 cm.

It is anticipated that discing will bring to view on the site surface a variety of artifacts. Artifacts will then be vulnerable to removal by collectors. Unless a high security fence can be in place combined with security provided by park or other personnel to deter looters, it shall be required that a qualified archaeologist coordinate a surface reconnaissance program to recover artifacts and record their provenience every time discing occurs. If reconnaissance or recovery becomes the option, it is suggested that these efforts be facilitated using an archaeology field class. A report shall then be prepared employing data from the recoveries after the several discings. The report will include a specimen catalog and a spatial analysis of the various identified categories of artifacts. A county certified archaeologist is required to direct the reconnaissance, recovery, and report efforts. The certified archaeologist will prepare the report following the spirit and intent of requirements of the Orange County Archaeology Forum's "Archaeological Mitigation or Data Recovery Report Guidelines."

The Concerns of Part 3 Addressed

Part 3 of the original CRM document (Koerper 1993) dealt with curation of artifacts and ecofacts. The curation plan that applied to the artifacts collected during delineation of core and peripheral boundaries shall apply to artifacts recovered attendant to the discing operations described above. It is especially important that the City of Costa Mesa and Dr. Keith Dixon come to some sort of accommodation concerning Professor Dixon's access to these additional collections for his Ora-58 site report research.

Changes to Part 4

The Fairview Park Negative Declaration anticipated that scientific investigation of cultural resources would proceed at a future date and that boundary study would necessarily contain information by which the next generation of archaeologists might assess the research potential at Ora-58. The objective of elucidating research potential is a subject addressed not only in the CRM document that was prepared for the City of Costa Mesa Department of Community Services (Koerper 1993) but also in an article that provides archaeological, ethnohistoric, and historic notes to identify Ora-58 and nearby prehistoric villages as within the territorial orbit of the rancheria of Genga (Koerper et al. 1996).

The Koerper (1993) report reviews the Fairview Park Negative Declaration stipulations regarding future archaeological work at Ora-58, including the principal investigator's obligation to produce a research design subject to Costa Mesa City Council approval. There is no change recommended for any criterion regarding courses of action on the part of the P.I. or any other relevant participant attendant to future excavations at Ora-58.

Changes to the section dealing with "Future Potential Impacts to Ora-58" in Koerper (1993) relate to the fact that it was assumed in 1993 that capping material would cover the core area. The document reads:

If any future disturbance for drainage irrigation or any other purpose in the core area subsequent to capping occurs, no trenching or other subsurface excavation shall be allowed to exceed two and a half feet in depth. This restriction is a requirement stemming from the negative declaration.

Given the intent of the negative declaration and given the probable circumstance that there will be no capping of the core area, it is now the requirement that no trenching or similar damaging activity occur in the core zone. Any trenching, etc. to the peripheral area will continue to be subject to compliance with the requirements set out in the Koerper report (1993:69, second paragraph). If the lead agency changes the Negative Declaration with regard to the core area, allowing trenching or other subsurface excavation for nonarchaeological purposes, a County certified archaeologist or his/her surrogate should monitor these activities and have the authority to stop the trenching if significant cultural materials appear.

Subsequent to interruption of these activities, the certified archaeologist may decide whether the excavated materials should be water screened using 1/8 inch mesh. Sorting, identifying, and cataloging following standard archaeological procedures will then proceed under the direction of the certified archaeologist, and a report shall be made of the findings. Curation of any materials will follow the spirit of the guidelines set out under the Curation Plan in Koerper (1993:67).

NEW REQUIREMENTS AND RECOMMENDATIONS

On Site Interpretive Center

It is recommended that information relating to local prehistoric cultures be available for park visitors at a Fairview Park interpretive center adjacent to Ora-58. The information might provide a vehicle for explaining to park visitors the value of maintaining the integrity of the nonrenewable cultural resources at this and all prehistoric sites. Succinct summaries of regional chronology, Orange County past life way reconstruction, sampling and excavation procedures, analyses such as radiocarbon dating or material sourcing, and the scientific method are suggested subjects for such an interpretive display. The special nature of Ora-58 and the territorial orbit of Genga might be explained partially through photographs and/or line drawings of artifacts recovered nearby.

It is also recommended that there be adjacent to paths ringing and penetrating the archaeology site several informational plaques. The plaques would call attention to the natural vegetation or perhaps lithic and shell scatters with explanations of significance linking the habitats or items being viewed with prehistoric human behavior. Certain plaques might again request that park visitors apply the conservation ethic in their personal behavior here and at other locations of prehistoric significance.

Ora-506

CA-Ora-506 lies across the street from and just east of Ora-58, closer to Fairview State Hospital. Ora-506 and Ora-58 have been referred to collectively as the "Fairview Indian Village Site" (Keith Dixon, personal communication 1992). A site record made by Dixon in 1975 gave dimensions of 350 meters by 800 meters for the shell midden. In places the site is 60 cm deep (see Koerper 1996:3). Any active development of this site would require environmental impact work in conformance with the legal requirements of the City of Costa Mesa, Orange County Environmental Management Agency, and CEQA.

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APPENDIX C

BIOLOGICAL CONSTRAINTS AND OPPORTUNITIES ANALYSIS FAIRVIEW PARK, COSTA MESA

October 9, 1995

Prepared by: Robert A. Hamilton, Consulting Biologist

Prepared for: City of Costa Mesa Community Services Department

INTRODUCTION

The City of Costa Mesa (City) retained Robert Hamilton to provide professional biological consulting services associated with advanced planning of Fairview Park, a primarily undeveloped open space area covering approximately 210 acres in western Costa Mesa. The park straddles Placentia Avenue, and is located north of Estancia High School, west of Costa Mesa Golf and Country Club, east of Talbert Regional Park (owned by the County of Orange) and the Santa Ana River, and south of a residential housing tract.

This report is intended to accomplish two main goals: 1) to assist the City in preparing park development plans that avoid/minimize impacts to sensitive biological resources, and 2) to identify areas within the park where habitat restoration would best benefit native plant communities and associated animal populations.

SETTING

Methods

The approach taken for this biological constraints and opportunities analysis consisted of 1) completing a general biological survey of the park by searching for plant and animal species visible during the day, 2) completing directed surveys for the federally threatened California Gnatcatcher, 3) mapping the park's plant communities, 4) identifying areas of low, moderate and high biological sensitivity, and 5) identifying areas where restoration would be logical and biologically valuable. During the course of these investigations, Hamilton consulted with botanist David Bramlet, who visited Fairview Park in April and May 1995 and observed some sensitive plant species there. In addition, Mr. Bramlet assisted in identification of some plant species that Robert Hamilton found in the park.

The City retained Michael Brandman Associates (MBA) to investigate and delineate the limits of vernal pools in the park. This report summarizes relevant findings from MBA's investigations, as presented in 1) a jurisdictional delineation report dated 5 August 1995, and 2) a biological survey report dated 7 August 1995. These reports are included as Appendices C and D to this report. (not reproduced in this document, see Biosensitivity Map)

For this report, the biologist conducted field surveys during the mornings of 24 and 26 February, 12 July, 8 and 30 August 1995, and 5 September 1995. I specifically searched for California Gnatcatchers during the 24 February, 12 July and 8 August surveys; this involved playing taped gnatcatcher vocalizations in all potentially suitable habitat areas (coastal bluff scrub and saltbush scrub habitats). The 26 February survey was conducted with biologists Richard A. Erickson and Robert Fisher, and involved a search of ponded areas for sensitive amphibians. The 12 July, 8 August and 30 August surveys focused on mapping the park's plant communities and searching for plant species present in the park.

The 5 September survey was conducted with Richard A. Erickson to assess the potential for Pacific Pocket Mouse to occur in the park. The biologist noted all plant and wildlife species observed during these surveys, and this report also includes observations made during previous visits to Fairview Park in recent years.

Surveys were not conducted during the main flowering period for most spring-flowering annual plants. Additional surveys from April through June would be required to adequately characterize the park's botanical resources. In order to help determine sensitive plant species potentially present in the park, The author searched the California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California on 6 September 1995.

Mapping was completed using 1) a topographic base map at scale 1" = 100' covering most of the park west of Placentia Avenue, 2) a blueline aerial photograph at approximate scale 1" = 180', and 3) a topographic base map at scale 1" = 200' covering the entire park. The mapping is as accurate as possible, given the varying scales and levels of detail in the materials provided for use, and the lack of a recent aerial photograph. I field-checked the final mapping on 5 October 1995.

Past/Ongoing Land Uses

Fairview Park's natural plant and animal communities show signs of disturbance from a variety of land use practices that started many years ago, when the site was used for agriculture. In recent decades, particularly damaging land uses have included 1) construction of Placentia Avenue, which now effectively divides the park into two parcels 2) placement of fill throughout the middle third of the bluff and in a low-lying area near the northern project boundary, just west of Placentia Avenue, 2) periodic discing of alluvial scrub habitat for weed control, 3) installation of turf and irrigation in southern and eastern portions of the mesa, 4) degradation of native coastal sage scrub on the bluff face resulting from various human disturbances, and 5) unrestricted use of all portions of the park by humans and their pets, which prevents native vegetation from becoming established in heavily used areas, and keeps some sensitive wildlife species from using the park.

Despite these circumstances, Fairview Park supports some unique and interesting plant communities that provide habitat for native plant and animal species. In addition, possibilities exist to preserve and restore some degraded portions of the park while retaining human access to most areas.

Plant Communities

Figure 1 shows the park's plant communities. The following discussions are listed in alphabetical order. The discussion of Fairview Park's vernal pools is somewhat more involved than those provided for other communities. The added level of detail provides a basic understanding of the unusual dynamics that shape this unique ecosystem.

Alluvial Scrub

Sandy soils in the northwest corner of Fairview Park support in a low-lying remnant of the historic Santa Ana River flood plain. Giant Reed has invaded this area, forming large

stands that exclude all other species. Around the margins of these stands, however, is a natural, low-growing alluvial scrub community that may be unique in Orange County. Locally dominant native species in this community include Sandbar Willow (*Salix hindiana*), California Croton (*Croton californica*), Salt Heliotrope (*Heliotropium curassavicum* ssp. *oculatum*), Western Ragweed (*Ambrosia psilostachya*) and Telegraph Weed (*Heterotheca grandiflora*). California Evening-Primrose (*Oenothera californica*) and Chaparral Sand-Verbena (*Abronia villosa*) occur locally. Non-native dominants include Common Poison-Hemlock (*Conium maculatum*), Shortpod Mustard (*Hirschfeldia incana*) and Tree Tobacco (*Nicotiana glauca*). This biologically sensitive area has been disced in the recent past, and the presence of Giant Reed (*Arundo donax*) and a variety of other invasive, non-native species indicates the area has been extensively disturbed over a number of years. Alluvial Scrub covers approximately 9.2 acres in Fairview Park.

Annual Grassland, Annual Grassland/Developed

Fairview Park's grasslands are dominated by primarily non-native, annual grasses, with native annual species interspersed in some areas. Locally dominant non-native species include Slender Wild Oat (*Avena barbata*), Common Wild Oat (*A. fatua*), Foxtail Chess (*Bromus madritensis* ssp. *rubens*), Soft Chess (*B. mollis*), Common Ripgut Grass (*B. diandrus*), Nit Grass (*Gastridium ventricosum*), Crab Grass (*Digitaria sanguinalis*), Hare Barley (*Hordeum murinum* ssp. *leporinum*), Foxtail Fescue (*Vulpia myuros*) and Rabbitfoot Grass (*Polypogon monspeliensis*). Locally dominant native species include Meadow Barley (*Hordeum brachyantherum*) and Vernal Barley (*Hordeum intercedens*). A wide variety of ruderal forbs occur within the park's grasslands, including Sweet Fennel (*Foeniculum vulgare*), Grass Poly (*Lythrum hyssopifolium*), filarees (*Erodium* spp.) and Shortpod Mustard. Native forbs include Small-flowered Microseris (*Microseris douglasii* ssp. *platycarpa*), Big Gumplant (*Grindelia camporum*), Alkali Weed (*Cressa truxilensis* var. *vallicola*), Dove Weed (*Eremocarpus setigerus*) and Shining Peppergrass (*Lepidium nitidum*). West of Placentia Avenue, annual grasslands occupy the mesa exclusive of vernal pools and an area where fill piles were placed in the 1980s.

Most of Fairview Park east of Placentia Avenue is classified as "annual grassland/disturbed" due to the following minor developments interspersed within the grasslands: 1) a train track and small station, 2) a parking lot, 3) a maintenance yard, and 4) minimal landscaping.

In many areas, the difference between annual grasslands and ruderal areas (discussed subsequently) is somewhat subjective, and depends on the length of time since a given area was mowed. Together, annual grasslands and ruderal areas cover approximately 173.5 acres in Fairview Park.

Coastal Bluff Scrub - Disturbed

Coastal bluff scrub is a native upland plant community that occupies portions of the west-facing bluff above Talbert Regional Park. In Fairview Park, this community has been disturbed and fragmented by past human actions, permitting invasion by a variety of non-native, ruderal (weedy) species. The dominant native plants are Bladderpod (*Isomeris arborea*), Coastal Prickly-pear (*Opuntia littoralis* var. *littoralis*) and California Encelia (*Encelia californica*). A few specimens of California Box Thorn (*Lycium californicum*)

and California Wishbone Bush (*Mirabilis californica*) are present, and localized pockets of alkaline soils support Alkali Heath (*Frankenia salina*) and Woolly Sea-Blight (*Suaeda taxifolia*). Common ruderal components of this association include Tree Tobacco, Shortpod Mustard, Russian-Thistle (*Salsola tragus*) and, in moister areas near the base of the bluff, Common Poison-Hemlock. Non-native, annual grasses in this community include wild oats (*Avena* spp.) and brome grasses (*Bromus* spp.). This association covers approximately 2.4 acres in Fairview Park.

Developed Areas

Developed areas (e.g., planters, turf, parking lots) cover approximately 11.7 acres in the park.

Fairview Channel

"Fairview Channel" is a concrete-lined flood control channel that passes through the park near its northern and eastern boundaries. This channel possesses a concrete bottom east of Placentia Avenue and a soft bottom downstream of this road. Water is present year-round. The channel is fenced, limiting access to the channel bottom; however, the following species of non-native plant growing in the channel could be identified with binoculars from a distance: Washington Fan Palm (*Washingtonia filifera*), Johnson Grass (*Sorghum halepense*) and Water Hyacinth (*Eichhornia crassipes*). Fairview Channel covers approximately 2.6 acres in the park.

Giant Reed

Essentially pure stands of Giant Reed have become established in three locations within Fairview Park: 1) sandy soils in the park's northwest corner, 2) a gully that runs along the base of the park's west-facing bluff, adjacent to Talbert Regional Park, and 3) the upper part of a small gully cut into the west-facing bluff. These areas cover approximately 9.4 acres. In early 1995, Giant Reed was eradicated from the second site mentioned above, but new growth is already evident, and the reed will rapidly return to this drainage unless the area is actively managed to exclude it.

Habitat Restoration Sites

In recent years, small-scale habitat restoration has been attempted in two portions of Fairview Park. Several patches of hydroseed, covering a total of approximately 0.7 acre, are evident on a north-facing slope along the margins of a paved path leading from the mesa to the floodplain below. This seed mix included a variety of plant species native to Orange County, including California Buckwheat (*Eriogonum fasciculatum*) and Purple Sage (*Salvia leucophylla*). These seeded areas are not presently maintained, and are overgrown with non-native forbs such as Sweet Fennel and Shortpod Mustard. Another site, covering approximately 0.25 acre, is located a short distance west of the park's main entrance. In winter 1994, this area was planted with several species native to Orange County, including Coastal Prickly-Pear, Coast Cholla (*Opuntia prolifera*), Bladderpod, California Sagebrush (*Artemisia californica*), Buff Monkeyflower (*Mimulus aurantiacus*) and Lemonade Berry (*Rhus integrifolia*). Ruderal forbs invaded this area in early 1995, but were recently removed by a citizens' group interested in continuing this project, and additional plantings are planned for winter 1995/96.

Ruderal

Ruderal forbs are scattered throughout much of Fairview Park, occurring wherever past/ongoing disturbances (e.g., discing, placement of fill, farming) have allowed non-native species to become established. Stands of forbs that do not include any native species as dominants are classified as “ruderal.” In the park, widespread ruderal species include Shortpod Mustard, Common Poison-Hemlock, Russian-Thistle, Common Horseweed (*Conyza canadensis*), Bristly Ox-Tongue (*Picris echioides*), Castor Bean (*Ricinus communis*), Crystal Ice Plant (*Mesembryanthemum crystallinum*) and Cheeseweed (*Malva parviflora*). Southern Spikeweed (*Hemizonia parryi* ssp. *australis*), a sensitive native plant, grows in a disturbed area classified as “ruderal” just west of Placentia Avenue, near the park’s northern boundary (see Figure 1). In Fairview Park, the difference between ruderal areas and annual grasslands (discussed previously) is somewhat subjective in many areas, and depends on the length of time since a given area was mowed. Together, annual grasslands and ruderal areas cover approximately 173.5 acres in Fairview Park.

Saltbush Scrub

Two limited patches of the native Brewer’s Saltbush (*Atriplex lentiformis* ssp. *breweri*) occur in Fairview Park. One, covering less than 0.1 acre, exists on the west-facing bluff. The other, covering approximately 0.6 acre, has developed within piles of artificial fill placed on the park’s mesa in recent years.

Vernal Pools

The following discussion largely summarizes information contained in MBA’s letter reports describing their 1994/95 investigations of Fairview Park’s vernal pools. Please refer to Appendices C and D for the full text of MBA’s reports, including discussions of plant species observed in the park’s vernal pools.

Vernal pools are shallow depressions that pond water following winter and spring rains due to an impervious hardpan that inhibits percolation to lower soil strata. In coastal southern California, vernal pools often form on coastal bluffs on heavy clay soils with the clay providing the impervious hardpan. Due to the relatively unique conditions that must be present to form natural pools, and intensive human development of coastal areas, vernal pools are quite rare in the region.

Over time, the alternating periods of wet and dry in vernal pools promote establishment of unique assemblages of plants and animals adapted to these particular ecological conditions. In order to persist in vernal pool systems, plants and many invertebrates (e.g., fairy shrimp) must be able to tolerate extended periods of wet and dry conditions; vertebrate animals must be able to move between the pools and other areas, making use of the pools during the months when they contain water, plants and prey species. The characteristic survival strategy for vernal pool plants and invertebrates is to grow and mature when water is present, then release seeds (plants) or dry eggs (invertebrates) that remain in the pools until sufficient water again becomes available to complete the cycle again. Toads and frogs employ a similar strategy, breeding and laying eggs that hatch and grow from larvae to metamorphs during the wet period, after which the adults retreat to adjacent upland habitats until the next heavy rains again permit breeding. From fall to

spring, mammals and a wide variety of migratory birds exploit the water and food resources in vernal pools, moving to other areas when the pools dry up.

MBA biologists have determined that the mesa at Fairview Park includes seven vernal pool basins covering a total of 3.4 acres and a 0.25 acre "vernal marsh" that supports wetland dependent plant species not normally restricted to vernal pool habitats in southern California. The largest pool presently covers approximately 2.1 acres, and MBA biologists estimate that placement of fill has reduced its original area by roughly half.

Walnut Scrub

A small stand of Southern California Black Walnuts (*Juglans californica* var. *californica*) approximately 10-15 feet tall, grows in the upper part of a gully cut into the western bluff, near the park's southwestern corner. These trees cover approximately 0.05 acre.

Willow Scrub

Two small willow stands, including several Black Willows (*Salix gooddingii*) approximately 20 feet tall, exist in and near a seasonal drainage that runs along the base of the park's western bluff, adjacent to Talbert Regional Park. Understory dominants include Mugwort (*Artemisia douglasiana*), Castor Bean and Common Poison-Hemlock. These areas cover approximately 0.1 acre.

Wildlife

This section discusses vertebrate wildlife species that have been encountered in Fairview Park, as well as species that have not been observed but that may occur in the park. Since common names of wildlife species are essentially standardized, scientific names are provided only for expected animal species; Appendix B includes scientific names for all animal species that have been observed on the site.

Butterflies

Ten common, widespread species of butterfly have been observed in Fairview Park, including Anise Swallowtail, Cabbage Butterfly, Monarch, West Coast Lady and Pygmy Blue. Many more species are expected to occur there, none of which are sensitive.

Amphibians

Three widespread species of amphibian, Black-bellied Slender Salamander, Western Toad and Pacific Treefrog, have been observed in Fairview Park. Other species that may occur there include Pacific Slender Salamander (*Batrachoseps pacificus*) and Western Spadefoot (*Scaphiopus hammondi*), a sensitive species.

Reptiles

Three widespread species of reptile, Western Fence Lizard, Side-blotched Lizard and Western Skink, have been observed in the park. Other widespread species that may occur there include Southern Alligator Lizard (*Gerrhonotus multicarinatus*), Common Kingsnake (*Lampropeltis getulus*) and Gopher Snake (*Pituophis melanoleucus*). Sensitive species that may occur in the park include San Bernardino Ringneck Snake (*Diadophis punctatus modestus*) and Silvery Legless Lizard (*Anniella pulchra pulchra*).

Birds

Birds are the most conspicuous vertebrates on the project site. A variety of raptors forage in the park, including White-tailed Kite, Northern Harrier, Red-tailed Hawk and American Kestrel. Among the passerines, summer and year-round residents include Mourning Dove, Anna's Hummingbird, Black Phoebe, Cassin's Kingbird, House Wren, Northern Mockingbird, European Starling, Blue Grosbeak and American Goldfinch. When water is present in the park's vernal pools, a variety of wetland-dependent species forage in these pools. Such species include Snowy Egret, Mallard, American Wigeon, Greater Yellowlegs, Least Sandpiper, Common Snipe and Ring-billed Gull. In fall and winter, Long-billed Curlews and Marbled Godwits forage in turfed areas and ponded areas. One pair of California Gnatcatchers is resident in the park, and is believed to nest in a patch of saltbush scrub located on the mesa near the park's west-facing bluff. Winter visitors observed in the park include Say's Phoebe, Blue-gray Gnatcatcher, American Pipit, Savannah Sparrow, Lincoln's Sparrow and White-crowned Sparrow.

Mammals

The following mammal species have been observed in Fairview Park: Audubon Cottontail, San Diego Black-tailed Jackrabbit, Beechey Ground Squirrel and Coyote. Other mammals expected to be present include Virginia Opossum (*Didelphis virginiana*), Striped Skunk (*Mephitis mephitis*), Western Harvest Mouse (*Reithrodontomys megalotis*), Deer Mouse (*Peromyscus maniculatus*), and the introduced House Mouse (*Mus musculus*).

SENSITIVE SPECIES

Sensitive species are those plants and animals occurring or potentially occurring in Fairview Park that are endangered or rare, as those terms are used by CEQA and its Guidelines, or are of current local, regional or state concern. This section lists and briefly discusses the status of each sensitive species that may be present in the park. Legal protection for sensitive species varies widely, from the relatively comprehensive protection extended to listed threatened/endangered species to no legal status at present. The California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), local agencies, and special interest groups such as the California Native Plant Society (CNPS) publish watch lists of declining species; some of these lists describe the general nature and perceived severity of the decline. In addition, recently published findings and preliminary results of ongoing research provide a basis for consideration of species that are candidates for state and/or federal listing. Finally, species that are clearly not rare or threatened statewide or regionally, but whose local populations are sparse, rapidly dwindling or otherwise unstable, may be considered to be of "local interest."

Inclusion in the sensitive species analysis for this project is based on the following criteria: 1) direct observation of the species on the property during the current survey or previous biological surveys; 2) sighting by other qualified observers; or 3) lands within the known distribution of a given species, and containing appropriate habitat. Sensitive plant species potentially present in Fairview Park were determined through a search of the CNPS Electronic Inventory; search criteria included species known to occur in Orange County in coastal bluff scrub, coastal sage scrub, vernal pool or grassland habitats. MBA (1995) conducted focused surveys for vernal pool plant species, and independently determined sensitive species associated with vernal pool that may potentially be present in Fairview Park based on consideration of the species' present/historic ranges. Two species considered in MBA (1995), San Diego Mesa Mint (*Pogogyne abramsii*) and Otay Mesa Mint (*Pogogyne mudiuncula*), are not included here since Fairview Park is well north of their present and historic ranges (San Diego County and Baja California).

Except for some plant species associated with vernal pools, which may occur in areas presently covered by artificial fill, this report does not discuss species that would have been present and observable during the surveys conducted for this assessment. Table A summarizes the sensitive species present, or potentially present, in Fairview Park.

Table A - Sensitive Species

SPECIES	OBSERVED IN FAIRVIEW PARK	STATUS		
		FEDERA L	STAT E	CNPS
LISTED/PROPOSED SPECIES				
PLANTS				
San Diego Button-Celery <i>Eryngium aristulatum</i> var. <i>parishii</i>		E	E	1B
Spreading Navarretia <i>Navarretia fossalis</i>		PT	--	1B
California Orcutt-Grass <i>Orcuttia californica</i>		E	E	1B
INVERTEBRATES				
San Diego Fairy Shrimp <i>Branchinecta sandiegoensis</i>		PE	--	N.A.
Riverside Fairy Shrimp <i>Streptocephalus wootoni</i>		E	E	N.A.
BIRDS				
American Peregrine Falcon <i>Falco perergrinus anatum</i>		E	E	N.A.
Coastal California Gnatcatcher <i>Poliopitila californica californica</i>		T	CSC	N.A.
MAMMALS				
Pacific Pocket Mouse <i>Perognathus longimembris pacificus</i>		E	CSC	N.A.
SPECIES NOT LISTED OR PROPOSED FOR LISTING				
PLANTS				
Howell's Foxtail <i>Alopecurus saccatus</i>		--	--	--
Aphanisma <i>Aphanisma blitoides</i>		C2	--	1B
Catalina Mariposa Lily <i>Calochortus catalinae</i>		--	--	4
Blochman's Dudleya <i>Dudleya blochmaniae</i> ssp. <i>Blochmaniae</i>		C2	--	1B
Many-stemmed Dudleya <i>Dudleya multicaulis</i>		C2	--	1B
Southern California Black Walnut <i>Juglans californica</i> var. <i>californica</i>		--	--	4

SPECIES	OBSERVED IN FAIRVIEW PARK	STATUS		
		FEDERA L	STAT E	CNPS
Palmer's Grapplinghook <i>Harpagonella palmeri</i>		C2	--	2
Southern Spikeweed <i>Hemizonia parryi</i> ssp. <i>Australis</i>		C2	--	1B
Hairy Pepperwort <i>Marsilea vestita</i> var. <i>vestita</i>		--	--	--
Small-flowered Microseris <i>Microseris douglasii</i> ssp. <i>platycarpha</i>		--	--	4
Prostrate Navarretia <i>Navarretia prostrata</i>		--	--	--
California Evening-Primrose <i>Oenothera californica</i>		--	--	--
Virginia Rockcress <i>Sibara virginica</i>		--	--	--
Woolly Scablight <i>Suaeda taxifolia</i>		--	--	4
INVERTEBRATES				
California Trapdoor Spider <i>Bothriocyrtum californicum</i>		--	--	N.A.
AMPHIBIANS				
Western Spadefoot <i>Scaphiopus hammondii</i>		C2	CSC	N.A.
REPTILES				
San Diego Horned Lizard <i>Phrynosoma coronatum blainvillei</i>		C2	CSC	N.A.
Silvery Legless Lizard <i>Anniella pulchra pulchra</i>		C2	CSC	N.A.
Coastal Western Whiptail <i>Cnemidophorus tigris multiscutatus</i>		C2	--	N.A.
San Bernardino Ringneck Snake <i>Diadophis punctatus modestus</i>		C2	CSC	N.A.
Coast Patch-nosed Snake <i>Salvadora hexalepis virgulata</i>		C2	CSC	N.A.
BIRDS				
White-tailed Kite <i>Elanus leucurus</i>		--	CSA	N.A.
Northern Harrier <i>Circus cyaneus</i>				
Sharp-shinned Hawk <i>Accipiter striatus</i>		--	CSC	N.A.

Cooper's Hawk <i>Accipiter cooperii</i>	--	CSC	N.A.
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STATUS

SPECIES	OBSERVED IN FAIRVIEW PARK	FEDERA L	STAT E	CNPS
Ferruginous Hawk <i>Buteo regalis</i>		C2	CSC	N.A.
Western Burrowing Owl <i>Speotyto cunicularia hypugea</i>		C2	CSC	N.A.
Long-billed Curlew <i>Numenius americanus</i>		--	CSC	N.A.
Coastal Cactus Wren <i>Campylorhynchus brunneicapillus</i>		C3B	CSC	N.A.
Loggerhead Shrike <i>Lanius ludovicianus</i>		C2	CSC	N.A.
California Yellow Warbler <i>Dendroica petechia morcomii</i>		--	CSC	N.A.
Tricolored Blackbird <i>Agelaius tricolor</i>		C2	--	N.A.

MAMMALS

Pallid Bat <i>Antrozous pallidus</i>	--	CSC	N.A.
San Diego Black-tailed Jackrabbit <i>Lepus californicus bennettii</i>	C2	CSC	N.A.
Northwestern San Diego Pocket Mouse <i>Perognathus fallax fallax</i>	C2	CSC	N.A.
Southern Grasshopper Mouse <i>Onychomys torridus ramona</i>	C2	CSC	N.A.
San Diego Desert Woodrat <i>Neotoma lepida intermedia</i>	C2	CSC	N.A.

Legend - Table A

Federal Classifications

- E Taxa listed as Endangered.
- T Taxa listed as Threatened.
- PE Taxa proposed to be listed as Endangered.
- PT Taxa proposed to be listed as Threatened.
- C1 Category 1 candidate for listing. Refers to taxa for which the USFWS has sufficient information to support a proposal to list as Endangered or Threatened, but insufficient capacity to complete the process at this time.
- C2 Category 2 candidate for listing. Refers to taxa which existing information indicates may warrant listing as Endangered or Threatened, but for which substantial biological information to support a proposed rule is lacking.

State Classifications

- E Taxa State listed as Endangered.
- T Taxa State listed as Threatened.

- SCE State candidate - Endangered.
SCT State candidate - Threatened.
CSC California Species of Special Concern. Refers to taxa with populations declining seriously or that are otherwise highly vulnerable to human developments.
CSA California Special Animal. Of concern to the California Natural Diversity Data Base.

California Native Plant Society (CNPS) Classifications

- 1B List of plants considered by CNPS to be rare or endangered in California and elsewhere.
2 List of plants considered by CNPS to be rare, threatened or endangered in California, but which are more common elsewhere.
3 Review list of plants suggested by CNPS for consideration as endangered but about which more information is needed.
4 Watch list of plants of limited distribution, whose status should be monitored.

Accounts of Listed/Proposed Species

The following species are listed as threatened or endangered by state and/or federal resource agencies.

San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*)

This annual herb is listed as endangered by both federal and state resource agencies, and is placed on CNPS List 1B, referring to species that CNPS considers rare or endangered in California and elsewhere. San Diego Button-Celery blooms from April to June and grows primarily in vernal pools. Its known range extends from western Riverside County to Baja California. It is not known to occur in Orange County.

San Diego Button-Celery has not been found in Fairview Park, but could possibly exist in the park's largest vernal pool, half of which is presently covered with artificial fill.

Spreading Navarretia (*Navarretia fossalis*)

This annual wildflower is proposed as a federally threatened species, and is on CNPS List 1B. It occurs in vernal pools and other seasonally wet areas from Los Angeles County to Baja California.

Spreading Navarretia has not been found in Fairview Park, but could possibly exist in the park's largest vernal pool, half of which is presently covered with artificial fill.

California Orcutt-Grass (*Orcuttia californica*)

This annual grass is listed as endangered by both federal and state resource agencies, and is placed on CNPS List 1B. California Orcutt-Grass blooms from April to June and grows in vernal pools. It is known from fewer than 20 sites. Its known range extends from Ventura County to Baja California. It is not known to occur in Orange County.

California Orcutt-Grass has not been found in Fairview Park, but could possibly exist in the park's largest vernal pool, half of which is presently covered with artificial fill.

San Diego Fairy Shrimp (*Branchinecta sandiegoensis*)

This invertebrate is proposed for federal listing. Until recently, San Diego Fairy Shrimp was found only in vernal pools in San Diego County; it has recently been discovered at Fairview Park and at at least one other Orange County vernal pool system (Tony Bomkamp pers. comm.). Several species of fairy shrimp are listed as endangered by the federal government, and a federal permit is required to collect specimens for identification. The species are very similar and cannot be reliably identified except by a specialist.

Biologist John Moeur of the U.S. Army Corps of Engineers collected this species of fairy shrimp the "vernal marsh" found along Fairview Park's southern border, adjacent to Estancia High School.

Riverside Fairy Shrimp (*Streptocephalus wootoni*)

This invertebrate is federally listed as an endangered species. Riverside Fairy Shrimp occurs only in and around natural seasonal pools, and is quite unusual in Orange County and elsewhere.

MBA reported that Biologist John Moeur of the U.S. Army Corps of Engineers collected fairy shrimp from Fairview Park's vernal pools and identified them as the relatively widespread *Branchinecta lindahli* (see Appendix C, Page 8). Consultation with the U.S. Fish and Wildlife Service is recommended to determine if that agency considers Mr. Moeur's survey effort adequate to support a conclusion that Riverside Fairy Shrimp is absent from Fairview Park.

American Peregrine Falcon (Falco peregrinus anatum)

This large falcon is listed as endangered by the state and federal resource agencies. Peregrine Falcons formerly nested at several sites in Orange County, but the local and national population crashed in the 1960s and 1970s due to poisoning by the pesticide DDT. A pair is now known to nest in coastal Orange County, and non-breeding individuals are observed regularly at coastal estuaries, primarily in fall and winter.

The author has observed Peregrine Falcons foraging near the lower Santa Ana River on several occasions in recent years. On 5 September 1995, Richard Erickson and Hamilton observed an adult circling over the northwest portion of Fairview Park. Fairview Park does not include any areas suitable for nesting by this species.

Coastal California Gnatcatcher (Polioptila californica californica)

This California Species of Special Concern is listed as threatened by the federal government, and is one of the three "target species" of the NCCP. The Coastal California Gnatcatcher formerly occupied coastal sage scrub and coastal bluff scrub communities from Ventura County south to northwestern Baja California. It is now absent from much of its former range. In Orange County, Coastal California Gnatcatchers occupy coastal sage scrub and similar native associations on gentle to moderate slopes south and east of the Santa Ana River. The major populations are located near the coast, in the Fullerton Hills, on the coastal slope of Loma Ridge and in the southern foothills.

From about 1990 to 1993, Hamilton regularly found Coastal California Gnatcatchers in disturbed coastal bluff scrub vegetation on the face of the park's west-facing bluff. In winter of 1993/94 he observed a lone gnatcatcher foraging on County land west of the bluff, which has since been cleared and re-planted as part of development of Talbert Regional Park. In summer and fall of 1994 Hamilton observed a family group of gnatcatchers in and around a patch of saltbush scrub that has developed near the southwestern edge of the fill piles on the mesa. Through the winter, only single birds were observed at any one time on the mesa. During directed surveys from February to early August 1995, Hamilton did not find California Gnatcatchers anywhere in the park. However, on 30 August and 5 September 1995, a family group of two adults and two juveniles were observed foraging in ruderal vegetation adjacent to the patch of saltbush scrub discussed previously in this paragraph. Apparently, the birds again nested in the park's saltbush scrub or in coastal bluff scrub habitat on the face of the bluff, but were unresponsive during the nesting season.

Pacific Pocket Mouse (Perognathus longimembris pacificus)

This California Species of Special Concern is designated as endangered by the USFWS. It is found in loose soils in dry areas of low elevation grasslands, coastal sage scrub, and coastal strand associations. Historically, this species ranged from Los Angeles County to extreme southwestern San Diego County. Small numbers trapped at the Dana Point Headlands in 1993 were the first observed anywhere in over 20 years.

The alluvial scrub community located in the northwest corner of Fairview Park comprises potentially suitable habitat for Pacific Pocket Mouse. After examining this area on 5 September 1995, biologist Richard Erickson, a recognized authority on this species, expressed the view that Pacific Pocket Mouse probably occurred there in the past. However, due to past disturbance and fragmentation of this area, and ongoing discing apparently conducted to control weed growth, Mr. Erickson considers it unlikely that this mouse persists there. Trapping by a permitted specialist would be required to conclusively determine whether Pacific Pocket Mouse occurs in Fairview Park.

Accounts of Species not Listed or Proposed for Listing

Howell's Foxtail (Alopecurus saccatus)

This native annual grass is not placed on any state, federal or CNPS list of sensitive species, but is considered to be of local interest since a population discovered by botanist David Bramlet in Fairview Park's vernal pools and associated grassland habitat is the only one known in Orange County. Howell's Foxtail grows in vernal pools and moist meadows in coastal areas from southern California to Washington.

Aphanisma (Aphanisma blitoides)

This annual herb is a Category 2 candidate for federal listing, referring to taxa which existing information indicates may warrant listing as endangered or threatened, but for which substantial biological information to support a proposed rule is lacking. It is placed on CNPS List 1B. Aphanisma blooms in April and May, and grows on coastal bluffs and in coastal sage scrub from Santa Barbara County to Baja California, including several Channel Islands. Mainland populations are steeply declining due to urbanization, recreational development and foot traffic.

Aphanisma has not been observed within Fairview Park, and is unlikely to occur there due to extensive past disturbance to the park's bluffs. Directed surveys of the park's bluffs in April or May would be required in order to determine whether Aphanisma is present.

Catalina Mariposa Lily (Calochortus catalinae)

The CNPS has placed this lily on its List 4, a watch list of plants of limited distribution, whose status should be monitored. Catalina Mariposa Lily blooms from February to May, and grows in heavy soils in grasslands and openings in coastal sage scrub and chaparral.

Catalina Mariposa Lily has not been observed within Fairview Park, and is unlikely to occur there due to extensive past disturbance to the park's bluffs. Directed surveys of the park's bluffs from February through May would be required in order to determine whether this species is present.

Blochman's Dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)

This small succulent, known from fewer than 25 occurrences (Skinner and Pavlik 1994), is a Category 2 candidate for federal listing, and is placed on CNPS List 1B. This dudleya is found in rocky, often clay or serpentine soils in upland scrub and grassland habitats below 1,500 feet elevation near the coast from San Luis Obispo County to Baja California. It blooms from April to June.

This species has not been observed in Fairview Park, and is unlikely to occur there due to extensive past disturbance to the park's bluffs. Directed surveys of the park's bluffs from April to June would be required in order to determine whether Blochman's Dudleya is present.

Many-stemmed Dudleya (*Dudleya multicaulis*)

This species is a federal Category 2 candidate and is placed on CNPS List 1B. Many-stemmed dudleya is found in several counties in southwestern California, usually on poor soils at the margins of rock outcrops in coastal sage scrub and grassland communities. It blooms from May to July.

This species has not been observed in Fairview Park, and is unlikely to occur there due to extensive past disturbance to the park's bluffs. Directed surveys of the park's bluffs from April to June would be required in order to determine whether Many-stemmed Dudleya is present.

Palmer's Grapplinghook (*Harpagonella palmeri*)

Palmer's Grapplinghook is Category 2 candidate for federal listing and is on CNPS List 2, referring to plants that the CNPS considers rare, threatened or endangered in California, but which are more common elsewhere. This inconspicuous annual plant blooms from March to April, and grows on dry slopes in coastal sage scrub and chaparral habitats below 1,500 feet from Los Angeles County to Baja California.

This species has not been observed in Fairview Park, and is unlikely to occur there due to extensive past disturbance to the park's bluffs. Directed surveys of the park's bluffs in March or April would be required in order to determine whether Palmer's Grapplinghook is present.

Southern Spikeweed (*Hemizonia parryi* ssp. *australis*)

This spiny annual plant is a Category 2 candidate for federal listing, and is on CNPS List 1B. This spikeweed grows in vernal mesic, disturbed alkaline soils near the coast, blooming June to November. The range extends from Santa Barbara County to Baja California.

A substantial population of Southern Spikeweed, containing hundreds of plants over approximately 8.9 acres, is present in a low-lying area classified as "ruderal" just west of Placentia Avenue near the park's northern boundary. The approximate limits of this population are indicated on Figure 1. Periodic mechanical disturbance of this part of the

park probably does not adversely affect this species; in fact, it may prevent other ruderal species from crowding out the spikeweed.

Southern California Black Walnut (*Juglans californica* var. *californica*)

This tree is placed on CNPS List 4. The range of Southern California Black Walnut extends from Santa Barbara County south to San Diego County. Skinner and Pavlik (1994) described walnut forest as a "much fragmented, declining natural community, rare in Orange, Riverside, San Bernardino, and San Diego counties. Threatened by urbanization and conversion to agriculture." In Orange County, walnuts grow primarily in the Chino Hills and Santa Ana Mountains. It is unclear whether the small stand of walnuts in Fairview Park (see Figure 1) occurs here naturally, or if it was planted many years ago.

Hairy Pepperwort (*Marsilea vestita* var. *vestita*)

This aquatic fern is not placed on any state, federal or CNPS list of sensitive species, but is considered to be of local interest in Orange County due to its limited distribution here (David Bramlet pers. comm.). Hairy Pepperwort grows in creeks, vernal pools and other wet areas from western Canada to Peru. In Fairview Park, this fern grows in vernal pools and in seasonal ponds created within the piles of artificial fill on the mesa.

Small-flowered Microseris (*Microseris douglasii* ssp. *platycarpa*)

The CNPS has placed this low annual wildflower on List 4. Small-flowered microseris blooms from March to May, and grows in grasslands on heavy clay soils from Los Angeles County to Baja California. It is threatened by widespread development of grasslands and exclusion by non-native, invasive plant species.

In Fairview Park, Small-flowered Microseris occurs within annual grasslands growing on the mesa in the vicinity of vernal pools.

Prostrate Navarretia (*Navarretia prostrata*)

This annual wildflower was recently placed on CNPS List 1B (Tony Bomkamp pers. comm.). It is known only from limited vernal pool/alkaline floodplain communities in Merced, Los Angeles, Orange and western Riverside counties.

Prostrate Navarretia was unknown from Orange County before its discovery in three of Fairview Park's vernal pools in 1994/95.

Virginia Rockcress (*Sibara virginica*)

This annual wildflower grows on the margins of vernal pools, along streambeds and on open ground from California's Central Valley to eastern North America and Baja California. It is not present on any state, federal or CNPS list of sensitive species. However, populations discovered by botanist David Bramlet on the margins of vernal pools in Fairview Park are the only ones known in Orange County. As such, it is considered to be of local interest. Mr. Bramlet (pers. comm.) reports that CNPS botanists are presently considering this species for sensitive species status, since it is quite scarce in southern California and possibly elsewhere in the state.

California Evening-Primrose (*Oenothera californica* ssp. *californica*)

This perennial wildflower grows in sandy and gravelly areas from San Luis Obispo County south to Baja California. It is not present on any state, federal or CNPS list of sensitive species. However, populations discovered in alluvial scrub habitat in Fairview Park are the only ones known in Orange County. As such, it is considered to be of local interest.

Woolly Seablight (Suaeda taxifolia)

The CNPS has placed this low evergreen shrub on List 4. Woolly Seablight grows in coastal bluff scrub and on the margins of coastal salt marshes from San Luis Obispo to Baja California. A few specimens of Woolly Seablight were observed within Fairview Park's disturbed coastal bluff scrub community.

California Trapdoor Spider (Bothriocyrtum californicum)

This spider is not placed on any state or federal lists of sensitive species, but is considered to be of local interest in Orange County, where it is known from relatively few sites. In December 1994, Biologist and City Planning Commissioner Bill Butler showed me several trapdoor spiders in the canyon directly west of the park entrance. The species may also be expected to occur along the park's west-facing bluff, adjacent to Talbert Regional Park.

Western Spadefoot (Scaphiopus hammondi)

This small toad is a Category 2 candidate for federal listing. It is also a California Species of Special Concern, referring to taxa with populations declining seriously or that are otherwise highly vulnerable to human developments. The USFWS is increasingly interested in the Western Spadefoot since it is frequently associated with vernal pools, a declining habitat. This toad formerly ranged throughout cismontane California south to northwestern Baja California, but has been eliminated from much of its range in southern California. Habitat loss and predation by introduced African clawed frogs and bullfrogs appear to be primary causes of this species' regional decline. Grasslands and other open habitats in the lowlands provide this toad's primary habitat, but it also ranges into foothills and mountains. Gravelly soils are frequently present in occupied areas. In Orange County, Western Spadefoot populations have been found in San Juan Creek, Bee Canyon, Aliso Creek, El Toro Marine Corps Base, the San Joaquin Hills, in the southern foothills, and formerly at Dana Point. The species may also be present on Santiago Creek in the vicinity of Irvine Lake.

Western Spadefoots have not been found in Fairview Park, but conditions may be appropriate for them. Directed surveys by a herpetologist or biologist familiar with appropriate survey methodologies would be required in order to conclusively determine whether this species is present.

San Diego Horned Lizard (Phrynosoma coronatum blainvillei)

This lizard is a Category 2 candidate for federal listing and a California Species of Special Concern. It is found in western Riverside County, Orange County, and western San Diego County. This species' favored habitat consists of sandy washes and other open, sandy areas in coastal sage scrub and chaparral communities. Low bushes are required for cover, as well as open spaces for sunning, and relatively flat patches of fine, loose soil for burrowing. The primary food is harvester ants.

San Diego Horned Lizards have not been observed in the park, and it appears unlikely that they occur there due to the degree of disturbance in coastal bluff scrub areas and a lack of sightings in the park's vicinity.

Silvery Legless Lizard (Anniella pulchra pulchra)

This reptile is a Category 2 candidate for federal listing and a California Species of Special Concern that ranges from the San Francisco Bay area to northern Baja California, except for the Monterey Bay area. Silvery Legless Lizard occupies a variety of habitats in moist, loose, sandy soil suitable for burrowing.

Silvery Legless Lizard was not observed during the site surveys, but may be present in the alluvial scrub community located in the northwest corner of Fairview Park. Because this lizard rarely comes out onto the surface, raking and/or pit traps are generally required to detect this species.

Coastal Western Whiptail (Cnemidophorus tigris multiscutatus)

This active lizard is a federal Category 2 candidate for federal listing. The Coastal Western Whiptail ranges from southwestern California to central Baja California. It usually occurs in openings in coastal sage scrub and chaparral where plants are sparse and there is room for running. In addition to invertebrates, it eats other lizards.

This lizard has not been observed in the park, and it appears unlikely that they occur there due to the degree of disturbance in coastal bluff scrub areas and a lack of sightings elsewhere in the park's vicinity.

San Bernardino Ringneck Snake (Diadophis punctatus modestus)

This small snake is a Category 2 candidate for federal listing that inhabits moist areas of southwestern California from about Ventura to Orange counties.

Ringneck Snakes are seldom seen in the open, and none have been observed in the park. This species could occur on or near the park's western bluff.

Coast Patch-nosed Snake (Salvadora hexalepis virgultea)

This Category 2 candidate for federal listing is active during the day, and inhabits a range of relatively open sandy and rocky habitats from Santa Barbara County to northern Baja California.

Coast Patch-nosed Snake has not been observed in the park, but could occur in the park's scrub communities.

White-tailed Kite (Elanus leucurus)

This year round resident is a State of California fully protected species, meaning that hunting and collecting are forbidden. Populations have fluctuated widely in the past, but southern California birds appear to be in a long-term decline at this time. White-tailed Kites nest in well developed riparian woodlands and forage primarily in grasslands.

Hamilton has observed White-tailed Kites in Fairview Park on numerous occasions, including a group of five roosting in Tree Tobacco on a morning in December 1994. Adults and young along the lower Santa Ana River were seen in summer 1994 and 1995, and a worker at the adjacent Talbert Regional Park reported that he observed White-tailed Kites nesting in tall willows located just south of Victoria Street, approximately one mile south of Fairview Park.

Northern Harrier (Circus cyaneus)

This hawk is a California Species of Special Concern that forages over a wide range of open habitats. Although the species is cosmopolitan, it is uncommon and declining in Orange County, with few confirmed nesting records.

A Northern Harrier forages in the park daily in fall and winter, and the park's grasslands provide appropriate nesting habitat. Human disturbance probably keeps them from nesting in the local area.

Sharp-shinned hawk (Accipiter striatus)

This small hawk is a California Species of Special Concern. It is an uncommon to fairly common winter visitor and migrant to coastal southern California. Birds make up the vast majority of its prey, with rodents and insects also being taken.

Hamilton has observed Sharp-shinned Hawks foraging over the park in fall and winter.

Cooper's Hawk (Accipiter cooperii)

This medium-sized hawk is a California Species of Special Concern. This is a rare breeding species in Orange County, generally utilizing riparian habitats for nesting. The species nests in the willow grove between the lower Santa Ana River and Canyon Park, about a mile from Fairview Park. Foraging occurs over a much wider range of habitats, especially in winter.

Hamilton has observed one or more Cooper's Hawks in Fairview Park and in the local area throughout the year. The park does not support potentially suitable nesting habitat.

Ferruginous Hawk (Buteo regalis)

Ferruginous hawk is a Category 2 candidate for federal listing and a California Species of Special Concern. This large hawk is a rare, regular winter visitor in Orange County, where it forages over open grasslands in the lowlands and foothills.

Ferruginous Hawk has not been observed at Fairview Park and, due the park's relatively small size, it is unlikely to occur there except during migration periods.

Western Burrowing Owl (Speotyto cunicularia hypugea)

The Western Burrowing Owl is a federal Category 2 candidate and California Species of Special Concern. This small owl lives in grasslands and rangelands, usually occupying ground squirrel burrows. Burrowing Owls were widespread and fairly common in Orange County during most of this century, prior to widespread losses of habitat and destruction

of ground squirrel colonies. They are now rare in Orange County, with small populations known from a few scattered locations.

Until recent years, Western Burrowing Owls were resident in and around Fairview Park. Despite several directed searches during the past year, the only one seen in the park was a one-day migrant on the mesa on 18 November 1994. The level of human and pet activity in the park appears to be too intensive for this owl to remain in the park for prolonged stays.

Long-billed Curlew (Numenius americanus)

This large sandpiper is a California Species of Special Concern. It nests in high plains and rangeland throughout much of the interior of the western U.S. and southern Canada, including portions of northeast California. Long-billed Curlew is primarily a winter visitor to Southern California and Orange County, where it occupies large tidal estuaries and commonly forages in grasslands and agricultural areas within a few miles of the coast.

Small feeding flocks of shorebirds containing fewer than ten Long-billed Curlews regularly forage in Fairview Park's turfed areas, grasslands and vernal pools.

Coastal Cactus Wren (Campylorhynchus brunneicapillus)

The Cactus Wren's coastal southern California population is a Category 3B candidate for federal listing; these are taxa that the USFWS does not consider to represent distinct taxa meeting the Endangered Species Act (ESA) definition of "species." The Coastal Cactus Wren is also considered a California Species of Special Concern. The population extends from Ventura County south to San Diego and inland to San Geronimo Pass. Cactus Wrens are sedentary, and occur almost exclusively in coastal sage scrub containing cactus patches.

Despite the recent findings of the USFWS that Coastal Cactus Wrens do not qualify as a listable" entity under the federal ESA, the California Department of Fish and Game (CDFG), the USFWS, and conservation groups recognize Coastal Cactus Wrens as one of several species characteristic of coastal sage scrub that are declining in cismontane southern California due to loss of this habitat type. Therefore, this wren is considered a "target species" of the Natural Communities Conservation Planning (NCCP) program, along with the Orange-throated Whiptail (a lizard) and the Coastal California Gnatcatcher.

Hamilton observed a pair of Cactus Wrens on the western park bluff in 1990 or 1991, but did not see the species there since this time although the habitat still looks appropriate for them (large cactus patches remain). A substantial population remains in the oil fields near the Santa Ana River mouth, offering the possibility of recolonization of Fairview Park in the future through natural dispersion of young.

Loggerhead Shrike (Lanius ludovicianus)

This small predatory bird is a California Species of Special Concern. Shrikes inhabit open country, where they feed primarily on large insects and occasionally small vertebrate prey. They are fairly common in coastal southern California, with more present in the winter than the summer months.

At least one Loggerhead Shrike was resident in the park, along the bluff, before recent removal of Giant Reed and Castor Bean from the seasonal drainage along the base of the bluff. One shrike was observed foraging within the park on the 12 July 1995 survey. However, the loss of well developed vegetation discussed in the preceding sentence may limit the ability for shrikes to nest in the local area.

California Yellow Warbler (Dendroica petechia morcomi)

This species is a California Species of Special Concern because the breeding population has declined markedly in California. Riparian areas are exclusively used for nesting in the lowlands. These birds are widespread and abundant in migration. In Orange County, nesting is essentially limited to sycamore/alder riparian woodlands of the Santa Ana Mountains.

A fall migrant Yellow Warbler was observed in the park's coastal bluff scrub community on 30 August 1995, and small numbers are expected to pass through the park each spring and fall. Suitable nesting habitat is not present within the park.

Tricolored Blackbird (Agelaius tricolor)

This Category 2 candidate for federal listing was denied state listing by the California Fish and Game Commission after lengthy negotiations with the petitioner and additional survey work. The species is almost endemic to cismontane California, with outlying populations in Oregon and northwestern Baja California. Tricolored Blackbirds frequent open country throughout the year, nesting in dense patches of cat-tails; their preference for nesting in dense colonies makes the species especially vulnerable at that stage of their life cycle.

Tricolored Blackbirds have been occasionally observed foraging in the park during fall/winter; no potentially suitable nesting habitat exists in the park.

Pallid Bat (Antrozous pallida)

This bat is a California Species of Special Concern. According to Williams (1986), "populations of all bats appear to have diminished greatly in the last two decades in central California, and this trend will probably continue as more land is developed, more insecticides are used, and barns and other structures used as roosts and sites for maternity colonies become less numerous." According to bat researcher Patricia Brown, this statement also describes the status in Southern California. This bat occupies a variety of habitats in western North America, from southern British Columbia to northwestern Mexico. They are often found in mixed oak and grassland habitats, roosting in rock crevices or under the bark of trees and foraging in a variety of habitats.

Pallid Bat may potentially forage in the park's scrub communities, but roosting habitat is essentially absent.

San Diego Black-tailed Jackrabbit (Lepus californicus bennettii)

The San Diego Black-tailed Jackrabbit is a federal Category 2 candidate and a California Species of Special Concern. This subspecies is restricted to the Pacific slope from southern Santa Barbara County to northwestern Baja California. Jackrabbits inhabit a

variety of habitats but are most common in relatively open situations; they are largely nocturnal.

On February 24, 1995, a San Diego Black-tailed Jackrabbit was observed in fill piles on the mesa. A variety of human-related disturbances threaten the continued existence of this species in the park and local vicinity.

Northwestern San Diego Pocket Mouse (Perognathus fallax fallax)

This small rodent, a Category 2 candidate for federal listing and California Species of Special Concern, is found in southwestern California from about San Bernardino to central Baja California. It generally frequents rather open, arid lands.

The San Diego Pocket Mouse potentially occurs in coastal sage scrub habitat on the bluff or alluvial scrub located in the northwest corner of the park, but trapping would be required to determine this.

Southern Grasshopper Mouse (Onychomys torridus ramona)

This territorial predatory mouse is a Category 2 candidate for federal listing and a California Species of special Concern. It inhabits grasslands and sparse shrublands with sandy soils from northern Los Angeles County to northwestern Baja California.

The Southern Grasshopper Mouse potentially occurs in coastal sage scrub habitat on the bluff or alluvial scrub located in the northwest corner of the park, but trapping would be required to determine this.

San Diego Desert Woodrat (Neotoma lepida intermedia)

This small woodrat is a Category 2 candidate for federal listing and a California Species of Special Concern. San Diego desert woodrats are found along the Pacific slope from about San Luis Obispo to northwestern Baja California. Desert Woodrats frequent poorly vegetated, arid lands, and are especially associated with cactus patches and other thorny vegetation.

San Diego Desert Woodrat potentially occurs in coastal sage scrub habitat on the bluff, but trapping would be required to determine this.

BIOLOGICAL CONSTRAINTS AND OPPORTUNITIES

This section discusses planning constraints posed by sensitive biological resources, and opportunities to restore strategic habitat areas that are presently degraded. Figure 2 (map pocket) shows 1) areas of high, moderate and low biological sensitivity, and 2) areas of low biological sensitivity with good restoration potential. These designations necessarily subjective, and are intended simply as a place to begin the process of more formalized land use planning in the park. In reality, nearly all portions of the park west of Placentia Avenue have good restoration potential, depending on the nature of restoration desired by the City and the level of effort that can be devoted to the project.

Areas of High Biological Sensitivity

Some portions of the park are considered to be highly sensitive based on 1) federal, state or local laws regulating their development, 2) plant communities with limited global distributions, and/or 3) the habitat requirements of sensitive plants or animals known or expected to occur there.

Alluvial Scrub

As noted in the Setting, sandy soils in the northwest corner of Fairview Park support in a low-lying remnant of the historic Santa Ana River flood plain. Although the non-native Giant Reed has invaded this community and the area is periodically disced, the park's alluvial scrub community may be unique in Orange County. This area supports Orange County's only known population of California Evening-Primrose; in addition, several sensitive plant and wildlife species potentially occur there.

Saltbush Scrub (Occupied by Nesting California Gnatcatchers)

In recent decades, urban and agricultural development has fragmented and greatly reduced the extent of native upland scrub communities in southern California, with concomitant reductions in the populations of numerous plant and animal species associated with these communities. One such species, the Coastal California Gnatcatcher, has been federally listed as threatened, and is protected from unauthorized "take" pursuant to Section 9 of the Endangered Species Act (ESA). One pair of California Gnatcatchers currently resides at Fairview Park, apparently nesting in a patch of saltbush scrub that covers approximately 0.6 acre on the mesa; these birds also forage in adjacent ruderal vegetation and may also use coastal bluff scrub growing on the park's west-facing bluff.

Vernal Pools and Associated Grasslands

As described in the Setting, vernal pools are quite rare in southern California due to 1) the unique geologic conditions that must be present to form them, and 2) intensive human development of coastal areas. The U.S. Fish and Wildlife Service has estimated that vernal pool habitat in southern California has been reduced by over 90 percent, with areas like San Diego County suffering losses of 95-97 percent (U.S. Government Printing Office 1993). In Orange County, Fairview Park's vernal pools represent the only known extant example of this ecosystem. Due to these factors, many plants and animals that occur exclusively or largely in vernal pools are considered biologically "sensitive" by state and federal resource agencies.

The park's seven vernal pool basins and one vernal marsh basin meet federal wetlands criteria (see MBA's wetland delineation, Appendix C to this report), and numerous wetland-dependent migratory birds use these areas for resting and foraging from fall through spring. The park's vernal pools, and patches of annual grassland between and around the pools, support at least four sensitive plants: Small-flowered Microseris, Virginia Rockcress, Prostrate Navarretia and Vernal Barley.

Areas of Moderate Biological Sensitivity

Generally, plant communities in the park are considered to be moderately sensitive if they 1) are subject to federal, state or local laws regulating their development, and/or 2) have not been disturbed to the point where only ruderal species predominate. In Fairview Park,

virtually all areas designated as being of moderate sensitivity have good potential for habitat restoration/expansion.

Annual Grassland (West of Placentia Avenue)

As noted previously, annual grasslands closely associated with Fairview Park's vernal pools are considered highly sensitive. Most of the park's remaining grasslands west of Placentia Avenue are considered moderately sensitive since they are a naturalized plant community that forms an integral part of the limited lower Santa Ana River open space. As discussed subsequently, grasslands east of Placentia Avenue are considered to be of low sensitivity.

Coastal Bluff Scrub - Disturbed

A variety of sensitive plant and/or wildlife species occur, or potentially occur, in Fairview Park's disturbed coastal bluff scrub community, which grows on the west-facing bluff above Talbert Regional Park. However, disturbance has permitted a variety of ruderal species to invade this community, reducing its value as habitat for native plants and wildlife. As such, disturbed coastal bluff scrub is considered a moderately sensitive community in Fairview Park.

Habitat Restoration Sites

The park's small-scale habitat restoration sites support native shrubs native to Orange County and are considered moderately sensitive. The site located near the park's main entrance is being maintained and additional plantings are planned there; therefore, this area may become more biologically valuable in the future. The other site is not being maintained at present, and is more likely to become less biologically valuable over time.

Ruderal (Some Areas)

Although ruderal vegetation is not normally considered sensitive, sensitive plant and animal species have been observed in some areas of ruderal vegetation within Fairview Park:

- ~ Coastal California Gnatcatchers have been observed foraging in ruderal vegetation on the mesa, adjacent to saltbush scrub habitat that is apparently used for nesting.
- ~ Southern Spikeweed is a common element within otherwise ruderal vegetation located near the park's northern boundary, just west of Placentia Avenue.

Due to the presence of sensitive species, these particular ruderal areas are considered moderately sensitive.

Saltbush Scrub (Unoccupied by Nesting California Gnatcatchers)

A patch of saltbush scrub that covers less than 0.1 acre on the west-facing bluff is apparently unoccupied by nesting California Gnatcatchers. This small patch of native scrub vegetation is considered to be moderately sensitive.

Walnut Scrub

As noted under Sensitive Species, Skinner and Pavlik (1994) described walnut forest as a "much fragmented, declining natural community, rare in Orange, Riverside, San Bernardino, and San Diego counties. Threatened by urbanization and conversion to agriculture." In Orange County, walnut trees grow primarily in the Chino Hills and Santa

Ana Mountains. Whether the walnuts in Fairview Park occur there naturally or were planted many years ago, they are presently surviving without human assistance. This small stand of walnuts in Fairview Park is considered to be of moderate biological sensitivity.

Willow Scrub

In general, riparian communities like willow scrub are considered to be of high biological sensitivity, and adverse impacts to such communities are regulated by state and federal resource agencies. The limited stands of willow scrub in Fairview Park are considered to be only moderately sensitive due to their very small area.

Areas of Low Biological Sensitivity

Portions of the park are considered to be of low biological sensitivity if they meet one or more of the following criteria:

- ~ Areas that have been subjected to extensive past/ongoing disturbances (e.g., placement of artificial fill, disking for weed control).
- ~ Areas that are isolated from the lower Santa Ana River ecosystem.
- ~ Areas that are not known or expected to support sensitive plant or animal species.
- ~ Areas that are not subject to laws specifically regulating their development.

Annual Grassland (East of Placentia Avenue), Annual Grassland/Developed

Annual grasslands and associated developed areas east of Placentia Avenue are considered to be of low biological sensitivity since 1) these areas are highly disturbed, and 2) this part of the park is effectively isolated from the lower Santa Ana River open space by Placentia Avenue.

Giant Reed

Essentially pure stands of Giant Reed that are established in three areas of Fairview Park are considered to be of low biological sensitivity. *(Since the date of this report these stands have been removed and eradication procedures are to continue.)*

Ruderal (Most Areas)

Fairview Park's ruderal areas (excluding areas discussed previously, which are known to support sensitive species) are considered to be of low biological sensitivity.

Restoration Opportunities

This section briefly discusses the restoration opportunities in portions of Fairview Park, including areas presently considered to be of high, moderate and low biological sensitivity. Figure 2 indicates areas of low biological sensitivity where habitat restoration may be most appropriate. Any restoration activities should be carefully planned and implemented with assistance of a biologist familiar with the park's native plant and animal communities.

Alluvial Scrub/Giant Reed

Alluvial scrub in the northwestern part of Fairview Park's is a relatively small remnant of a community that must have been extensive prior to channelization of the Santa Ana River and development of the river's floodplain earlier this century. Alluvial scrub in Fairview Park has undergone extensive disturbance due to periodic disking for weed control; this has kept the native plants low and facilitated invasion by the non-native Giant Reed. In

the short-term, cessation of discing in non-ruderal areas is recommended to permit the native alluvial scrub community to develop and to avoid impacts to sensitive species present, or potentially present, in this community (e.g., Pacific Pocket Mouse, California Evening-Primrose, Silvery Legless Lizard). In the future, a program of periodic, controlled disturbance may be desirable to mimic the natural flood cycle that would permit regeneration of this community in a natural setting.

Eradication of Giant Reed stands would permit expansion of Fairview Park's alluvial scrub community into areas where this community historically occurred, and would prevent further expansion of Giant Reed into the remaining alluvial scrub habitat. Since the County of Orange has a stake in preventing establishment of Giant Reed into Talbert Regional Park, there may be some potential to share costs of eradication with the County. Effective eradication of Giant Reed is labor-intensive, requiring follow-up treatments for up to several years after initial removal. If complete eradication were achieved, Giant Reed would be unlikely to re-invade the alluvial scrub community after eradication, since the area is unconnected to the Santa Ana River or other streambeds that could deliver seeds or other propagules into the area from upstream. *(The eradication of Giant Reed has been undertaken by the City of Costa Mesa since the writing of this report.)*

Coastal Bluff Scrub - Disturbed

Two degraded areas within the park have good potential for restoration to coastal bluff scrub habitat. One is the park's western bluff, where the original coastal bluff scrub community has been invaded by ruderal forbs and grasses. The other area is a north-trending canyon near the park entrance, which is heavily disturbed and supports almost no native vegetation. Due to the topography of these areas and the general difficulty of establishing coastal bluff scrub vegetation, successful restoration of these areas would be difficult and fairly costly, requiring 1) eradication of the existing ruderal vegetation, 2) planting and seeding of appropriate native species, 3) provision of irrigation during establishment of plantings, and 4) follow-up weeding for at least two or three years. The potential may exist for coastal bluff scrub restoration to be funded by outside sources as an off-site mitigation for loss of upland scrub habitat elsewhere in the local area.

Vernal Pools and Associated Grasslands

MBA's two vernal pool reports (see Appendices C and D) note that artificial fill has apparently been placed within approximately two acres of "Vernal Pool Basin No. 1," the park's largest vernal pool. It is recommended that the Master Plan address removal of fill from this vernal pool and restoration of its original contours.

Fairview Park's vernal pools occur in a portion of the park that is subject to ongoing disturbance and soil compaction due to foot traffic, biking, pets, model airplane flyers and periodic mowing. The pools and associated grasslands show some signs of degradation due to these ongoing processes, including 1) encroachment of trails into the margins of some pools, and 2) the presence of a variety of non-native plant species in and around the pools. In addition, standard vector control practices may diminish water quality in the park's vernal pools, possibly impacting both invertebrate and vertebrate wildlife species that use the pools. Over time, such processes may degrade the park's vernal pools, limiting their value as habitats for plants and wildlife. Management practices that would

limit these adverse effects and ensure the continued health of these sensitive areas include the following:

- ~ Identify areas where paths and trails impinge on vernal pools and associated grasslands, and regulate public access to these areas. This may be accomplished by 1) developing a formalized trail system in this area that avoids highly sensitive areas to the extent feasible, 2) installing educational signs, and 3) possibly erecting temporary fencing to divert foot traffic away from recovering areas during the year or two it would take for desired vegetation to become established. In areas where soils are too compacted to support vegetation, some form of aeration would probably be required to permit establishment of plants.
- ~ Request that vector control be accomplished through introduction of chemicals that specifically inhibit development of mosquito larvae while permitting development of the innocuous invertebrate fauna that are natural components of the park's vernal pool ecosystem.
- ~ Cease mowing within vernal pools, and limit mowing of grasslands to areas away from the edges of vernal pools. If mowing is required in highly sensitive grasslands adjacent to vernal pools, this should be completed late in the season (e.g., June through September), after annual forbs and grasses have set seed.

These relatively simple steps would not interfere with any present human uses of the park, and would promote a more widespread appreciation of Fairview Park's unique and sensitive vernal pool ecosystem.

BIOLOGICAL RECOMMENDATIONS

This section provides recommendations for additional studies, interim park management, and future park planning.

Additional Studies

Two additional studies are recommended to help determine the full range of sensitive species present in Fairview Park:

- ~ Focused surveys for sensitive plants from April through June. These surveys should cover the entire park west of Placentia Avenue, focusing on alluvial scrub, coastal bluff scrub, vernal pools and grasslands.
- ~ Trapping studies for the endangered Pacific Pocket Mouse in the park's alluvial scrub community. While this mouse is unlikely to be present due to habitat fragmentation and disturbance, this area's sandy soils, plant species composition, and proximity to the ocean are consistent with this species' very specialized habitat requirements. Trapping should be conducted during the summer months by a biologist possessing a permit from the USFWS to survey for this species. To avoid potential impacts to Pacific Pocket Mouse, it is recommended that weed control activities be terminated in the park's alluvial scrub community until this species' status in the park is determined.

Interim Park Management

Until a new Fairview Park Master Plan is completed, it is recommended that the City review current management practices (e.g., weed control, vector control, mowing within pools) to avoid potential impacts to biological resources identified in this report as being highly or moderately sensitive. Beyond avoiding impacts, the City may consider implementing some of the pro-active restoration/ management recommendations discussed herein. As noted previously, any restoration activities should be carefully planned and implemented in consultation with a biologist familiar with the park's native plant and animal communities.

Future Park Planning

In considering the long-term future of Fairview Park, it is important to recognize that the undeveloped portion of the park west of Placentia Avenue is an integral part of the lower Santa Ana River ecosystem. Although greatly reduced and fragmented over the past century, this ecosystem continues to provide habitat for a wide variety of native plants and animals, including many listed or otherwise sensitive species. It should also be acknowledged that biological values in Fairview Park have already been greatly compromised by past and ongoing human activities.. If it is determined that active recreation (e.g., athletic fields) must be introduced to Fairview Park, it is strongly recommended that such uses be situated east of Placentia Avenue.

Active recreation aside, the following points are relevant to future park planning:

- ~ Fairview Park's vernal pool and alluvial scrub communities are virtually unique in Orange County. Ample opportunities exist to highlight these resources, and to educate the public regarding their rarity and value to specialized native plants and wildlife.
- ~ Future development of portions of the park west of Placentia Avenue should be conducted in a manner that minimizes impacts to highly sensitive resources, that retains the natural topography to the extent feasible, and that uses only locally native plants in restoration and landscaping. Such species provide the highest habitat values for local wildlife, and their use would enhance the natural character of this unique and important open space.
- ~ Planning should allow for possible future restoration of strategically located areas that are presently degraded, as outlined in this report.

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PLANT SPECIES OBSERVED

In 1994 and 1995, biologists Robert Hamilton, Tony Bomkamp and David Bramlet observed the following plant species in Fairview Park, Costa Mesa. The following list does not include exotic species present in the park's landscaping.

*Introduced species

PTEROPHYTA FERNS AND SPIKE-MOSSES

Marsileaceae

Marsilea vestita var. *vestita*

Marsilea Family

Hairy Pepperwort

ANTHOPHYTA: DICOTYLEDONES

Aizoaceae

DICOT FLOWERING PLANTS

Carpet-Weed Family

- * *Carpobrotus edulis*
- * *Mesembryanthemum crystallinum*

Hottentot-Fig
Crystal Ice Plant

Amaranthaceae

- * *Amaranthus albus*

Amaranth Family

Tumbling Pigweed

Anacardiaceae

- * *Rhus integrifolia*¹
- * *Schinus molle*

Sumac Family

Lemonade Berry
Peruvian Pepper Tree

Apiaceae

- * *Conium maculatum*
- * *Foeniculum vulgare*

Carrot Family

Common Poison-Hemlock
Sweet Fennel

Asclepiadaceae

- * *Araujia sericofera*

Milkweed Family

White Bladder-Flower

Asteraceae

- Ambrosia psilostachya*
- * *Artemisia californica*¹
- Artemisia douglasiana*
- Baccharis emoryi*
- Baccharis pilularis* ssp. *consanguinea*
- Baccharis salicifolia*
- * *Carduus pycnocephalus*
- * *Centaurea solstitialis*
- * *Cirsium vulgare*
- Conyza canadensis*
- Conyza coulteri*
- * *Cynara cardunculus*
- Encelia californica*
- Gnaphalium palustre*
- Grindelia camporum*
- Helianthus annuus* ssp. *lenticularis*
- Hemizonia fasciculata*
- Hemizonia parryi* ssp. *australis*
- Heterotheca grandiflora*
- Isocoma menziesii*
- * *Lactuca serriola*
- Microseris douglasii* ssp. *platycarpa*
- * *Picris echioides*
- Psilocarphus brevissimus*
- * *Sonchus oleraceus*
- * *Taraxacum officinale*

Sunflower Family

Western Ragweed
California Sagebrush
Mugwort
Emory Baccharis
Coyote Brush
Mulefat
Italian Thistle
Yellow Star-Thistle
Bull Thistle
Common Horseweed
Coulter's Horseweed
Artichoke Thistle
California Encelia
Lowland Cudweed
Big Gumplant
Western Sunflower
Fascicled Tarweed
Southern Spikeweed
Telegraph Weed
Coastal Goldenbush
Prickly Lettuce
Small-flowered Microseris
Bristly Ox-Tongue
Woolly Marbles
Common Sow-Thistle
Dandelion

¹Species native to Orange County introduced to Fairview Park by planting/seeding.

Boraginaceae*Heliotropium curassavicum* ssp. *oculatum***Borage Family**

Salt Heliotrope

Brassicaceae

- * *Brassica nigra*
- * *Hirschfeldia incana*
- Lepidium nitidum*
- * *Raphanus sativus*
- Sibara virginica*

Mustard Family

Black Mustard
 Shortpod Mustard
 Shining Peppergrass
 Wild Radish
 Virginia Rockcress

Cactaceae

Opuntia littoralis var. *littoralis*
*Opuntia prolifera*²

Cactus Family

Coastal Prickly-Pear
 Coast Cholla

Callitrichaceae*Callitriche longipedunculata***Water-Starwort Family**

Long-stalked Water-Starwort

Capparaceae*Isomeris arborea***Caper Family**

Bladderpod

Chenopodiaceae

- Atriplex lentiformis* ssp. *breweri*
- * *Atriplex semibaccata*
 - * *Atriplex rosea*
 - * *Bassia hyssopifolia*
 - * *Chenopodium album*
 - * *Chenopodium ambrosioides*
 - * *Salsola tragus*
 - Suaeda taxifolia*

Goosefoot Family

Brewer's Saltbush
 Australian Saltbush
 Redscale
 Five-hook Bassia
 Lamb's Quarters
 Mexican-Tea
 Russian-Thistle
 Woolly Sea-Blight

Convolvulaceae

- * *Convolvulus arvensis*
- Cressa truxilensis* var. *vallicola*

Morning-glory Family

Field Bindweed
 Alkali Weed

Crassulaceae*Crassula aquatica***Stonecrop Family**

Water Pigmy-Stonecrop

Cucurbitaceae

Cucurbita foetidissima
Marah macrocarpus

Gourd Family

Coyote Gourd
 Wild Cucumber

Elatinaceae*Elatine* sp.**Waterwort Family**

Waterwort

²Species native to Orange County introduced to Fairview Park by planting/sceding.

Euphorbiaceae

- * *Chamaesyce serpens*
- Croton californica*
- Eremocarpus setigerus*
- * *Ricinis communis*

Fabaceae

- * *Melilotus alba*
- * *Melilotus indica*

Frankeniaceae

Frankenia salina

Geraniaceae

- * *Erodium botrys*
- * *Erodium cicutarium*

Juglandaceae

Juglans californica var. *californica*

Lamiaceae

- * *Marrubium vulgare*
- * *Salvia leucophylla*³

Lythraceae

- * *Lythrum hyssopifolium*

Malvaceae

- * *Lavatera* sp.
- * *Malva parviflora*
- Malvella leprosa*

Myoporaceae

- * *Myoporum laetum*

Nyctaginaceae

Abronia villosa
Mirabilis californica

Onagraceae

Epilobium pygmaeum
Oenothera californica

Papaveraceae**Spurge Family**

Matted Broom-Spurge
California Croton
Doveweed
Castor Bean

Pea Family

White Sweetclover
Yellow Sweetclover

Frankenia Family

Alkali Heath

Geranium Family

Long-beaked Filaree
Red-stemmed Filaree

Walnut Family

Southern California Black Walnut

Mint Family

Horehound
Purple Sage

Loosestrife Family

Grass Poly

Mallow Family

Bush Mallow
Cheeseweed
Alkali Mallow

Myoporum Family

Myoporum

Four-o'clock Family

Chaparral Sand-Verbena
California Wishbone Bush

Evening-Primrose Family

Smooth Spike-Primrose
California Evening-Primrose

Poppy Family

³Species native to Orange County introduced to Fairview Park by planting/seeding.

Eschscholzia californica

California Poppy

Polemoniaceae

Navarretia prostrata

Phlox Family

Prostrate Navarretia

Polygonaceae

- * *Eriogonum fasciculatum*¹
- * *Polygonum aviculare*
- * *Rumex crispus*

Buckwheat Family

California Buckwheat
Common Knotweed
Curly Dock

Primulaceae

- * *Anagallis arvensis*

Primrose Family

Scarlet Pimpernel

Rosaceae

Rosa californica
Rubus ursinus

Rose Family

California Rose
California Blackberry

Salicaceae

Salix gooddingii
Salix hindsiana

Willow Family

Black Willow
Sandbar Willow

Scrophulariaceae

- * *Mimulus aurantiacus*⁴
- Veronica peregrina* ssp. *xalapensis*

Figwort Family

Buff Monkeyflower
Mexican Speedwell

Solanaceae

- Datura wrightii*
- Lycium californicum*
- * *Lycopersicon esculentum*
- * *Nicotiana glauca*
- Solanum douglasii*
- * *Solanum rostratum*

Nightshade Family

Jimsonweed
California Box Thorn
Tomato
Tree Tobacco
Douglas' Nightshade
Buffalo-Bur

Urticaceae

Urtica dioica ssp. *holosericea*

Nettle Family

Hoary Nettle

Verbenaceae

Verbena bracteata

Vervain Family

Bracted Vervain

ANGIOSPERMAE: MONOCOTYLEDONAE
MONOCOT FLOWERING PLANTS

Arecaceae

- * *Washingtonia filifera*

Palm Family

California Fan Palm

⁴Species native to Orange County introduced to Fairview Park by planting/seeding.

Cyperaceae

Eleocharis macrostachya
Cyperus eragrostis
Scirpus cernuus

Juncaceae

Juncus bufonius

Liliaceae

- * *Agave attenuata*
- * *Yucca aloefolia*

Poaceae

- Alopecurus saccatus*
- * *Arundo donax*
 - * *Avena barbata*
 - * *Avena fatua*
 - * *Bromus diandrus*
 - * *Bromus hordeaceus*
 - * *Bromus madritensis* ssp. *rubens*
 - * *Cortaderia selloana*
 - * *Crypsis alopecuroides*
 - * *Cynodon dactylon*
 - * *Digitaria sanguinalis*
 - Distichlis spicata*
 - * *Gastridium ventricosum*
 - Hordeum brachyantherum*
 - Hordeum intercedens*
 - * *Hordeum murinum* ssp. *leporinum*
 - * *Lamarckia aurea*
 - Leymus condensatus*
 - * *Lolium multiflorum*
 - * *Lolium perenne*
 - * *Oryzopsis miliacea*
 - * *Paspalum dilatatum*
 - * *Polypogon monspeliensis*
 - * *Vulpia myuros*

Pontederiaceae

- * *Eichhornia crassipes*

Typhaceae

Typha domingensis

Sedge Family

Pale Spike-Rush
Tall Umbrella-Sedge
California Club-Rush

Rush Family

Toad Rush

Lily Family

Glaucous Century Plant
Spanish Dagger

Grass Family

Howell's Foxtail
Giant Reed
Slender Wild Oat
Common Wild Oat
Common Ripgut Grass
Soft Chess
Foxtail Chess
Selloa Pampas Grass
Tall Prickle Grass
Bermuda Grass
Crab Grass
Salt Grass
Nitgrass
Meadow Barley
Vernal Barley
Hare Barley
Goldentop
Giant Wild-Rye
Italian Ryegrass
English Ryegrass
Millet Mountain-Rice
Dallis Grass
Rabbitfoot Grass
Foxtail Fescue

Pickrel-Weed Family

Water Hyacinth

Cat-tail Family

Southern Cat-Tail

Taxonomy and scientific nomenclature follows Hickman (1993); common names primarily follow Roberts (1989).

ANIMAL SPECIES OBSERVED

The following butterflies, amphibians, birds and mammals have been observed in Fairview Park, Costa Mesa. Nearly all were observed by Robert Hamilton, but some have been reported by other qualified observers. Presence may be noted if a species is seen or heard, or identified by the presence of tracks, scat or other signs.

*Introduced species

LEPIDOPTERA

Papilionidae

Papilio zelicaon zelicaon

Pieridae

* *Pieris rapae*

Pieris sisymbrii sisymbrii

Nymphalidae

Danaus plexippus

Coenonympha tullia californica

Vanessa cardui

Vanessa carye anabella

Nymphalis antiopa antiopa

Lycaenidae and Blues

Brephidium exilis

Leptotes marina

AMPHIBIA

Plethodontidae

Batrachoseps nigriventris

Bufonidae

Bufo boreas

Hylidae

Hyla regilla

REPTILIA

Iguanidae

Sceloporus occidentalis

Uta stansburiana

BUTTERFLIES

Swallowtails

Anise Swallowtail

Whites, Orangetips and Sulphurs

Cabbage Butterfly

Common White

Brush-footed Butterflies

Monarch

California Ringlet

Painted Lady

West Coast Lady

Mourning Cloak

Metalmarks, Hairstreaks, Coppers

Pygmy Blue

Marina Blue

AMPHIBIANS

Lungless Salamanders

Black-bellied Slender Salamander

True Toads

Western Toad

Treefrogs

Pacific Treefrog

REPTILES

Iguanid Lizards

Western Fence Lizard

Side-blotched Lizard

Scincidae

Eumeces skiltonianus

AVES**Ardeidae**

Ardea herodias

Casmerodius albus

Egretta thula

Anatidae

Anas platyrhynchos

Anas americana

Cathartidae

Cathartes aura

Accipitridae

Pandion haliaetus

Elanus leucurus

Circus cyaneus

Accipiter striatus

Accipiter cooperii

Buteo lineatus

Buteo jamaicensis

Falconidae

Falco sparverius

Falco peregrinus anatum

Charadriidae

Charadrius vociferus

Scolopacidae

Tringa melanolenca

Numenius americanus

Limosa fedoa

Calidris mauri

Calidris minutilla

Limnodromus scolopaceus

Gallinago gallinago

Phalaropus fulicaria

Laridae

Larus delawarensis

Columbidae

* *Columba livia*

Skinks

Western Skink

BIRDS**Hérons**

Great Blue Heron

Great Egret

Snowy Egret

Swans, Geese and Ducks

Mallard

American Wigeon

New World Vultures

Turkey Vulture

Kites, Hawks, Eagles and Ospreys

Osprey

White-tailed Kite

Northern Harrier

Sharp-shinned Hawk

Cooper's Hawk

Red-shouldered Hawk

Red-tailed Hawk

Falcons

American Kestrel

American Peregrine Falcon

Plovers and Lapwings

Killdeer

Sandpipers and Phalaropes

Greater Yellowlegs

Long-billed Curlew

Marbled Godwit

Western Sandpiper

Least Sandpiper

Long-billed Dowitcher

Common Snipe

Red Phalarope

Jaegers, Gulls and Terns

Ring-billed Gull

Pigeons and Doves

Rock Dove

* *Streptopelia chinensis*
Zenaida macroura

Stigidae
Speotyto cunicularia hypugea

Trochilidae
Calypte anna

Tyrannidae
Sayornis nigricans
Sayornis saya
Myiarchus cinerascens
Tyrannus vociferans

Hirundinidae
Hirundo pyrrhonota
Hirundo rustica

Corvidae
Corvus brachyrhynchos
Corvus corax

Aegithalidae
Psaltirparus minimus

Troglodytidae
Campylorhynchus brunneicapillus
Troglodytes aedon

Muscicapidae
Polioptila caerulea
Polioptila californica californica
Catharus guttatus
Turdus migratorius

Mimidae
Mimus polyglottos

Motacillidae
Anthus rubescens

Bombycillidae
Bombycilla cedrorum

Laniidae
Lanius ludovicianus

Spotted Dove
Mourning Dove

Typical Owls
Western Burrowing Owl

Hummingbirds
Anna's Hummingbird

Tyrant Flycatchers
Black Phoebe
Say's Phoebe
Ash-throated Flycatcher
Cassin's Kingbird

Swallows
Cliff Swallow
Barn Swallow

Jays, Magpies and Crows
American Crow
Common Raven

Bushtits
Bushtit

Wrens
Coastal Cactus Wren
House Wren

Muscicapids
Blue-gray Gnatcatcher
Coastal California Gnatcatcher
Hermit Thrush
American Robin

Mimic Thrushes
Northern Mockingbird

Pipits
American Pipit

Waxwings
Cedar Waxwing

Shrikes
Loggerhead Shrike

Sturnidae

- * *Sturnus vulgaris*

Emberizidae

- Vermivora celata*
- Dendroica petechia*
- Dendroica coronata*
- Geothlypis trichas*
- Guiraca caerulea*
- Pipilo erythrophthalmus*
- Pipilo crissalis*
- Passerculus sandwichensis*
- Melospiza melodia*
- Melospiza lincolni*
- Zonotrichia leucophrys*
- Agelaius phoeniceus*
- Sturnella neglecta*
- Agelaius tricolor*
- Euphagus cyanocephalus*

Fringillidae

- Carpodacus mexicanus*
- Carduelis pinus*
- Carduelis psaltria*
- Carduelis tristis*

Passeridae

- * *Passer domesticus*

MAMMALIA**Leporidae**

- Sylvilagus auduboni*
- Lepus californicus bennettii*

Sciuridae

- Spermophilus beecheyi*

Geomyidae

- Thomomys botta*

Canidae

- Canis latrans*

Starlings

- European Starling

Emberizids

- Orange-crowned Warbler
- Yellow Warbler
- Yellow-rumped Warbler
- Common Yellowthroat
- Blue Grosbeak
- Rufous-sided Towhee
- California Towhee
- Savannah Sparrow
- Song Sparrow
- Lincoln's Sparrow
- White-crowned Sparrow
- Red-winged Blackbird
- Western Meadowlark
- Tricolored Blackbird
- Brewer's Blackbird

Finches

- House Finch
- Pine Siskin
- Lesser Goldfinch
- American Goldfinch

Old World Sparrows

- House Sparrow

MAMMALS**Rabbits and Hares**

- Audubon Cottontail
- San Diego Black-tailed Jackrabbit

Squirrels

- Beechey Ground Squirrel

Pocket Gophers

- Botta Pocket Gopher

Foxes, Wolves and Allies

- Coyote

Taxonomy and nomenclature follow Stebbins (1966), American Ornithologists' Union (1983) and Ingles (1965).

End of document entitled Biological Constraints and Opportunities. Fairview Park, 1995, Robert A. Hamilton, Consulting Biologist

VERNAL POOLS

Environmental Sensitivity Of And Description Of Vernal Pools And Associated Resources

Prepared by: Tony Bomkamp, Biologist

In August of 1994 a number of vernal pools were identified at Fairview Park, representing an important ecological discovery at both the local and regional level. Vernal pools are shallow depressions, usually six to ten inches deep, which pond water following winter and spring rains due to an impervious hardpan which prevents percolation of ponded water. Ponding duration varies from vernal pool to vernal pool and from season to season depending on rainfall patterns. Typical ponding duration ranges from a few weeks (less in dry years) to three or four months. In southern California, vernal pools are often found on coastal bluffs on heavy clay soils with the clay providing the impervious layer. Prior to development of coastal areas, vernal pools would have dotted most of the coastal bluffs from San Diego to Santa Barbara.

Vernal pool habitat has been greatly reduced within the southern California region with losses of approximately 95- to 98-percent in San Diego County, and by 90- to 98-percent in Orange County, where the occurrence of vernal pools prior to development is poorly understood. Although also poorly documented it is expected that loss of historic vernal pool habitat in Los Angeles County exceeds 95-percent.

Vernal pools are amphibious ecosystems in which the alteration from wet to dry conditions creates a unique ecological assemblage of organisms. In order to survive, vernal pool organisms must be adapted to tolerate a wide range of conditions or must grow and reproduce in the short time that environmental conditions are favorable.

The discovery of vernal pool habitat at Fairview Park, in the middle of a well developed urban area, represents an important discovery. Studies conducted on the vernal pools at Fairview Park have concluded that the area of vernal pool habitat at the park totals 3.15 acres representing the largest area of documented vernal pool habitat between San Diego County (including northern Riverside County) and the Central Valley (by way of comparison, the recent discovery of 0.60 acre of vernal pool habitat in San Diego which supports approximately the same number of special status species as the vernal pools at Fairview Park, was considered very significant by the City of San Diego as well as by the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers). Also significant was the identification of a variety of rare plant and animal species associated with the vernal pool complex including: prostrate navarretia (*Navarretia prostrata*), a plant which is only known to exist from four or five locations in the world (all in southern or central California) (only documented occurrence in Orange County), the northernmost population of San Diego fairy shrimp (*Branchinecta sandiegoensis*) which is only known from San Diego County, Orange County and Baja California (first documented occurrence in Orange County), vernal barley (*Hordeum intercedens*) a rare native grass which needs more study regarding its limited distribution, and Douglas' microseris, a close relative of the dandelion which is often found along the edges of vernal pools. In addition to these truly rare species, additional species which are more common elsewhere but very rare in Orange County were identified in the vernal pools including water fern (*Marsilea vestita*), Virginia rockcress (*Sibara virginica*) (first documented occurrence in Orange County), Pacific foxtail

(*Alopecurus saccatus*) (also the first documented occurrence in Orange County), and the versatile fairy shrimp (*Branchinecta lindhali*).

A total of seven vernal pools and one area characterized as vernal marsh were identified during surveys conducted for the City of Costa Mesa.

Vernal pool 1 is depicted on a historic aerial photographs dating back to 1927; however a significant portion of the pool was inadvertently covered in the mid 1980s by deposition of mounds of fill dirt. Restoration of Vernal Pool 1 was begun in October of 1996 with the goal of returning the basin to its original contour and dimensions. Prior to beginning the restoration project, the basin covered approximately 2.07 acres with a total of 0.81 acre restored in the initial phase of the restoration bringing the basin to 2.88 acres of vernal pool habitat. Vernal Pool 1 is the largest vernal pool in the park covering 2.88 acres (eventually the restoration program will return the basin to its former extent, covering approximately 3.9 acres) and has the most diverse flora of all the vernal pools in the park. Vernal Pool 1 also supports the San Diego fairy shrimp.

Vernal pools 2 and 3 were originally connected with Vernal Pool 1, but were separated by placement of the above-mentioned fill. These pools cover approximately 0.067 acre and will become part of Vernal Pool 1 upon completion of the restoration program.

Vernal Pool 4

Vernal Pool 4 is a small pool immediately west of and adjacent to Canyon Drive. The basin covers approximately 0.05 acre and is less floristically diverse than Vernal Pools 1 and 5.

Vernal Pool 5

Vernal Pool 5 is the second largest vernal pool in the park covering approximately 0.90 acre. The basin is located in the southeast corner of the park adjacent to the High School. The basin is floristically very diverse and also supports a dense population of San Diego fairy shrimp.

Vernal Pool 6

Vernal Pool 6 is a small basin covering approximately 0.06 acre located immediately south of Vernal Pool 5. The basin is not floristically diverse but does support small numbers of the San Diego fairy shrimp.

Vernal Marsh

The vernal marsh is similar to the vernal pools with the exception of supporting vegetation diagnostic of vernal pools. The basin covers approximately 0.25 acre and is located south of Vernal Pool 4 immediately adjacent to Canyon Drive.

PROTECTION UNDER THE CLEAN WATER ACT

The vernal pools at Fairview Park meet the federal three parameter test for jurisdictional wetlands pursuant to Section 404 of the Clean Water Act as implemented in the U.S. Army Corps of Engineers Regulations (CFR 33 Parts 320 through 330). As such, it is not permitted

to discharge fill material into any of the vernal pools in the park (most types of mechanized soil disturbance are considered a discharge and are not permitted).⁵

PROTECTION OF PLANT AND ANIMAL RESOURCES

Prostrate Navarretia

Prostrate navarretia is currently not listed as threatened or endangered by the U.S. Fish and Wildlife Service or the California Department of Fish and Game; however the plant is listed by the California Native Plant Society (CNPS) on their List 1B which is designated as plant which are considered threatened or endangered throughout their range. Based upon the CNPS designation, this species would receive full protection under the California Environmental Quality Act (CEQA) and impacts to this species would not be permitted without compensatory mitigation.

Vernal Barley

Vernal barley is currently not listed as threatened or endangered by the U.S. Fish and Wildlife Service or the California Department of Fish and Game; however the plant is listed by the California Native Plant Society (CNPS) on their List 3 which is designated as plants which are generally considered rare, threatened or endangered but about which more information is needed. Based upon the CNPS designation, impacts to this species may be permitted without compensatory mitigation, pending more information.

Small-flowered Microseris

Small-flowered microseris is currently not listed as threatened or endangered by the U.S. Fish and Wildlife Service or the California Department of Fish and Game; however the plant is listed by the California Native Plant Society (CNPS) on their List 4 which is designated as plants which are generally considered to be declining but which exist in sufficient numbers to preclude formal protection at this time. Based upon the CNPS designation, impacts to this species may be permitted without compensatory mitigation, pending further decline of the species.

San Diego Fairy Shrimp

San Diego fairy shrimp is currently proposed for listing as an endangered species under the federal Endangered Species Act. As such, impacts to the species would require a conference between the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service. A final rule is expected anytime on this species which will result in its final listing as an endangered species or removal from the list of proposed species. It is not known at this time if the final rule, by the U.S. Fish and Wildlife Service, will result in the listing of this species.

RESTORATION AND PROTECTION OF VERNAL POOLS

One of the goals of the Comprehensive Master Plan for Fairview Park is to provide for the long-term viability of the vernal pool habitat within the park. In order to achieve the goal of

⁵ Currently, those portions of Vernal Pool 1 that are covered with stockpiles are not considered jurisdictional wetlands. Therefore, earthmoving activities associated with continued restoration of covered portions of the basin are permitted until it is determined by the project biologist that a given area of the vernal pool has been restored to its original contour. Once restoration is complete within a targeted portion of the basin, the restored portion of the basin is considered a jurisdictional wetland and disturbance of the soil or discharge of fill material is not permitted pursuant to Section 404 of the Clean Water Act.

long-term viability of the vernal pool habitat, the Comprehensive Master Plan will include a restoration component (for Vernal Pool 1) and a protection component (for all of the vernal pool resources).

Removal of Stockpiled Soil from Vernal Pool 1

Stockpiled material will be removed from the 1.80-acre area of covered portions of Vernal Pool 1 adjacent to already functional vernal pool habitat as directed by the project biologist. All soil removal will be monitored by the project biologist to ensure that no damage to functioning vernal pool habitat occurs. Additionally, because California gnatcatchers are present in the vicinity of the stockpiles, an appropriate buffer zone will be established if removal of the stockpiles occurs during the nesting season. Upon removal of stockpiled soils, the vernal pool basin will be returned to topographic contours which existed prior to addition of stockpiled material. If necessary microtopographic grading will be implemented to establish topography appropriate for the necessary vernal pool hydrology.⁶

Inoculum Collection

Plant inoculum will be collected from the 2.07-acre portion of Vernal Pool 1 to provide a source of propagules to enhance the establishment of vernal pool vegetation within the restored portions of the basin. The inoculum collection will incorporate the techniques developed by Dr. Ellen Bauder of San Diego State University would result in collection of approximately two-percent of the seed bank from the functioning portions of the vernal pool for distribution into the restored portions. Inoculum collection would be conducted between September 1 and October 31 with distribution of inoculum occurring on or about November 1 (at the beginning of the rainy season).⁷

The methodology used in collection of the plant inoculum requires collection soil fragments from the top 2-3 centimeters of the topsoil which cover approximately one square decimeter. This will result in collection of inoculum for San Diego fairy shrimp in addition to the plant inoculum.⁸

Monitoring

A five-year monitoring program was implemented, following the initial phase of restoration performed in October of 1996. The five-year program includes monitoring of hydrology, vegetation and invertebrates in both restored and existing portions of Vernal Pool 1.

Maintenance

⁶ The initial restoration, implemented in October of 1996, removed stockpiles from approximately 0.81 acre of the historic area of Vernal Pool 1. At that time, microtopographic grading was not required as the loader operator was able to cleanly remove the stockpiles with the loader bucket, using the intact clay layer as a baseline, while being careful not to penetrate the clay layer.

⁷ Inoculum collection was initiated in October of 1996 and will continue until the year 2000.

⁸ The San Diego fairy shrimp is currently proposed for listing by the U.S. Fish and Wildlife Service as an endangered species. If the species is subsequently listed as endangered, all inoculum collection must be performed by individuals permitted by the U.S. Fish and Wildlife Service to survey for listed species of fairy shrimp.

Placement of the soil stockpiles in the northern portion of Vernal Pool 1 resulted in chunks of asphalt and concrete being strewn throughout the functioning portions of the basin, particularly in areas adjacent to the stockpiles. All such materials will be removed from Vernal Pool 1 during the continued restoration and monitoring activities. Vernal Pools 5 and 6 have various types of debris (concrete, wood, and metal) which will also be removed during monitoring activities.

PROTECTION

In order to ensure the long-term viability of the vernal pools and the sensitive plants and animals which are associated with them, the following measures will be incorporated into the Comprehensive Master Plan for Fairview Park:

- Protective fencing will be installed around Vernal Pools 1, 2, 3, 4, 5, and 6 in order to prevent all types of vehicular traffic from entering the pools and also to prevent path formation, created by foot and bicycle traffic, at various access points into and across the pools.⁹
- Mowing, "weed whacking" or other types of vegetation removal will not be permitted within the delineated portion of any pool. Protective fencing will be setback a sufficient distance (approximately ten feet) from the delineated pool areas to allow mowing and maintenance of the vegetation along the fenceline.
- Disturbance of the soil is not permitted within any portion of a delineated pool for any reason without authorization of the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act.
- Interpretive signage (or similar feature) will be developed to educate the users of the park concerning the value of the vernal pool habitat from both a local and regional perspective.

⁹ Vernal Pool 7 is a very small basin (approximately five by ten feet) which only ponds during higher-than-average rainfall years. Because of the small size of the basin it is generally indistinguishable except for when it is ponded. It is not practical to fence this small area and the vernal pool basin does not exhibit signs of degradation due to excess traffic.

APPENDIX D

The Consultant Team

Area of Responsibility	Firm Name	Phone Number	Name of Person
Lead Consultant: Planning	Katzmaier Newell Kehr 2728 East Coast Highway Corona Del Mar, CA 92625	714 760-0454	Erik Katzmaier, ASLA Bruce Newell, AIA
Consulting Landscape Architect	Ann Christoph 31713 Coast Highway Laguna Beach, CA 92677	714 499-3574	Ann Christoph
Engineering Consultant	Robert Bein, William Frost Associates	714 472-3505	Steve Bein
Consulting Biologist, General	Robert A. Hamilton P.O. Box 961 Trabuco Canyon, CA 92678		Robert A. Hamilton
Consulting Biologist, Vernal Pools	Glenn Lukos Associates 23441 So. Pointe Drive Laguna Hills, CA 92653	949 714 837-0404	Tony Bomkamp
Consulting Archaeologist	Henry C. Koerper, Ph.D Cypress College	714 826-220	Henry C. Koerper, Ph.D