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DRAFT

DRAFT POGONIP MASTER PLAN
ENVIRONMENTAL IMPACT REPORT

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Submitted to the :
CITY OF SANTA CRUZ
DEPARTMENT OF PARKS AND RECREATION

Submitted by :
BRADY ■ LSA
PLANNERS AND LANDSCAPE ARCHITECTS

FEBRUARY 1998

BRADY ■ LSA
PLANNERS AND LANDSCAPE ARCHITECTS

The public review period for the Pogonip Master Plan Draft Environmental Impact Report (DEIR) is **February 23, 1998 through April 8, 1998.**

Please submit written comments regarding the DEIR to:

ATTN: Susan Harris
Parks and Recreation Department
City of Santa Cruz
323 Church Street
Santa Cruz, CA 95060

A joint meeting of the City Council and Parks and Recreation Commission is scheduled for March 31, 1998, at 7:00 p.m. Public comments regarding the DEIR will be accepted at this meeting. Please call 429-3206 to confirm the date and time.

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Kinko's Copies
105 Laurel Street
Santa Cruz, CA 95060

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Submitted to the :
CITY OF SANTA CRUZ
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Submitted by :
B R A D Y ■ L S A
PLANNERS AND LANDSCAPE ARCHITECTS

In Conjunction with :
BIOTIC RESOURCES GROUP
BALANCE HYDROLOGICS, INC.
PACIFIC LEGACY, INC.
HIGGINS ASSOCIATES, INC.

FEBRUARY 1998

B R A D Y ■ L S A
PLANNERS AND LANDSCAPE ARCHITECTS

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Chapter I INTRODUCTION

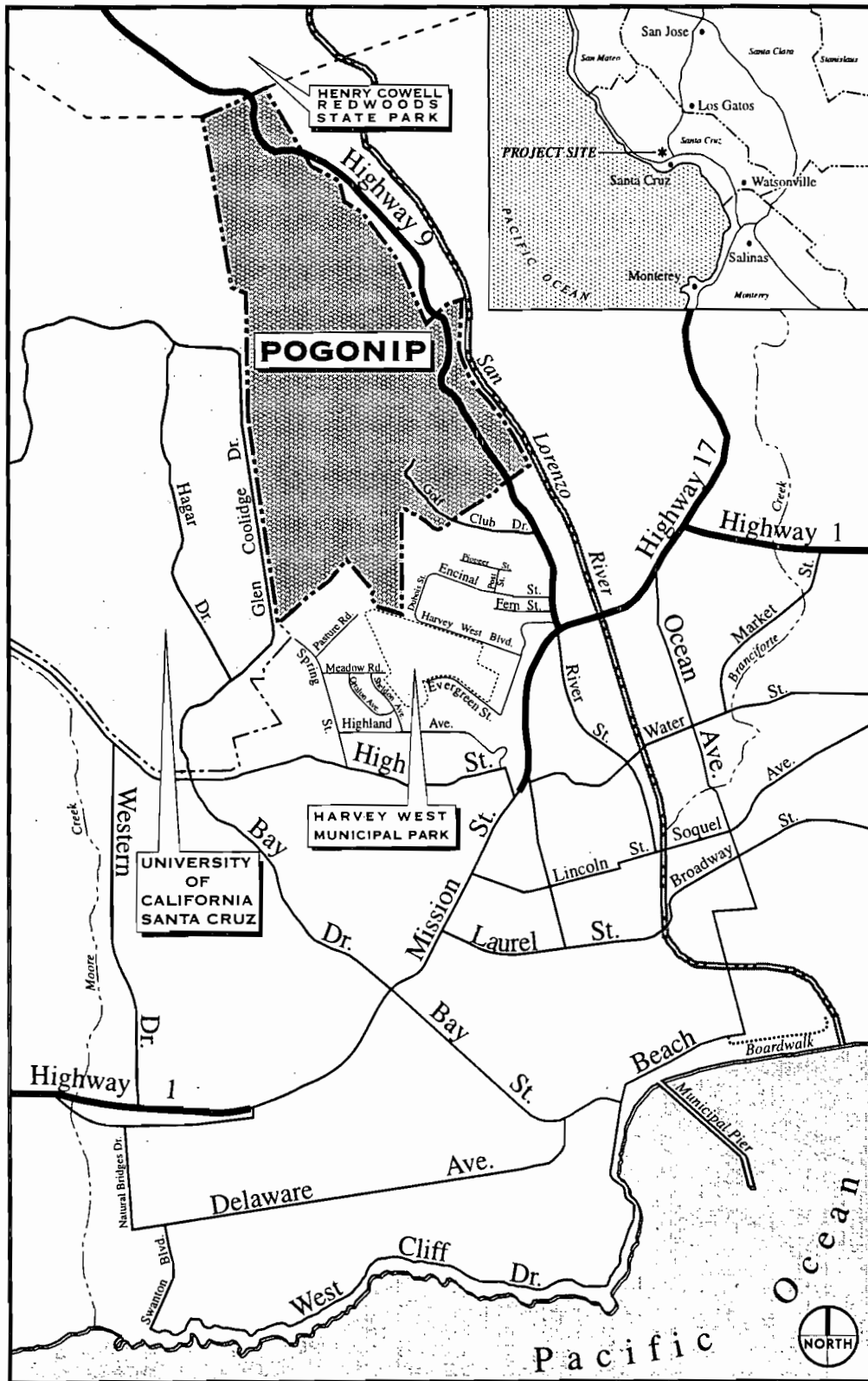
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A. Purpose of the EIR

In compliance with the California Environmental Quality Act (CEQA), this report describes the environmental consequences of the proposed *Draft Pogonip Master Plan*. This Draft Environmental Impact Report (EIR) is designed to fully inform City decision-makers, other responsible agencies, and the general public of the proposed project and the potential consequences of project approval. The EIR also examines various alternatives to the proposed project and recommends a set of mitigation measures to reduce or avoid potentially significant impacts. This EIR will be used staff of the Santa Cruz Parks and Recreation Department, the City Parks and Recreation Commission, the City Planning Commission, the City Council, regional and state agencies, and the public in their review of the proposed project.

B. Proposed Project

The City of Santa Cruz Parks and Recreation Department is the lead agency for the environmental review of the proposed *Draft Pogonip Master Plan*. The project location and vicinity are shown in Figure I-1. The proposed project would involve new and expanded recreation-related uses on the 640-acre Pogonip site located in the northwestern portion of the City of Santa Cruz. Access to the site is available from Golf Club Drive, about 0.4 miles north of the intersection of Highway 1 and Highway 9 (River Street). Golf Club Drive is a narrow, two-lane road that extends from Highway 9 to the entrance of Pogonip. There is presently no public vehicle access within Pogonip.



Source: Brady/LSA 1997

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Figure I-1
Regional and Project Vicinity

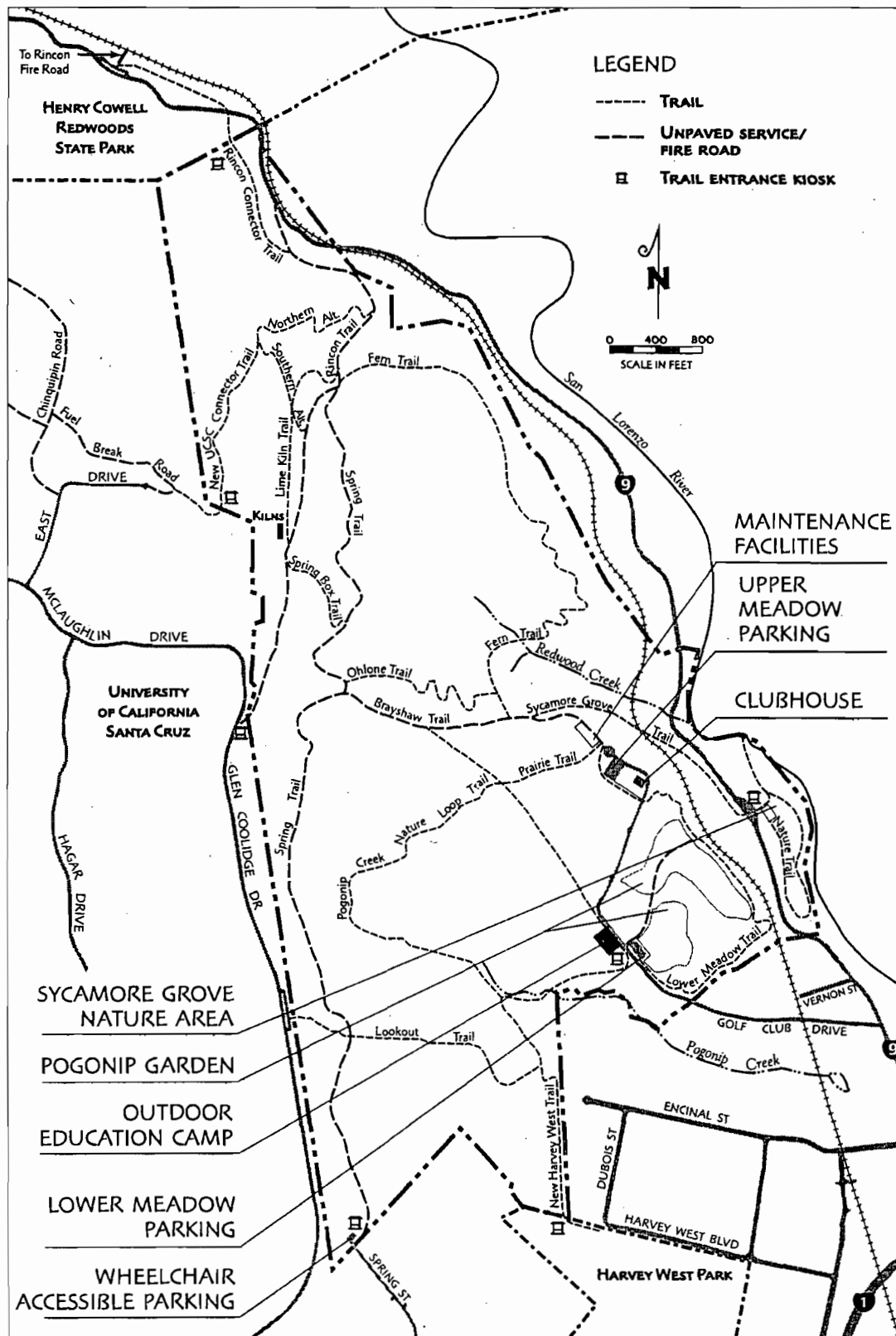
BRADY ■ LSA
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Table I-1
DRAFT POGONIP MASTER PLAN PROJECT DATA

Project Name	Draft Pogonip Master Plan
Project Location	Northern Portion of City of Santa Cruz
Size of Site	640 acres
Existing General Plan Designation	Natural Area (614 acres) and Very Low Density Residential (25 acres)
Proposed General Plan Designation Change	Natural Area (for 25-acre parcel currently Very Low Density Residential)
Existing Zoning	Parks (PK) (614 acres) and Residential Suburban (RS-10A) (25 acres)
Proposed Zoning Change	Parks (PK) (for 25-acre parcel currently RS-10A)
Existing Use	Open space for hiking and running during daytime hours on designated trails and service roads
Proposed Use	Rehabilitation of Clubhouse; Pogonip garden and support facilities; outdoor education area for day/overnight use; trails for pedestrian, equestrian and bicycle use; natural resource management areas; historic sites; parking areas and improved road access; ranger station and caretaker residence
Agency Contact/Sponsor	City of Santa Cruz Parks and Recreation Department 323 Church Street Santa Cruz, CA 95060 Phone: (408) 429-3206

The *Draft Pogonip Master Plan* (see Figure I-2) includes the following elements and improvements:

- **Clubhouse Rehabilitation.** Rehabilitation of the historic 8,000 square foot, two-story Clubhouse is proposed. The Clubhouse would serve as a staging site for educational programs, a community meeting and retreat center, and a site for special indoor/outdoor events. The City anticipates initiating preparation of a detailed rehabilitation plan for the Clubhouse after approval of the *Draft Pogonip Master Plan* and EIR.
- **Pogonip Garden.** The Pogonip garden, to be operated by the private non-profit Homeless Garden Project, would be located in the Lower Main Meadow area. The Pogonip garden would include support facilities, agricultural plots, and greenhouses.
- **Outdoor Education Camp.** A one-acre outdoor education area is proposed for the Lower Main Meadow, to the west of Golf Club Drive. This facility is



Source: Brady/LSA 1997

DRAFT POGONIP MASTER PLAN

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Figure I-2
Site Plan

intended to serve primarily youth groups and other community organizations, in groups of no more than about 30 people at one time. Proposed amenities include a shade structure, picnic tables, amphitheater-style seating and restrooms. The camp would be used primarily for day-use activities but would also be available for overnight use by organized youth groups and other organizations.

- Sycamore Grove Nature Area. This area, located at the eastern edge of Pogonip along the San Lorenzo River, is proposed to be used primarily for passive recreation and educational uses. Limited parking along Highway 9 would be available for users of this area. Picnic tables, a portable toilet, and informational kiosk are proposed. Invasive understory plant species would be cleared.
- Trails. The project, for purposes of the *Draft Pogonip Master Plan* and Draft EIR, includes three trail use alternatives. All alternatives are evaluated as part of the "proposed project" in this EIR. The majority of trail alignments are the same in all of the alternatives; however, the allowed use (i.e., pedestrian, equestrian, bicycle) for specific trails varies. Most of the trails presently exist; some rerouting and improvements would be needed.
- Resource Management Areas. Sensitive biotic resources, including rare plant and wildlife species and unique plant communities, would be protected and enhanced. Resource Management Areas are proposed to include: coastal terrace prairie; wetland/freshwater marsh; central coast cottonwood-sycamore riparian forest; central coast riparian scrub; robust spineflower habitat; and Ohlone tiger beetle habitat.
- Fire Management. The *Draft Pogonip Master Plan* includes a *Fire Management Element* for the entire 640-acre property. Prepared by a wildland fire management specialist, this element addresses values at risk from fire, fire hazards, risk of ignition, and methods of wildland fuel management. Standards for fire hazard reduction are included in Appendix E of the *Master Plan*.
- Historic Sites. Historic structures and features at Pogonip, including the Clubhouse, limekilns, historic roads, and the McCormick House site would be preserved. Interpretive programs and displays would also be developed to share Pogonip's history with visitors.
- Maintenance and Support Facilities. Expansion and improvement of the ranger and maintenance facilities is proposed for the Upper Main Meadow area. A new caretaker residence is proposed for the Upper Main Meadow adjacent to the ranger facilities.

- Transportation and Circulation. Improvements to Golf Club Drive would enhance public vehicle and emergency vehicle access. The existing service roads would remain unpaved.

Parking areas are proposed for the Lower and Upper Main Meadow areas. Upper Main Meadow parking of 45 spaces would primarily serve the Clubhouse. Events generating a greater number of vehicles than could be accommodated in the new parking area would require the use of a shuttle system. The parking lot is proposed for the area in which the tennis courts are currently located. Approximately 30 spaces at the Lower Main Meadow would provide parking for Pogonip visitors and the Pogonip garden project staff. Existing parking at Sycamore Grove would be minimally improved. Five wheelchair accessible parking spaces are also proposed at the Spring Street entrance.

- Utilities. Extension of municipal water and sanitary sewer lines is proposed along the Golf Club Drive alignment to the Clubhouse. Electrical upgrades would also be needed to serve the proposed facilities, and undergrounding of telephone and electrical lines is proposed.

C. Project Review and Approval Process

The City of Santa Cruz will use this document as part of its review of the proposed project. Other agencies such as the California Department of Fish and Game and Caltrans will also use the EIR to review the proposed project for necessary permits and approvals. A summary of permit and review requirements is provided in Table I-2.

1. City Permits and Environmental Documentation

The Santa Cruz Parks and Recreation Commission is the lead advisory body to the City Council in review of the *Draft Pogonip Master Plan* and environmental documents. In regard to historic resource issues, the Historic Preservation Commission will provide input to the Clubhouse rehabilitation effort and historic site preservation recommendations. The Greenbelt Subcommittee of the City Council will also provide review and input for the *Draft Pogonip Master Plan* process and this document. The Planning Commission will review the General Plan Amendment and Rezoning. The City Council is responsible for the final certification of the EIR, adoption of the *Pogonip Master Plan*, and approval of the General Plan amendment and rezoning. With zoning as Parks District (P-K), proposals for specific new facilities would be subject to design review.

Table I-2
PERMIT AND REVIEW REQUIREMENTS

Agency	Permit/Approval	Required Reviews
City of Santa Cruz	Certification of EIR; General Plan Amendment; Rezoning Approval; Adoption of Master Plan	CEQA Review
California Department of Fish and Game	Streambed Alteration Permit for bridges (possible)	CEQA Review (Biology)
U.S. Fish and Wildlife Service		CEQA Review (Biology)
Caltrans		CEQA Review (Traffic)

Source: Brady/LSA.

The City permits and approvals required for the proposed project include: certification of the Final EIR and adoption of the *Master Plan*. Rezoning and a General Plan amendment for the more-recently acquired Wavecrest property are also addressed. Pursuant to the California Environmental Quality Act (CEQA), a Notice of Preparation was prepared for the *Draft Pogonip Master Plan* (see Appendix A). It was determined that an EIR would be required for the project because the project may have one or more significant effects on the environment. This EIR describes the likely environmental consequences of the implementation of the proposed *Draft Pogonip Master Plan*.

2. Other Required Reviews and Approvals

In addition to the above City requirements, Caltrans is expected to review the EIR for potential impacts on State transportation facilities and the California Department of Fish and Game (CDFG) will review the EIR for impacts on biological resources. The U.S. Fish and Wildlife Service (USFWS) will review the project for potential impacts on Ohlone Tiger Beetle habitat in the Upper Main Meadow area and federally-listed plant species.

D. EIR Scope

The City of Santa Cruz circulated a Notice of Preparation (NOP) that identified the issues that would be covered in the EIR. This NOP was published on June 23, 1997 (State Clearinghouse Number 97062099) and mailed to public agencies and organizations considered likely to be interested in the potential impacts of the project (see Appendix A). A public scoping session was conducted on July 24, 1997 to

notify the public of the proposed project and to solicit concerns regarding issues to be addressed in the EIR. Comments received on the NOP can be found in Appendix A. A sample Table of Contents from the *Draft Pogonip Master Plan* can be found in Appendix B. A summary of comments raised at the scoping session can be found in Appendix C. The following is a summary of the main issues of concern identified in both comments on the NOP and the scoping session:

- Transportation-related hazards to bicyclists.
- Traffic hazards on Golf Club Drive.
- Runoff from parking areas.
- Recreation impacts.
- Hazards from illegal camping (i.e., fires, water quality, safety and police services) and increased needs for security.
- Compatibility of the Pogonip garden with other uses and changes to Lower Main Meadow.
- Potential for water trough for horses, if equestrian use is allowed.
- House site as a historic resource (only foundation remains).
- Impacts of dogs on bobcat at site.
- Potential for separate trails for bicyclists and hikers.
- Impacts to birds of prey.
- Trail linkages to parks in vicinity and potential for Pogonip to be used by bicyclists to avoid the State Route 1/State Route 9 interchange.
- Visual impacts of utility lines, greenhouses, and Pogonip garden.
- Proposed road and railway improvements.
- Estimated increased use by bicyclists and equestrians.
- Impact of the Pogonip garden on historic uses.
- Possible increased trespassing onto adjacent properties.
- Safety of parking at Sycamore Grove due to its distance from other parts of Pogonip.
- Need for a north/south corridor for bicyclists.
- Increased erosion due to bicyclists and equestrians.
- Nitrates from Pogonip garden and groundwater impacts.

The following environmental issues are addressed in this EIR:

A. Land Use

- B. Vegetation and Wildlife
- C. Geology, Soils, and Seismicity
- D. Water Resources
- E. Archaeological and Historic Resources
- F. Visual Quality and Aesthetics
- G. Transportation and Circulation
- H. Utilities and Service Systems

The proposed project was determined not to have significant impacts on energy and mineral resources, noise, hazards, recreation, air quality, and population and housing. These issues are addressed briefly in Chapter VI of the EIR.

E. Report Organization

This EIR is organized into the following chapters:

- *Chapter I: Introduction*, provides a summary of the proposed action and environmental review process; identifies potentially significant issues and concerns; and discusses the overall purpose, use, and organization of the EIR.
- *Chapter II: Summary*, provides a summary of the significant impacts that would result from implementation of the proposed project and describes mitigation measures recommended to reduce or avoid significant impacts.
- *Chapter III: Project Description*, provides a description of the proposed project, project site location and general existing conditions.
- *Chapter IV: Setting, Impacts and Mitigation Measures*, describes for each environmental technical topic: existing conditions (setting); criteria of significance for impacts; potential environmental impacts and their level of significance; and mitigation measures recommended to mitigate identified impacts. Potential impacts are identified by levels of significance, as follows: significant and unavoidable impact (SU); significant impact (S); and less-than-significant impact (LTS). Each impact is categorized before and after implementation of any recommended mitigation measure(s).

The following abbreviations are used for each impact and mitigation measure contained in Chapter IV:

Land Use: LAND
Vegetation and Wildlife: BIO
Geology and Soils: GEO
Water Resources: WAT
Archaeological and Historic Resources: ARCH
Visual Quality and Aesthetics: VIS

Transportation and Circulation: TRAN
Service Systems and Utilities: SER

- *Chapter V: Alternatives*, provides an evaluation of two alternatives to the proposed project, in addition to the No Project Alternative. The No Project Alternative assumes no change from existing conditions. One other alternative addresses reduced level of use in the Lower Main Meadow and the last alternative addresses an off-site garden and relocated parking. As part of this chapter, the Environmentally Superior Alternative is identified.
- *Chapter VI: CEQA Required Assessment Conclusions*, provides the required analysis of the overall impacts of the proposed project, including effects found not to be significant; growth-inducing impacts; significant irreversible and unavoidable impacts.
- *Chapter VII: Report Preparation*, identifies reference documents, publications, and literature reviewed and cited. This chapter also provides a summary of professionals who were involved in report production.

Chapter II SUMMARY

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A. Project Under Review

This Draft EIR has been prepared to evaluate the environmental impacts of the *Draft Pogonip Master Plan*. The project proponent, the City of Santa Cruz Parks and Recreation Department, has prepared the *Draft Pogonip Master Plan* to allow for new uses within Pogonip and to provide for ongoing maintenance, resource conservation, and restoration activities. The project site is located on the north side of the City of Santa Cruz, adjacent to the U.C. Santa Cruz campus, Henry Cowell Redwoods State Park, County lands, and lands within the City.

The following components of the *Draft Pogonip Master Plan* are the subject of this EIR analysis:

- Clubhouse Rehabilitation
- Pogonip Garden and Support Facilities
- Outdoor Education Camp
- Sycamore Grove Nature Area
- Trails
- Maintenance and Support Facilities
- Transportation and Circulation
- Utilities
- Natural Resource Management Areas
- Fire Management
- Historic Sites

A more detailed description of the proposed project is provided in Chapter III, Project Description. Chapter III also includes a description of the site's history.

B. Summary of Impacts and Mitigation Measures

This summary provides an overview of the analysis contained in Chapter IV, Setting, Impacts and Mitigation Measures. The California Environmental Quality Act (CEQA) requires a summary to include discussion of: 1) potential areas of controversy; 2) significant impacts; 3) recommended mitigation measures; and, 4) alternatives to the project, as follows.

1. Potential Areas of Controversy

The potential areas of controversy surrounding the *Draft Pogonip Master Plan* that have been identified include: land use compatibility; biotic resource impacts; geology, soils, and seismicity impacts; hydrology and water quality impacts; historic resource impacts; traffic, circulation, and parking impacts; public services and utilities; and visual impacts.

2. Significant Impacts

Under CEQA, a significant impact on the environment is defined as, "...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."¹

Adoption and implementation of the *Draft Pogonip Master Plan* has the potential to generate environmental impacts in a number of areas. As shown in Table II-1, all of these potential impacts could be mitigated to a less-than-significant level with implementation of recommended mitigation except for impacts to the white-tailed kite and erosion impacts.

3. Alternatives to the Project

The three alternatives to the project that are analyzed in this Draft EIR are:

- The CEQA-Required No Project Alternative, that would keep the site in its current state as primarily a "natural area" with pedestrian trail use only and no new uses or vehicle access/parking improvements.
- The Reduced Lower Meadow Use Alternative, that would locate greenhouses and support facilities for the garden off the site, limit agricultural use to slopes less than 10 percent and outside wetland areas, and restrict use of the Outdoor Education Camp to day use only.

¹ Remy, Thomas, Moose, and Manley, *Guide to the California Environmental Quality Act*, 1996, p. 94; Public Resources Code 21068.

- The Off-Site Garden and Relocated Parking Alternative, that would reduce the level of use at the Lower Main Meadow by locating the Pogonip garden off-site, reduce and relocate parking facilities, and limit the Outdoor Education camp to day-use only.

C. Summary Table

Information in Table II-1 has been organized to correspond with environmental issues discussed in Chapter IV of the Draft EIR. The table is arranged in four columns: 1) impacts; 2) level of significance prior to mitigation measures; 3) mitigation measures; and, 4) level of significance after mitigation. A series of mitigation measures is noted where more than one mitigation measure is required to achieve a less-than-significant impact, and alternative mitigation measures are identified when available. For a complete description of potential impacts and recommended mitigation measures, please refer to the specific discussions in Chapter IV of the Draft EIR.

Table II-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
A. LAND USE (Refer to pages IV.A-1 to IV.A-14)			
No impacts would occur related to land use.			
B. VEGETATION AND WILDLIFE (Refer to pages IV.B-1 to IV.B-43)			
BIO-1: Implementation of the <i>Draft Pogonip Master Plan</i> has the potential to impact populations of rare, threatened or endangered species. These species include those listed by either State or Federal agencies (e.g., CDFG and/or USFWS), species proposed for State or Federal listing, species recognized as State or Federal species of concern, or species considered locally rare or unique.	S	BIO-1a: To protect white-tailed kite habitat, the Pogonip garden site should be relocated to an alternative off-site location, as discussed under the Off-Site Garden and Relocated Parking Alternative. Adequate on-site alternative locations are not available without causing harm to equally or greater value habitat. The garden is considered by the City to be a key element of the <i>Master Plan</i>. Without relocation of the garden, this impact remains significant and unavoidable. Other mitigation measures are recommended to avoid and/or minimize other biotic impacts.	SU
	S	BIO-1b: Activities associated with the Outdoor Education Camp should be limited to passive educational activities with low noise levels, particularly during the months of March through August, the breeding season of the white-tailed kite. Night-lighting and overnight camping should not be allowed during the kite's breeding season. All group activities should be directed away from the kite nesting area and education groups should be informed of these use restrictions.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 <i>continued</i>	S	BIO-1c: Development of the Sycamore Grove Nature Area should include all of the following combination of measures to avoid impacts to sensitive wildlife species: - Any site grading should be conducted in a manner that avoids impact to migrating western pond turtles (assuming turtles utilize the area). - Construction activities should be scheduled outside of the turtle's movement periods (between September and May), assuming turtles utilize the area. - If construction were to occur between June and September, focused surveys for turtles should be conducted by a qualified biologist to determine the presence or absence of this species. - If the surveys show that the species is present, construction activities should be modified to avoid impacts (i.e., change construction window). - Fire management activities that include removal of understory vegetation should be coordinated with CDFG and/or a qualified biologist such that impacts to biotic resources are avoided or minimized.	LTS
	S	BIO-1d: Assuming that California red-legged frogs utilize the Sycamore Grove portion of Pogonip, park visitors should be informed of the sensitive status of the frog. Interpretive signs, describing the natural history, protective status and restrictions on collection of adult frogs and tadpoles, should be installed within the nature area. Focused species surveys should be conducted prior to any construction activity in the Sycamore Grove area to ascertain presence or absence of the species within Pogonip.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 <i>continued</i>	S	<u>BIO-1e:</u> Development of the Sycamore Grove Nature Area should avoid removal of native riparian trees that may impact the yellow warbler. If large native trees, or any size willows, are to be removed, focused surveys for yellow warblers should be conducted. If yellow warblers are found, suitable revegetation of riparian habitat should be implemented. Revegetation should include a minimum 1:1 replacement ratio (i.e., acre for acre) to compensate for impacts to warbler habitat. The revegetation should occur within a suitable area of Sycamore Grove and the revegetation plan should be reviewed and approved by California Department of Fish and Game prior to removal of any native trees. The planting plan should be consistent with guidelines in the <i>Draft Fire Management Element</i> of the <i>Draft Pogonip Master Plan</i> .	LTS
	S	<u>BIO-1f:</u> The Prairie Trail, in the vicinity of the known Ohlone tiger beetle colony, should be monitored to ensure that continued pedestrian use of the trail is not impacting the beetle. If the beetle becomes listed by the USFWS, the City should confer with the USFWS on grassland management techniques to preserve and enhance the area for the long-term protection of the species. Grassland management actions, such as prescribed fire and/or selective grazing, should be implemented, in consultation with USFWS. The City may be required to obtain a Section 10(a)(1)(b) permit, pursuant to the Endangered Species Act (ESA), for grassland management actions if the beetle becomes federally listed as threatened or endangered. Use of prescribed fires is consistent with the <i>Draft Fire Management Element</i> .	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 <i>continued</i>	S	<u>BIO-1g</u> : Focused presence or absence surveys for Ohlone tiger beetles should be conducted in the area proposed for the Harvey West Trail. This trail should be designed to avoid impacts to Ohlone tiger beetles, if they are found to be present. As discussed above, if the beetle becomes federally listed, a consultation with the U.S. Fish and Wildlife Service should be conducted, pursuant to the Endangered Species Act (ESA). Management actions within the Harvey West Trail area, such as grazing and/or prescribed fire, may require permitting from USFWS.	LTS
	S	<u>BIO-1h</u> : The rare plant species within the prairie habitat near the Fern Trail (i.e., Haunted Meadow near junction of Rincon, Spring and Fern trails), near the Brayshaw Trail (junction of Brayshaw Trail and Spring Trail) and in prairie and woodland habitat along the Pogonip Creek Trail should be protected from potential direct and/or indirect trail user impacts by a combination of all the following measures: ◦ A two-rail fence should be installed along the edge of the Spring Trail next to Haunted Meadow and at the junction with the Brayshaw Trail to preclude off-trail uses in these meadows. ◦ Fencing should be installed prior to or concurrent with area trail improvements. ◦ Interpretive signs should be provided describing the plants' status and need for protective measures. ◦ The re-routing of the Fern Trail out of Haunted Meadow should be implemented concurrent with the fencing.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 <i>continued</i>	S	- If the emergency vehicle access near Haunted Meadow is necessary, a gate would be needed at the north end of the fencing. Vehicle access and horse patrols through the prairies should be limited to the dry season when the potential for soil compaction is least. BIO-1i: As presented in the <i>Draft Pogonip Master Plan</i>, habitats supporting rare species (i.e., coastal terrace prairie and scattered occurrences within other habitats) within Pogonip require active resource management. Since the prairie habitat near Fern Trail, the Pogonip Creek Nature Trail and Brayshaw Trail supports known occurrences of rare plant species, these are high priority areas for management. The following combination of steps should be implemented: - Prior to any trail improvements near these areas, prairie management plans should be developed for these prairie areas. The plan(s) should specify measures to preserve and promote the occurrence of the rare plant species, such as selective grazing, prescribed fire and/or seasonal mowing. This action is consistent with the <i>Draft Fire Management Element</i> of the <i>Draft Pogonip Master Plan</i>. - The plan(s) should identify the current distribution and population size of the rare plants within the prairie and evaluate potential changes in such distribution with historical records (as available). - The plan(s) should specify a goal of preserving the extant populations and, over the next five years of active management, population size and distribution should expand by a minimum average of 20 percent.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 <i>continued</i>		◦ The plan(s) should specify monitoring and reporting methodologies such that the effectiveness of the management techniques can be evaluated. Contingency measures to be implemented if management techniques fail to meet the stated performance standards should also be specified; such measures may include changes in management actions, emergency seed collection or other measures as approved by CDFG and USFWS. ◦ The City should obtain an agreement with CDFG on management actions affecting populations of San Francisco popcorn flower (a State-listed species) and conduct voluntary consultation with USFWS and CDFG on management actions affecting populations of robust spineflower, Santa Cruz clover and Gairdner's yampah. ◦ The prairie management plan(s) should be reviewed and approved by USFWS and CDFG prior to implementation of management actions. ◦ Selected grassland management techniques should be implemented within one year of trail changes or improvements. ◦ A program to monitor the status of the rare plant species and the effects of the selected grassland management actions should be developed as part of the grassland management program. Results of the monitoring should be made available for regulatory agency review.	

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 <i>continued</i>	S	<u>BIO-1j</u> : The UCSC Connector Trail should be aligned to avoid impacting existing wood rat nests. The proposed trail layout near the Pogonip - UCSC boundary should re-routed a short distance upslope to avoid the nests sites in this area. The final trail alignment should be field-checked by a qualified wildlife biologist prior to construction to document that trail construction will not impact the nests.	LTS
<u>BIO-2</u> . Implementation of the <i>Draft Pogonip Master Plan</i> has the potential to impact habitats (i.e., riparian woodland, wetland habitat and coastal terrace prairie) considered sensitive by either State or Federal agencies (e.g., CDFG and/or USFWS) and/or City of Santa Cruz.	S	<u>BIO-2a</u> : At the Sycamore Grove Nature Area, invasive, non-native vegetation (especially the non-native ivy and periwinkle which are low growing ground covers) should be removed and revegetation of native plants, such as willows and blackberry, should occur.	LTS
	S	<u>BIO-2b</u> : Drainage from the Lower Meadow parking lot and entrance road should be directed away from the nearby intermittent drainage way and into a grassy drainage swale. The grassy swale would aid in the entrapment and filtering of road/parking lot runoff (including oils and greases) and reduce the potential for such materials to enter the natural watercourse. Design of the grassy drainage swale (including its size and features) should be completed or undertaken by a qualified engineer.	LTS
	S	<u>BIO-2c</u> : The following combination of measures should be implemented for the Lower Main Meadow area. When alternatives are appropriate to specific measures such as relocation, these are specified. The Pogonip garden, Lower Meadow parking lot and Outdoor Education Camp should collectively be re-designed to avoid or reduce their combined impact to coastal terrace prairie habitat. Avoidance of impacts may be possible by placing all three facilities within the non-native grassland in the easternmost portion of the Lower Main Meadow, as presented in the Alternatives addressed in Chapter V of the EIR.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-2 <i>continued</i>		◦ If avoidance of impacts is not deemed feasible for the Pogonip garden, Lower Meadow parking lot or Outdoor Education Camp, re-creation and/or restoration of other grassland on Pogonip would be a feasible mitigation strategy. For the Pogonip garden facility, approximately 14 acres of existing non-native grassland or degraded coastal terrace prairie within Pogonip could be re-created and/or restored. Approximately 2.0 acres would be necessary to mitigate impacts from the Lower Meadow parking lot and the Outdoor Education Camp. Grasslands that could be considered for this mitigation action are located near Spring Trail, near Fern Trail and the grassland near the ranger office. A more detailed analysis of these potential mitigation sites, in addition to the development and implementation of a detailed prairie mitigation plan, would be necessary to mitigate these impacts to a less-than-significant level if this alternative mitigation measure were selected.	

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-2 <i>continued</i>		• Prior to implementation of the <i>Draft Pogonip Master Plan's</i> proposed improvements (i.e., parking lot, Outdoor Education Camp or Pogonip garden facility), the prairie management plan(s) should be developed for the preserved prairie areas within Pogonip. The plan(s) should specify measures to preserve and promote the occurrence of the native coastal prairie species, including revegetation actions (i.e., seeding, plantings) and management actions (i.e., selective grazing, prescribed fire and/or seasonal mowing). The plan(s) should identify the current diversity and density of native prairie species within the mitigation areas and specify a performance standard for suitable mitigation (i.e., increase diversity and density of native prairie species by 50 percent within five years). The plan(s) should specify monitoring and reporting methodologies such that the effectiveness of the prairie mitigation techniques can be evaluated. • Contingency measures to be implemented if techniques fail to meet the stated performance standards should also be specified. Such measures may include changes in management actions, additional seed collection, or other measures as approved by CDFG and USFWS. • The City should obtain approval of the mitigation plan(s) by USFWS and CDFG prior to implementation of the Lower Main Meadow improvements. • Selected grassland mitigation techniques should be implemented within one year of implementation of any Lower Main Meadow improvements.	

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-2 <i>continued</i>	S	◦ A program to monitor the status of the prairie mitigation(s) and the effects of the selected prairie management actions should be developed as part of the mitigation plan(s) program. The results of the monitoring should be submitted to regulatory agency personnel for review. <u>BIO-2d</u>: The following combination of measures should be implemented as related to the Pogonip garden area if the Pogonip garden is not relocated: ◦ The location of the wetland should be determined prior to finalization of the Pogonip garden plan and a wetland delineation conducted pursuant to U.S. Army Corps of Engineers criteria. ◦ Assuming direct impacts to the wetland are avoided, the Pogonip garden facilities should be re-designed to avoid indirect impacts from adjacent Pogonip garden activities. ◦ Intensive Pogonip garden activities, such as row crop cultivation, should be located 100 feet from the outside edge of the wetland. ◦ Perennial crops such as herbs or other crops that do not involve annual or seasonal soil cultivation could be allowed in the area 50 to 100 feet from the outside edge of the wetland. ◦ A buffer zone, comprised of native grasses and forbs should be maintained between one and 50 feet from the outside edge of the wetland.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-2 <i>continued</i>	S	BIO-2e. The City should select trail alignments that avoid impacts to coastal terrace prairie. If avoidance is not feasible in some locations, impacts should be reduced by placing trails in areas with the least amount of native grasses and forbs. If impacts to prairie habitat still occur, the City should implement revegetation actions along the trail to compensate for the removal of habitat. Trail cuts should be revegetated with site-obtained grass and forb species.	LTS
BIO-3: Implementation of the <i>Draft Pogonip Master Plan</i> has the potential to impact wildlife utilization of Pogonip and wildlife movement corridors within and adjacent to Pogonip lands.	S	BIO-3: The following combination of mitigation measures should be implemented to avoid, reduce or compensate for impacts to wildlife utilization and/or wildlife movement in and through the Pogonip. • Focused nesting surveys should be conducted for nesting barn owls near the Clubhouse. If nesting is observed, construction activities should be timed to avoid impacting nesting activity (i.e., schedule construction after young have fledged). • To avoid and/or reduce impacts to denning bobcats, the City should take steps to ensure that the Harvey West, Lookout and Pogonip Creek trails are used for pedestrian use only, as designated in the <i>Draft Pogonip Master Plan</i>. Any illegal bicycle or equestrian use of these trails should be monitored and mitigation measures developed and implemented, if necessary, to reduce impacts to bobcats. • Signs should be installed notifying park visitors that dogs are required on leash at all times. Due to the higher sensitivity of the Pogonip Creek, Lookout and Harvey West trail areas for wildlife, dogs should be prohibited from these trails.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-3 <i>continued</i>		- More vigorous enforcement of the dog leash law by rangers should occur to avoid and reduce impacts to wildlife from unleashed dogs. - Monitoring of dog usage should occur for the first two years after Master Plan adoption, and the policy regarding dogs should be amended if necessary. If the presence of unleashed dogs increases, other measures may be necessary such as an outright ban on dogs within Pogonip. - A buffer zone measuring at least 50 feet outward from the tree dripline should be established between the Pogonip garden facilities and the wooded drainage as shown in Figure IV.B-3. The buffer would allow for a wider corridor for wildlife movement through the site. Additionally, the gap between the deer fencing along the access road should be widened to a minimum of 100 feet in width. Any drainage structure should be located out of this wildlife movement corridor (see Figure IV.B-3).	
C. GEOLOGY, SOILS AND SEISMICITY (Refer to pages IV.E-1 to IV.E-21)			
GEO-1: New developed features that would be added to the Pogonip site have the potential to alter landforms and to create a substantial increase in erosion. Slope instability may also result from such features.	S	GEO-1a: To reduce the likelihood of excessive erosion, severe gully advancement, and slope instability, the Pogonip garden should be sited at an alternative off-site location, as discussed under the Off-Site Garden and Relocated Parking Alternative in Chapter V. The acreage requirements for the garden and the lack of suitable habitat make an alternative on-site location infeasible. Because the garden is considered a key element of the project, the infeasibility of this mitigation would cause this impact to remain significant and unavoidable. The following measures are recommended to further reduce or avoid impacts.	SU

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-1 <i>continued</i>	S	<u>GEO-1b</u> : Use of the Outdoor Education Camp should be conducted during the periods of low rainfall, particularly summer and fall (dry) season. Use should be curtailed during winter and spring, during periods of rain and as the site dries out in the spring to minimize soil impacts. It would be advisable to institute a rain dependent closure policy, akin to wet conditions restrictions on area playing fields, to limit erosion, soil compaction, and disturbance of local vegetation.	LTS
	S	<u>GEO-1c</u> : To reduce impacts from site use of the Outdoor Education Camp, erosion control features such as vegetated buffer strips, gravel walkways, and rock filled ditches should be sited in ways that reduce erosion. Tent platforms or other similar structures should be used for overnight camping to limit vegetation trampling and compaction of soils. The <i>Draft Pogonip Master Plan</i> should include guidelines to support runoff management through the use of pervious surfaces, vegetative buffers and other similar features that would reduce potential erosion impacts.	LTS
	S	<u>GEO-1d</u> : In the proposed Pogonip garden site, BMPs such as contour bedding, winter covercropping, and increased widths for vegetated buffers along cultivated fields and adjacent slopes should be implemented to reduce impacts on the terrace formation.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-1 <i>continued</i>		The following language should be added to the Pogonip Garden Operations and Management Plan: - Design of the Pogonip garden plots should include a minimum 30-foot vegetated buffer from the cultivated field edge to the break in the adjacent slope and the existing on-site wetlands. This buffer would serve to separate actively-tilled soils and the steeper soil units found on the 30-50 percent slopes downgradient from both primary Pogonip garden plots (north and south row crop areas). The buffer would also protect seasonal wetlands from inputs of agricultural runoff and sediments. - Within orchard lands, efforts should be made to minimize the disturbance of soils and vegetation beneath orchard trees to reduce potential erosion and gully formation. - Terrace gardening, if necessary for permaculture and herb plots, should minimize surface disturbance and retain native vegetation cover to the maximum extent feasible to reduce erosion and potential instability on slopes. Constructed diversion berms should be minimized to reduce soil disturbance on slopes with 16-30 percent grades. - Disturbance to mapped seeps and springs on the slopes above the Pogonip garden access road and below the Pogonip Clubhouse should be avoided to minimize erosion of persistently wet soils. - Future plans for drainage features, gully repair and erosion control should be reviewed by qualified professionals. Drainage plans should also include regularly cleaned sediment basins, to minimize soil loss off the middle terrace and to reduce downstream sedimentation impacts.	

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
	S	<u>GEO-1e</u> : Mitigation for the unstable conditions in the existing dirt (and proposed Pogonip garden access) road off Golf Club Drive requires engineering of a more stable roadbed, with provisions for high soil moisture and drainage. Features for surface and subsurface runoff should include adequate culvert capacity or an "at grade" swale crossing at the intersection with the existing wetland swale on-site. Additional measures, such as a compacted gravel roadbed or a paved road surface, may be necessary following site specific investigations of wet season soil conditions.	LTS
	S	<u>GEO-1f</u> : The location and design of the Pogonip garden's drainage features would determine their effectiveness in controlling runoff and sediment transport off the Pogonip garden site. As proposed, no details or specifications for critical drainage features have been provided. Sediment basins upstream of the proposed drainage features would be necessary to assure that sedimentation impacts to on-site drainage features and downstream wetlands are minimized. As proposed, generalized drainage features are located to release runoff to slopes ranging from 15 to 50 percent directly into or in the vicinity of active gullies.	LTS
	S	<u>GEO-1g</u> : Construction impacts of the garden structures, parking area and ancillary facilities would be mitigated by adherence to local erosion control and drainage standards and monitoring of erosion conditions by a qualified erosion control specialist.	LTS
	S	<u>GEO-1h</u> : Winter season/wet condition soil disturbance should be avoided in the Pogonip garden area. Active maintenance of erosion control features and sediment basins should occur year-round during periods of storms.	LTS

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Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-1 <i>continued</i>	S	<u>GEO-1i</u> : The most effective mitigation for the potential increase in erosion of the surface of the service roads is annual cleaning and rebuilding of waterbars, dip-swales, and other roadway and trail drainage features. By maintaining runoff control features each year, preferably in the fall, the community gains the assurance that impacts of trail use during the dry season will be addressed prior to the onset of erosion inducing rainfall.	LTS
	S	<u>GEO-1j</u> : Waterbars should be constructed of materials other than locally available crushed rock, which has limited compaction strength and effectiveness under heavy traffic loads. For the historic service roads, native fine grained, compacted roadbed material would serve as a sufficient waterbar material. Shallow excavation of the roadbed on the uphill side of the waterbar to be built would supply material for the bar, direct much of the erosive flow off the trail, and lengthen the lifespan and effectiveness of the waterbar. The use of flexible rubber waterbars, placed in timber or concrete footings across high use or steep trail segments, would provide critical runoff management while withstanding consistent impacts of pedestrian, equestrian, and mountain bike users.	LTS
	S	<u>GEO-1k</u> : Outsloping of existing service roadway surfaces to shed water in a dispersed manner would reduce high-energy runoff from potentially erosive and/or unstable steep slopes and existing gullies. Where this is not feasible, inside ditches should be rock-filled and maintained to move stormwater while minimizing erosion and minor slope failures in roadcuts.	LTS
	S	<u>GEO-1l</u> : Limitations on multi-use traffic volumes would serve to minimize multi-use trail impacts. This may be realized by individually reviewing trail use permits for special events.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-1 <i>continued</i>	S	<u>GEO-1m</u> : Additional detail should be provided during the selection process for the new trail routes and prior to any new trail construction. This detail would include site-specific construction techniques and other mitigation measures to be utilized in particularly steep areas requiring slope cuts and at stream and wetland crossings.	LTS
	S	<u>GEO-1n</u> : In all trail alignments, limits on wet season should be imposed to reduce impacts to local soil resources and slope stability.	LTS
	S	<u>GEO-1o</u> : In the case of the proposed new trail alignments where moist soils, surface ponding, slow drainage, and other problematic trail maintenance conditions occur, additional construction standards may be necessary. Measures such as surfacing problem areas with locally-derived, crushed rock should be established to add structure to the new trail beds, while adding to the trail surface resistance to downslope, mountain bike, brake skidding and steep slope equestrian impacts. Trail surfacing should be evaluated based on post-construction conditions and re-evaluated periodically following actual use.	LTS
	S	<u>GEO-1p</u> : In all multi-use trail alternatives, increased signage and speed control features should be established to reduce the overall impact of trail use by reducing trail widening at points of user interface, and on turns where users may drift off designated trails.	LTS
	S	<u>GEO-1q</u> : Fencing should be constructed as needed to limit trail cutoffs and to limit potential adverse impacts associated with vegetation trampling and excessively steep, unmaintained informal trails.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
GEO-1 <i>continued</i>	S	<u>GEO-1r</u> : Impacts in the vicinity of the historic sites and features should be mitigated by trail design and site-appropriate erosion control treatments. For example, trails should not be routed where rockfall or other instability hazard during rainfall or earthquake events could harm trail users.	LTS
	S	<u>GEO-1s</u> : Reduction of the continuing potential geologic hazards associated with the steep quarry faces should be accomplished through a combination of exclusionary fencing, signage, and seasonal closures of the potentially hazardous areas.	LTS
	S	<u>GEO-1t</u> : Changes in runoff and potential erosion should be mitigated through the minimization of impervious surfaces and the use of vegetated buffers and swales adjacent to event grounds, roadways and parking areas. The City of Santa Cruz should review specific project plans and require BMPs to minimize increased runoff volumes and velocities, and to reduce the likelihood of erosion.	LTS
	S	<u>GEO-1u</u> : Construction impacts of ancillary Pogonip garden facilities, Upper and Lower Parking areas, caretaker facilities, the Clubhouse rehabilitation, and the Outdoor Education Camp should be mitigated by adherence to City of Santa Cruz erosion control standards and monitoring of construction and erosion control efforts by certified erosion control specialist or registered engineer and/or geologist.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
D. WATER RESOURCES (Refer to pages IV.D-1 to IV.D-19)			
WAT-1: New developed features would be added to the Pogonip site that could result in substantial degradation of water quality (including siltation from erosion).	S	WAT-1a: To reduce water quality impacts, the Pogonip garden should be sited at an alternative off-site location, as discussed under the Off-Site Garden and Relocated Parking Alternative in Chapter V. The acreage requirements for the garden and the lack of suitable habitat make an alternative on-site location infeasible. Because the garden is considered a key element of the project, the following measure is recommended to further reduce this impact. The actively tilled fields should be reduced in scale such that a vegetated buffer of at least 30 feet separates plowed areas from slopes greater than 10 percent and active gully headcuts at the top of the drainage corridor that bisects proposed Pogonip garden plots. Drainage structures, gully treatments, and Pogonip garden plot layout should be developed in coordination with knowledgeable agricultural planners such as staff of the Natural Resource Conservation Service (NRCS), Santa Cruz County Agricultural Commission, and UC Agricultural Extension Service.	LTS
	S	WAT-1b: To reduce trail-related impacts, voluntary seasonal trail closures should be posted with on-site signage at the Parks and Recreation Department, and through public notices in local media. Wet season trail closures should be implemented to minimize adverse impacts to water quality and reduce trail maintenance requirements. Seasonal closures would likely be more effective than daily closures due to the different trail moisture conditions likely to be encountered in the variable terrain. In all trail alignments and trail use alternatives, existing and proposed, limits on wet season use would reduce impacts to local soil and water resources.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
WAT-1 <i>continued</i>	S	<u>WAT-1c</u> : In both multi-use trail alternatives, increased signage and speed control features should be implemented to reduce overall impacts of trail use, by reducing trail widening at points of user interface, and on turns where users may drift off designated trails. Unauthorized access by mountain bikes and horses on single track pedestrian routes should be monitored to reduce the potential for trail widening and erosion.	LTS
	S	<u>WAT-1d</u> : Drainage structures such as waterbars, ditches and culverts should be cleared and maintained prior to each rainy season. This measure applies to all trail alternatives, including existing use and proposed multi-use alignments. Leveling the low duff/soil berm that develops on the downslope side of pedestrian trails would also reduce erosion and sedimentation. Drainage features should be maintained to keep trails drier, limit standing water, and disperse erosive stormwater flow over wider areas, thereby reducing the volume and velocity of trail runoff at any given point in the trail network.	LTS
	S	<u>WAT-1e</u> : In the case of the proposed new multi-use trail alignments, construction specifications should be developed by trail designers with practical experience in the region and field fit to site-specific conditions. Trail alignments should be developed to minimize gradients to 12 percent or less. Where feasible, multi-use trails should be designed to have less than 8 percent grade. Steeper gradient informal trails should be obliterated and user traffic should be directed to maintained trails through the use of brush piles, downed trees, and, if necessary, fences.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
WAT-1 <i>continued</i>	S	<u>WAT-1f</u> : Specifications for creek crossings and grading on steep slopes should be developed in the field by those familiar with the episodic nature of winter storms and slope instability in the Coast Range. Slope cuts should be minimized, to the extent feasible, and slope fills for maintaining trail widths should be avoided, due to the inevitable disturbance of the fill matrix under equestrian and mountain-bike use. Overall trail widths should be minimized on slopes in excess of 30 percent to reduce the potential for slope failure and erosion.	LTS
	S	<u>WAT-1g</u> : On steeper slopes (i.e., those slopes greater than 30 percent), slope cuts should be located with regard to potential slope instability, existing landslides and slope failures, as well as user safety and sight lines. In general, narrower trails reduce slope disturbance and changes in runoff patterns that may substantially impact local surface water quality in the event of trail degradation or slope failures.	LTS
	S	<u>WAT-1h</u> : Fencing should be installed at specific locations as needed, to limit trail cutoffs and redundant routes and to limit the potential adverse impacts associated with excessively steep, unmaintained informal trails.	LTS
	S	<u>WAT-1i</u> : Existing informal and unauthorized trails should be obliterated, to the extent feasible, to focus user traffic on maintained trails.	LTS
	S	<u>WAT-1j</u> : Overhanging limbs, trailside brush, and downed logs should be cleared from multi-use trails to minimize informal trail bypasses, pullouts and cutoffs that promote trail widening, vegetation trampling and soil disturbance.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
WAT-1 <i>continued</i>	S	<u>WAT-1k</u> : A sustained maintenance program should be established to include the commitment of regular budget allocations and provision for contingency funds to rehabilitate trails following episodes of flooding, landsliding, and other disturbances typically associated with the Santa Cruz Mountains.	LTS
	S	<u>WAT-1l</u> : Re-routing of Fern Trail to minimize trail impacts to wet meadow and native grasslands should be conducted with due consideration to the active gulleying and slope failure occurring immediately downslope in the Santa Margarita formation.	LTS
	S	<u>WAT-1m</u> : Prior to construction of the UCSC Connector Trail, either route requires additional site inspection and trail design. The proposed trail grade should not exceed 12 percent and proposed trail widths should be approximately four to six feet within Pogonip. Due to the steep terrain, trail construction would require excavation of a cut face on slopes in exceedance of 40 percent. Maintaining drainage and minimizing trail widening due to traffic passing in different directions would be critical for the long term viability of either connector route. Well-placed pullouts, or passing areas, should also be provided to minimize user conflicts and informal trail widening.	LTS
	S	<u>WAT-1n</u> : Periodic sweeping of paved surfaces (e.g., parking areas) should be conducted during the summer and fall to reduce contaminated soil particles and animal wastes, thus reducing the first flush of urban runoff pollution in the rainy season from impervious surfaces.	LTS
	S	<u>WAT-1o</u> : Storage of manure, compost and nitrate rich materials to be used in the Pogonip garden should be undertaken to minimize leaching to groundwater by placement on impervious surfaces and covering of stockpiles during the rainy season.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
WAT-1 <i>continued</i>	S	<u>WAT-1p</u> : Water conservation practices in the Pogonip garden and stormwater runoff BMP techniques should be implemented to mitigate potential adverse impacts associated with use of treated municipal water for irrigation on downstream wetland resources.	LTS
	S	<u>WAT-1q</u> : Local erosion control and design review standards should be met to minimize construction impacts from ancillary facilities associated with the Pogonip garden, Outdoor Education Camp, and maintenance and support facilities.	LTS
	S	<u>WAT-1r</u> : Erosion control features should be constructed to minimize pedestrian use impacts associated with the Outdoor Education Camp. Trails and walkways on steep slopes should be avoided in these same areas. At the Outdoor Education Camp, tent platforms or other stable, well drained designated campsites should be used. Runoff management through the use of pervious surfaces, vegetative buffers and other similar features should be implemented to reduce stormwater impacts.	LTS
	S	<u>WAT-1s</u> : In sections of Brayshaw Trail that exceed 12 percent grade, the road surface should be paved and drainage should be managed to reduce persistent turbidity and maintain the integrity of the saddleback ridge on which the route sits. Brayshaw Trail's use as a critical year-round emergency access route between the Golf Club Drive entrance and the upper Pogonip results in frequent wet season use. Engineering drainage features and a stable roadbed in the steep section of Brayshaw Trail should be constructed to reduce existing and anticipated persistent turbidity in surface runoff, while increasing the lifespan of the route for emergency and operational access.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
E. ARCHAEOLOGICAL AND HISTORIC RESOURCES (Refer to pages IV.E-1 to IV.E-14)			
ARCH-1: Clubhouse rehabilitation, if not carried out sensitively, could alter the historic features of the structure that contribute to its significance.	S	ARCH-1: The rehabilitation plan for the Clubhouse should be developed in consultation with a qualified professional historical architect and be consistent with guidance developed in consultation with the State Historic Preservation Officer.	LTS
ARCH-2: Deterioration of the lime kilns, quarries and associated historic features could occur with adoption of the <i>Draft Pogonip Master Plan</i> and increased use of Pogonip.	S	ARCH-2a: Three approaches are available to mitigate the deterioration of the lime kilns, quarries and associated historic features and contribute to historic preservation. These involve: (1) benign neglect of the physical resources in combination with a program of documentation and archaeological data recovery; (2) maintenance of the lime kilns, quarries and associated historic features in a state of "arrested decay," placing the historic preservation emphasis on minimal maintenance (primarily for safety reasons) and conducting additional historical and archaeological studies to better understand the history of these resources; and (3) active preservation which would include reconstruction of some or all of the complex of kilns and associated features for public interpretation (informed by additional historical and archaeological studies).	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
ARCH-2 <i>continued</i>		Elements of these approaches could be combined to develop alternative preservation programs. Selection of a mitigation approach must be made realistically, taking into consideration the long-term fiscal commitment to a selected historic preservation program. Short-term preservation actions may have the effect of temporarily delaying or masking obvious deterioration of historic resources but only a comprehensive, long-term historic preservation program would actually result in the preservation of the historic resources. The following combination of measures should be implemented to reduce this impact to a less-than-significant level. If only one mitigation measure is selected by the City, any of the following (2a, 2b, or 2c) by itself would be adequate to reduce the impact to a less-than-significant level. Neglect of the complex of kilns and associated features would result in the deterioration and eventual disintegration of the structural elements. Deterioration would result due to natural processes of decay and collapse enhanced by impacts such as visitors climbing over the ruins. Reduction of the historic features could be regarded as a natural process in the formation of the archaeological record. Mitigation could include the recovery and documentation of important information pertaining to the historic resource. The City of Santa Cruz has sponsored a photographic and architectural documentation of the lime kilns. The City should undertake a thorough documentation of all of the features associated with lime production and the history of lime production in Pogonip to adequately mitigate neglect of the historic structures and features themselves.	

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
ARCH-2 <i>continued</i>	S	ARCH-2b: The loss of the structures associated with lime production could be arrested, but probably not entirely alleviated, through the design and execution of a plan to curtail the deterioration of the historic resources. Such a plan would necessarily address both the effects of natural processes and the effects of visitor use. A thorough survey of the lime kilns and associated features would have to be made to inventory and describe the resource as a prelude to developing a management plan. Each of the natural processes contributing to the deterioration of the resources would have to be discovered and a means to alleviate each of the adverse processes would have to be considered and implemented. Treatment of the effects of some natural processes (e.g., large magnitude earthquakes, soils wasting, tree fall) may not be possible or feasible. Historic preservation efforts may have to be compromised in consideration of other environmental factors, such as conservation of trees and other vegetation in the immediate vicinity of historic resources. Visitor use of some of the historic properties may have to be constrained by fencing or other means to reduce or eliminate the impact of visitors on the structures. Visitor education and enhanced ranger patrols could be effective in reducing visitor impacts. Implementation and enforcement of a long-term stabilization plan would require that the City of Santa Cruz commit the requisite fiscal resources to such a program for decades.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
ARCH-2 <i>continued</i>	S	<u>ARCH-2c</u> : A third approach to mitigating the adverse on-going impacts on the lime kilns and associated historic features involves a long-term historic resources management program including: (1) comprehensive archaeological and historical documentation of the historic resources; (2) reconstruction of some or all of the lime kilns and associated features; and (3) development and implementation of a long-term plan for the preservation, maintenance and interpretation of the historic resources. This program would entail a substantial cost to the City of Santa Cruz and would require extensive and intensive studies of the historic resources; consultation with historical architects, archaeologists and restoration specialists; reconstruction of some or all of the historical remains by construction teams skilled in historical reconstruction of masonry structures; preparation and implementation of a long-term maintenance program; development and implementation of public education and interpretive programs; and permanent assignment of City staff to the historic preservation effort. At its most comprehensive, such a program would include preservation considerations such as reinforcing appropriate historic structures against earthquake damage.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
<u>ARCH-3</u>: Construction, maintenance and use of trails as part of the project has the potential to result in adverse impacts to historic attributes of the Rincon Trail and Spring Trail.	S	<u>ARCH-3</u>: The following combination of mitigation measures should be implemented to reduce this to a less-than-significant impact: - Impacts to historic elements of the Spring and Rincon trails can be avoided, to the extent feasible, by developing and implementing procedures for construction, maintenance and use of the historic trail segments. These procedures should be included as an appendix to the <i>Final Pogonip Master Plan</i> as part of the appropriate City construction and maintenance manuals which direct the oversight of such projects in the City. Construction and maintenance supervisors and appropriate park personnel should be made familiar with the protocols for carrying out construction and maintenance activities along historic portions of the Spring and Rincon trails. Construction and maintenance operations within trail areas with historic fabric, should only be undertaken in accordance with established historic preservation procedures. For example, trail segments that serve as service roads, which are less than 10 feet in width and which include areas of historic fabric, should not be widened in a manner that adversely affects the historic characteristics of the trail/road. - When trail users create alternative pathways off established trails, a variety of adverse impacts could arise. Such impacts would include degradation of trail margins, erosion, and creation of pathways to or through sensitive historic resource areas. Every effort should be made to limit trail users to existing trails as defined in the <i>Trail Management Actions</i> section of the <i>Draft Pogonip Master Plan</i>.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
<u>ARCH-4</u> : Unanticipated discovery of archaeological remains could occur with implementation of the <i>Draft Pogonip Master Plan</i> .	S	<u>ARCH-4</u>: The following steps should be implemented to address unanticipated discovery of archaeological remains: • Important archaeological remains should be avoided and preserved in place. Potential impacts to potentially significant but undocumented archaeological resources could be avoided by conducting archaeological investigations to determine if archaeological remains actually exist in the three areas of concern; and/or • If archaeological remains are encountered, they should be evaluated by a professional archaeologist to determine their importance. • Alternatives to in-place preservation involve, for the most part, the recovery of that information which makes an archaeological site important. Some but not all of this information can be recovered by archaeological methods and techniques referred to as "data recovery." The conduct of an adequate data recovery effort at appropriate archaeological sites can render an adverse impact to less than significant. • The discovery of human remains at an archaeological site or any other location requires that procedures be followed as defined in California <i>Health and Safety Code</i> Section 7050.5 and <i>Public Resources Code</i> 5097.98 (requiring notification of the Coroner and Native American Heritage Commission, as appropriate), among others.	LTS
<u>ARCH-5</u> : Deterioration and loss of archaeological and historic resources evaluated as not important could occur.	LTS	<u>ARCH-5</u> . No mitigation measure would be necessary.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
F. VISUAL QUALITY AND AESTHETICS (Refer to pages IV.F-1 to IV.F-14)			
<u>VIS-1</u> : New developed features would be added to the Pogonip site that would be visible from public viewpoints and that would alter the natural features of the project site.	LTS	<u>VIS-1a</u>: Vegetative screening of greenhouses would only be possible on the north, east and west sides. Vegetative screening on the south side, which would be most visible from the entry portion of Golf Club Drive for those heading west and north into the site, would not be possible due to the conflict with the need for solar access. The following language should be added to the <i>Pogonip Garden Operations and Management Plan</i>: - Proposed greenhouses shall be designed to be no greater than 11 feet in height, 20 feet in width, and 70 feet in length. North, west, and east walls shall be composed of natural stained, board and batten design. Rigid glazing materials shall be used for the south walls and roof, and shall be framed with wood to be compatible with the historic features of the site. Roof slope shall be 4:12. Vegetative screening shall be added to the north, east, and west walls of the greenhouses. This screening shall include native, drought-tolerant and fire resistant planting approved by the Department of Parks and Recreation. Greenhouse design shall be subject to Design Review approval. - Greenhouses shall be located at the northeast side of the proposed garden area, adjacent to Golf Club Drive but screened from the view of users of the outdoor area of the Clubhouse.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
VIS-1 <i>continued</i>	LTS	<u>VIS-1b</u>: The Draft Pogonip Master Plan should be revised to include the following new (see underlining) language regarding Design Guidelines for the Outdoor Education Camp: • Provide a wooden shade structure over the picnic table area <u>that is consistent with other visually prominent architectural features on the Pogonip site, to be determined during design review.</u> The shade structure... • Provide a small shed for storage of educational program materials <u>that is consistent with other visually prominent architectural features on the Pogonip site.</u>	LTS
<u>VIS-2</u> : The project would result in inconsistencies with policies of the Santa Cruz General Plan Community Design Element as addressed in Table IV.F-1.	S	<u>VIS-2</u> : To ensure consistency with policies of the City's General Plan Community Design Element, specific design changes recommended under Mitigation Measure VIS-1 (a) should be implemented for the project.	LTS
<u>VIS-3</u> : Light could be created on the site in association with nighttime lighting of parking areas. Glare could be generated by the proposed on-site greenhouses. Lighting may be visible from distant residences, while glare from the greenhouses may be visible during daytime hours to hikers, bicyclists, and other users of Pogonip..	S	<u>VIS-3</u> : Mitigation Measure VIS-1a should be implemented to limit the overall size of the greenhouses and to include vegetative screening and appropriate materials to reduce glare.	LTS
<u>VIS-4</u> : The project has the potential to result in terrain modifications for construction of the proposed Pogonip garden. This issue is addressed in greater detail in Section C, the Geology, Soils, and Seismicity section of the EIR.	S	<u>VIS-4</u> : Refer to Mitigation Measures GEO-1c and GEO-1d, under Geology, Soils, and Seismicity.	LTS
G. TRANSPORTATION AND CIRCULATION (Refer to pages IV.G-1 to IV.G-23)			
<u>TRANS-1</u> : The proposed project would generate new vehicular trips that would contribute to existing road network volumes.	LTS	<u>TRANS-1</u> : No mitigation measures would be necessary.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
<u>TRANS-2</u> : The proposed project would generate new vehicular parking demand which would not be provided for on-site.	S	<u>TRANS-2</u> : The <i>Draft Pogonip Master Plan</i> should identify potential off-site parking areas to be utilized for the shuttle system. The availability of parking at these locations during the periods when high-attendance special events would be conducted should be guaranteed through a contract between the City and the applicable landowner. Adequate parking for service and shuttle vehicles should be provided at the Clubhouse.	LTS
<u>TRANS-3</u> : The proposed project would contribute additional traffic to the currently deficient sections of Golf Club Drive, creating or contributing to unsafe conditions.	S	<u>TRANS-3a</u> : The lower section of Golf Club Drive should be widened to provide two travel lanes. Shoulders should also be provided on both sides of the roadway.	LTS
	S	<u>TRANS-3b</u> : Given the relatively low volume of traffic currently utilizing Golf Club Drive west of the railroad trestle and the low volume of traffic anticipated with development of the project, it is recommended that Golf Club Drive at the railroad trestle be operated as a one-lane roadway. Allocation of right-of-way between traffic approaching in opposite directions can be self-regulated given the low volume of traffic on this road link. "One Lane Roadway" warning signs should be installed on Golf Club Drive on both approaches to the railroad trestle with appropriate pavement markings per the Caltrans Traffic Manual. This section of Golf Club Drive should be monitored for possible implementation of additional traffic control should operational problems occur.	LTS
<u>TRANS-4</u> : The proposed project would not provide adequate facilities for pedestrians and bicyclists on Golf Club Drive west of the railroad trestle.	S	<u>TRANS-4</u> : Facilities for pedestrians and bicyclists should be provided on Golf Club Drive between the railroad trestle and the Lower Main Meadow gate, which covers both the lower and middle sections of Golf Club Drive.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-5: The proposed project may increase pedestrian, bicycle and equestrian traffic at the crossing of Pogonip trails with key arterials and roadways adjacent to the Park.	S	TRANS-5a: Advance warning signs should be provided per Caltrans standards on SR 9 and Coolidge Drive at the Rincon Trail, Rincon Connector Trail and Sycamore Trail crossings/intersections. These signs should include "Pedestrian Crossing" and "Equestrian Crossing" signs where appropriate.	LTS
	S	TRANS-5b: Rincon Connector users should be directed to cross SR 9 at the location where the west leg of Rincon Connector intersects SR 9. Appropriate signs should be installed on the eastbound and westbound trail approaches to SR 9 to direct trail users to the proper location to cross SR 9. Installation of a crosswalk is not recommended at this location.	LTS
	S	TRANS-5c: Bicycle and equestrian trail users accessing the trail system from UCSC should be encouraged to gain access from the UCSC Connector located in the northerly area of Pogonip.	LTS
	S	TRANS-5d: Given the lack of facilities for equestrians on Coolidge Drive, equestrians should be prohibited between Rincon Trail and Coolidge Drive. Appropriate signs should be placed at the intersection of Rincon Trail and Spring Trail guiding equestrian traffic destined to or through the UCSC campus to the UCSC Connector Trail.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
TRANS-5 <i>continued</i>	S	TRANS-5e: The City should work with the County of Santa Cruz, which owns and maintains Coolidge Drive, to improve the sight distance at the existing Rincon Trail intersection through tree thinning and limbing along the road corridor. It may also be necessary to cut the toe of the slope on the west side of the road, just below the curve, to provide adequate sight distance for the existing speed limit. Any cut slope would likely require slope stabilization, such as a cribwall. In addition, the City should coordinate with the County of Santa Cruz and UCSC to reduce traffic speeds on Coolidge Drive, with 20-foot-wide speed humps or another appropriate measure.	LTS
TRANS-6: The proposed project includes alternatives that may allow bicycle and equestrian use of the Pogonip trails which could result in potential conflicts between pedestrian, bicycle and equestrian users.	LTS	TRANS-6: If one of the multi-use trail alternatives is selected, all multi-use trails should be monitored for safety problems and the need for implementing additional mitigation measures. Additional mitigation measures may include closing the trail to multi-use, providing a separate parallel trail for bicycle/equestrian use, or widening the trail.	LTS
H. SERVICE SYSTEMS AND UTILITIES (Refer to pages IV.H-1 to IV.H-16)			
SER-1: Anticipated increased levels of use in Pogonip and the types of use would increase the demand for ranger services beyond what is currently available.	S	SER-1a: To address additional ranger needs, conflicts requiring ranger assistance should be monitored. If necessary, additional ranger patrol services should be added. This dedicated time may be achieved initially by adding one additional staff member for maintenance duties to free up ranger's time for conflict resolution.	LTS

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Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
SER-1 <i>continued</i>	S	<u>SER-1b</u> : Signage and informational handouts notifying park users of park regulations and educating trail users on appropriate and safe trail use should be available at Pogonip. Signs and handouts should be placed at all park entrances and at key locations throughout Pogonip. Signage locations within Pogonip should include parking and staging areas, the Outdoor Education Camp, the Clubhouse, Sycamore Grove, the garden, and major trail intersections.	LTS
	S	<u>SER-1c</u> : On-site rangers should work with user groups to provide volunteer patrols to ensure that trail restrictions are followed and to convey trail etiquette and safety information.	LTS
	S	<u>SER-1d</u> : Speed limits for bicyclists should be posted along the trails to ensure safe conditions when multi-use is permitted.	LTS
	S	<u>SER-1e</u> : A volunteer trails committee should be established to include representatives of trail user groups (including hikers, equestrians, and bicyclists) in problem identification, prevention, and solutions. This committee should be coordinated by staff of the City's Parks and Recreation Department.	LTS
<u>SER-2</u> : The proposed project would increase demand for firefighting services but not beyond that level provided by existing staff and equipment.	LTS	<u>SER-2a</u> : Management actions to minimize fire hazards, as identified in the <i>Draft Pogonip Master Plan</i> , must be undertaken as the various improvements and new uses are implemented throughout Pogonip. These management actions include using appropriate building materials, vegetation management, and ensuring availability of fire suppression equipment.	LTS

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Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
SER-2 <i>continued</i>	LTS	SER-2b: The Parks and Recreation Department should coordinate with the Fire Department to ensure that adequate fire safety prescriptions are included in the <i>Clubhouse Rehabilitation Plan</i> . The Parks and Recreation Department should also coordinate with the Fire Department regarding design of all other new facilities proposed for Pogonip, as well as to ensure that the water supply and delivery system and roadways are adequate for fire protection needs.	LTS
	LTS	SER-2c: The Parks and Recreation Department should establish an on-going vegetation management program to ensure that fire management actions are implemented. This program would include regular mowing, conducting prescribed burns when feasible, grazing, and other vegetation management strategies, as described in the Draft Pogonip Master Plan.	LTS
SER-3: The proposed project would result in a significantly increased demand for City water.	S	The following combination of mitigation measures should be implemented to reduce this impact to a less-than-significant level: ◦ The Parks and Recreation Department should submit irrigation plans to the City Water Department for design review and review of compliance with water conservation ordinances prior to project approval. Implementation of water conservation techniques would reduce this impact to a less-than-significant level during non-drought periods. ◦ The additional demand for water created by the Pogonip garden could impact city water supplies during drought conditions. The City should consider scaling back garden irrigation practices during times of drought.	LTS

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Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
<u>SER-4:</u> The proposed project would require a six-inch water line extension from the municipal water line on Golf Club Drive and other water-related facilities.	LTS	<u>SER-4:</u> If cultural resources are uncovered during the excavation process for the water line, construction should stop and instructions prescribed in Chapter IV, Cultural Resources, should be followed.	LTS
<u>SER-5:</u> Wastewater generated as a result of increased use of the park would require a six-inch wastewater line extension along Golf Club Drive to serve the Clubhouse and nearby buildings.	LTS	<u>SER-5:</u> If cultural resources are uncovered during the excavation process for the wastewater line, construction should stop and instructions prescribed in Chapter IV.E, Cultural Resources, should be followed.	LTS
<u>SER-6:</u> With increased usage of Pogonip, the proposed project would result in the generation of additional solid waste that would reduce the useful life of the City's landfill facility.	S	<u>SER-6:</u> Recycling facilities should be provided in all areas where solid waste generating activities may occur. As shown in Table IV.H-1, no recycling bins are proposed in Sycamore Grove. Since this area is proposed for picnic tables, recycling bins should be provided to reduce the waste generated by these activities.	LTS
<u>SER-7:</u> Rehabilitation of the Clubhouse and expansion of maintenance and support facilities would result in the generation of solid waste during construction.	S	<u>SER-7:</u> The <i>Clubhouse Rehabilitation Plan</i> should include a construction-phase recycling plan, created in consultation with the Santa Cruz Public Works Department. The plan should address major materials generated by the construction project, including brush and other vegetative growth, dimensional lumber, metal scraps, cardboard packaging, and plastic wrap, and opportunities to recycle such materials or divert them away from the City landfill.	LTS
<u>SER-8:</u> Undergrounding of electrical and telecommunications lines would require excavation and could disturb biological and cultural resources.	S	<u>SER-8:</u> The undergrounded electrical and telecommunications transmission lines should follow the existing Golf Club Drive alignment to the maximum extent feasible to minimize biological and cultural impacts resulting from excavation. If cultural resources are uncovered during excavation, construction should stop and prescriptions given in Chapter IV, Cultural Resources, should be implemented.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Table II-1 *continued*

Impacts	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance With Mitigation
SER-9: Proposed parking facilities could interfere with PG&E access to the utility box located at the Spring Street cul-de-sac, or could require relocation of the box.	S	SER-9: The Parks and Recreation Department should obtain written verification from PG&E that the proposed parking facilities would not interfere with PG&E operations at this location. If the proposed parking would significantly interfere with PG&E access to this site, alternative handicapped accessible parking locations should be considered.	LTS
CUMULATIVE IMPACTS (Refer to pages VI-7 to VI-12)			
Cumulative impacts are addressed in Chapter VI(D) of the EIR. The only cumulative impacts for which mitigation measures were recommended related to Vegetation and Wildlife; Geology, Soils and Seismicity; Transportation and Circulation; and Utilities and Service System.	S	The following mitigation measures for cumulative impacts are recommended: ◦ Biological protection measures for the proposed light rail system that may cross the southern portion of Pogonip; ◦ Regional trail protection measures for potential erosion impacts; ◦ Realignment of the light rail corridor to avoid the Harvey West Creek drainage; ◦ Erosion control measures for any access roads that serve the light rail system; ◦ Coordinated efforts to minimize rail line impacts on trail access and Pogonip circulation; ◦ Reduced water demand for irrigation and implementation of the <i>Draft Fire Management Element</i>.	LTS

S: Significant; LTS: Less Than Significant; SU: Significant Unavoidable

Chapter III

PROJECT DESCRIPTION

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A. Project Objectives

The objectives of the *Draft Pogonip Master Plan* are as follows:

- Foster appreciation and understanding of the natural environment, as well as human interaction with the environment;
- Rehabilitate the historic Clubhouse to serve as a staging area for education programs, a meeting and retreat center, and a site for special events;
- Create an Outdoor Education Camp which promotes interactive environmental education to serve youth, with opportunities for day-use and overnight trips;
- Provide a permanent site for the Homeless Garden Project;
- Enhance existing trails and provide through trail connections to other destinations, such as UCSC and Henry Cowell Redwoods State Park, and loop trails for Pogonip visitors;
- Identify Resource Management Areas to enhance and protect sensitive natural resources;
- Preserve and interpret historic features and sites; and
- Utilize alternative transportation and off-site parking to minimize parking and road improvements within Pogonip.

B. Project Location

The *Draft Pogonip Master Plan* addresses a 640-acre natural area located one mile from downtown Santa Cruz in the northern portion of the City. The project site is bounded by the Henry Cowell Redwoods State Park on the north, the UCSC campus on the west, and San Lorenzo River and County lands on the east, and urbanized portions of the City of Santa Cruz on the south (see Figure I-1).

No public vehicular access is currently allowed within Pogonip. Although Golf Club Drive is paved to the Clubhouse, its use is restricted to rangers and other park personnel.

Pedestrian access is available from the following points: 1) Golf Club Drive entrance; 2) the end of Spring Street which terminates at the site's southwestern corner; 3) Coolidge Drive near McLaughlin Drive; 4) vicinity of Harvey West Park; 5) Henry Cowell Redwoods State Park; 6) State Highway 9 near Sycamore Grove; and 7) State Highway 9 at the northwestern corner of the site (see Figure I-2).

At the Spring Street location, cars park along public streets to access the Spring Trail. However, there is increasing concern by residents along Spring Street about parking impacts from UCSC students and staff, and Pogonip users. From Coolidge Drive near McLaughlin Drive, pedestrians access the Rincon Trail through a gate. From the vicinity of Harvey West Park (a city park maintained by the City's Parks and Recreation Department), pedestrians currently access the Lookout Trail by hiking through undeveloped private property. From Henry Cowell Redwoods State Park, pedestrians use the Rincon Connecting Trail to access the northern portion of the Rincon Trail. The State Highway 9 pedestrian access points provide access to the Sycamore Grove Trail.

C. Site History

In 1843, the Pogonip site was part of a land grant called Rancho de la Canada del Rincon, awarded by the Mexican government to Pierre Sansevain. In subsequent decades, the site was used for timber production and for limestone mining. Lime kilns on the site are believed to have been constructed in the mid 1800s and are still present. In 1865, Henry Cowell purchased a portion of the site and continued exporting lime. In 1888, Cowell purchased more of the Pogonip acreage and created the Henry Cowell Company which became the Henry Cowell Lime and Cement Company in 1899. With the decline of the lime industry in the early 1900's, operations of the Cowell holdings shifted to a focus on lumbering.

Livestock operations were undertaken on the site in the early 1900s under the direction of Henry Cowell Sr.'s son, Harry Cowell. In 1955, a large part of the ranch was given to the State of California for development of the Henry Cowell Redwoods State Park and the philanthropic S.H. Cowell Foundation was established in the same year.

In the early 1900s, the site was also used for a golf club (including the Clubhouse still present today). In the 1930s and 1940s, polo enthusiasts used the Upper Main Meadow site as part of the Pogonip Polo Club.

In the mid 1950s, the S.H. Cowell Foundation was established and became the managing entity for the Pogonip site until 1989 when it was sold to the City of Santa Cruz.

D. Planning History

While the site was under the ownership of the S.H. Cowell Foundation, a number of planning studies were completed to address ways to preserve the site's natural features while also possibly allowing for some development. In 1979, "Measure O" was approved in the City, identifying greenbelt lands surrounding the City and designating these areas as "Greenbelt Overlay" areas. Two of the areas identified included the 614-acre Pogonip area and the adjacent 25-acre property known as the "Wavecrest" property.

The Pogonip Advisory Committee, under the guidance of the S.H. Cowell Foundation, was organized in 1984 to explore alternative development scenarios that would address both the needs of the community and the Foundation's needs for a fair economic return. This Committee identified one alternative of obtaining State funding for public acquisition of Pogonip. With the passage of Proposition 70 by California voters in 1988, acquisition of Pogonip was funded and the 614-acre property was transferred to the City of Santa Cruz. The 25-acre Wavecrest property stayed in private ownership.

After the City took over ownership of Pogonip in 1989, a Pogonip Task Force was established in 1991 to establish a vision and plan for the area. In 1993, a "mixed-use plan" for Pogonip was conceptually approved by the Santa Cruz City Council to reflect the following guiding vision:

"Pogonip is a place to be appreciated for its natural beauty, habitat value and serenity, in contrast with the built environment. Pogonip should provide the community with education and recreation opportunities that are environmentally and economically sustainable"
(Pogonip Task Force, 1991)

After soliciting public input and evaluating numerous proposed land uses, the Pogonip Task Force identified three land use options which were:

- Leaving Pogonip As Is
- Mixed Land Use Option
- Intensive Recreation Plan

The first concept included no changes except restoration of the historic Clubhouse. The "Mixed Land Use Option" included the following: multi-use trails; Natural History Museum; Homeless/Community Garden; Pogonip Club; access improvements; and Sycamore Grove campground. The "Intensive Recreation Plan" featured an 18-hole golf course and sports fields in addition to the land uses described above. These three options were considered by the Parks and Recreation Commission and City Council, and in early 1993, the City accepted the Mixed Land Use Option for Pogonip.

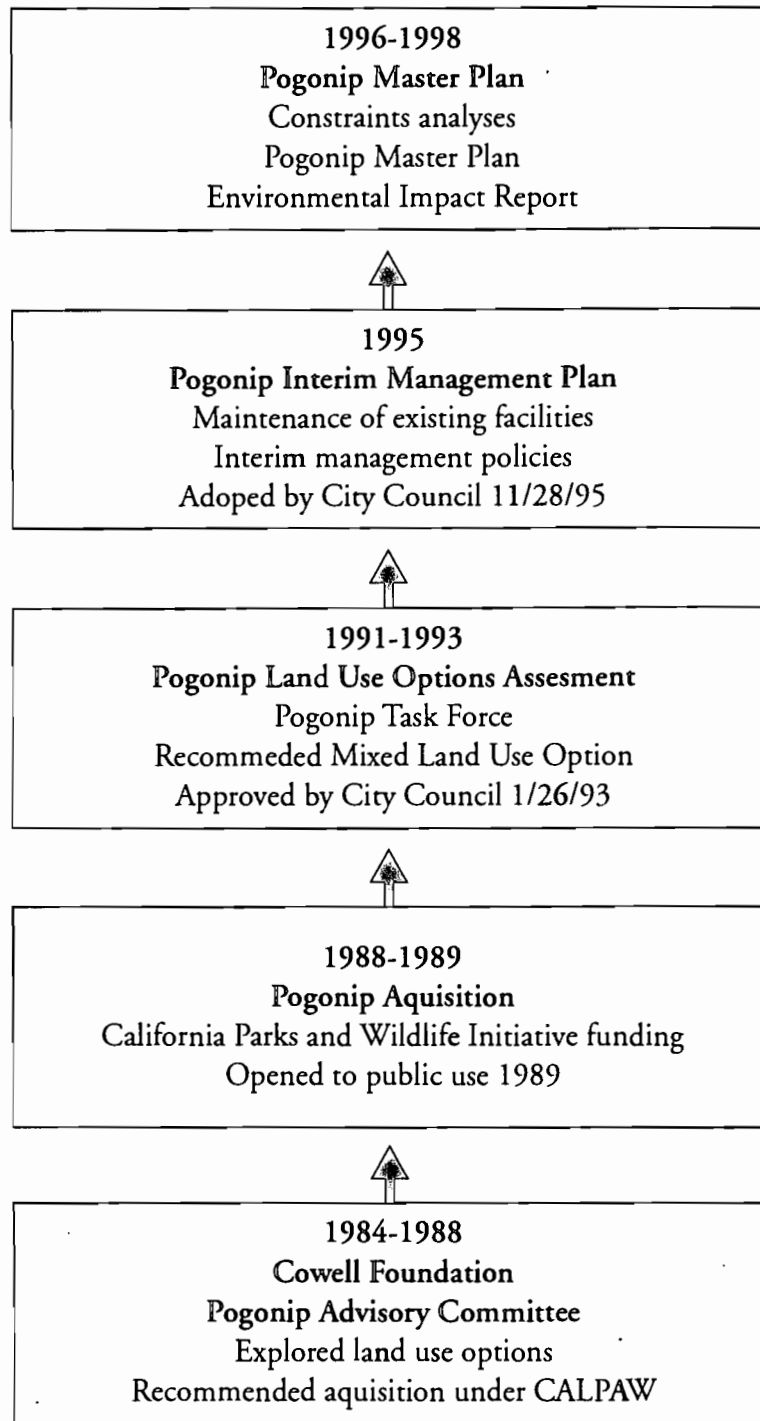
This option was further refined based upon subsequent analyses by the City, leading to the recent establishment of a *Draft Pogonip Master Plan* which is the subject of this EIR. A flow chart showing the planning process between 1984 and 1997 is shown in Figure III-1.

In 1997, the adjacent 25-acre Wavecrest property was purchased by the City and incorporated into the Pogonip property (see Figure I-2). Potential uses for this undeveloped parcel were identified in the Greenbelt Master Plan Feasibility Study (City of Santa Cruz, 1995). Conceptually approved uses included trails and protection of wildlife habitat.

In 1996, the City of Santa Cruz Parks and Recreation Department began work on the Master Plan that is the subject of this EIR and which is being finalized concurrently with the EIR. This concurrent effort is being undertaken to ensure that environmental impacts are minimized to the greatest extent possible.

An environmental constraints analysis was completed in 1996 to evaluate the "Mixed Land Use Option" proposed by the Pogonip Task Force. Based on the results of this analysis, the mixed-use concept was further refined. For example, Sycamore Grove was determined to be a sensitive resource area, more appropriate for low intensity uses and habitat preservation as compared to a fee campground that was originally proposed. It was also decided that most intensive uses should be located in previously disturbed areas with the least sensitive resources.

Community meetings and public hearings were held throughout the process in 1996 and 1997, and focus groups were organized to address specific issues such as Clubhouse rehabilitation and trails.



Source: City of Santa Cruz Parks and Recreation Department 1997

DRAFT POGONIP MASTER PLAN
DRAFT ENVIRONMENTAL IMPACT REPORT

Figure III-1
Pogonip Aquisition and Planning Process

E. Proposed Project

1. Project Concept and Land Uses

The *Draft Pogonip Master Plan* is organized into Master Plan Elements, or chapters, addressing resource areas and issues. The *Draft Pogonip Master Plan* Table of Contents is included as Appendix B. Each element includes a description of uses, design guidelines where appropriate, and management actions.

The Implementation section of the *Draft Pogonip Master Plan* addresses a phased approach identifying improvements as well as enhancement and restoration efforts. Timing and completion of implementation actions will depend upon the availability of funding.

General recommendations for phasing are included in the *Draft Pogonip Master Plan*, but only as a tool to guide implementation. Specific projects may receive higher priority based on City Council actions. Phasing is addressed at the end of this chapter.

The Santa Cruz City Council, at a meeting on February 11, 1997, provided direction to include the following uses in the *Draft Pogonip Master Plan* to be evaluated as part of the Draft EIR. All of the uses below (described in more detail in the *Draft Pogonip Master Plan*) are addressed as part of this environmental review.

- a. Clubhouse Rehabilitation. Rehabilitation of the historic 8,000 square foot, two-story Clubhouse is proposed (see Figure III-2).

The Clubhouse would serve as a staging site for educational programs, a community meeting and retreat center, and a site for special indoor/outdoor events. The City anticipates initiating preparation of a detailed rehabilitation plan for the Clubhouse after approval of the Master Plan and EIR.

Special events may include the following: fundraising functions; nature shows; lectures; cultural performances and music events (non-amplified music only); and weddings. These uses would provide for public access and potentially generate revenues to offset operating costs.

Rehabilitation of the Clubhouse is expected to be undertaken to enhance the site's amenities, including its rural setting, views, historic and architectural character, and outdoor space potential. Maintenance and operation of the Clubhouse after rehabilitation may be contracted to a private concessionaire. The Clubhouse history is described in more detail in the *Archaeological and Historic Resources* section of Chapter IV of the EIR.

The site of the Clubhouse is surrounded by annual grasses, predominantly non-native plant species to the south and west, and mixed evergreen forest to the north and east. Exotic landscaping also exists at the front (south) entrance and sides of the Clubhouse. A swimming pool, located northwest of the Clubhouse, was filled in with dirt by the City Department of Parks and Recreation because it was substandard and did not meet public use health standards. A changing room adjacent to the old pool is now overgrown with vegetation and not useable. Tennis courts near the Clubhouse are playable but in need of maintenance (see Figure III-2).

Most of the proposed changes to the Clubhouse would be to the building itself, both its interior and exterior. However, some land disturbance would also be associated with the proposed rehabilitation. Surrounding grounds would be landscaped to provide more useable space for outdoor special events. An area would likely be designated for portable tents to expand the space available for events and to ensure that the Clubhouse building is not overused (Figure III-3).

Limited parking is proposed to be located to the west of the Clubhouse Grounds in the vicinity of the existing tennis courts. As part of the proposed rehabilitation, the tennis courts and changing room would be removed. A vehicle turnaround area is proposed near the proposed parking area. Construction activities associated with Clubhouse rehabilitation would be staged at the front (south) of the structure, and in the area of the old swimming pool and existing tennis courts.

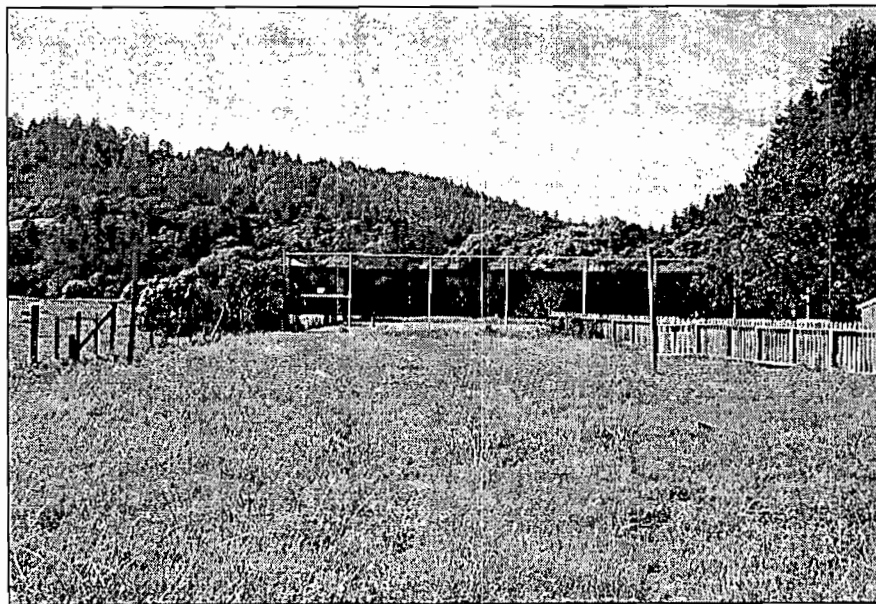
Design guidelines have been developed as part of the *Draft Pogonip Master Plan* for the Clubhouse and Grounds. The guidelines addressing the Clubhouse focus on changes to the exterior of the building.

The guidelines for the Clubhouse Grounds mention that disturbed areas would be limited to those areas that have been previously disturbed or altered. Paving and landscape features are proposed to complement the Craftsman Bungalow architectural style of the Clubhouse. A wooden fence, proposed to be built along the boundary of the Clubhouse use area, is recommended to be compatible with the site's historic, rural character. Native vegetation is proposed, and a guideline recommends minimizing turf areas. Defensible space for fire safety is also addressed. Retention of heritage trees, whenever possible, is recommended. Guidelines also promote landscape screening of parking facilities. New restrooms for outdoor events would be located outside the Clubhouse.

As part of the Clubhouse and Grounds design guidelines, a new trail is recommended that would also serve as an emergency access. This trail would be located adjacent to the proposed fence line, a minimum of 6 feet in width, and made of decomposed granite with 3-foot mow strips on both sides, for a total width of 12 feet for emergency vehicles.



a.) Existing Clubhouse proposed for rehabilitation.



b.) Existing tennis courts proposed for removal to accomodate future on-site parking.

Source: Brady/LSA 1997

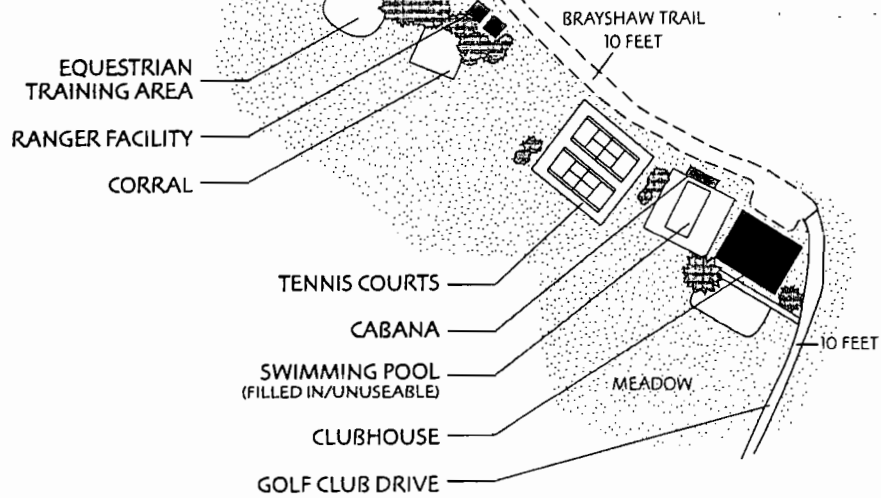
DRAFT POGONIP MASTER PLAN

DRAFT ENVIRONMENTAL IMPACT REPORT

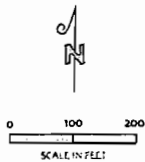
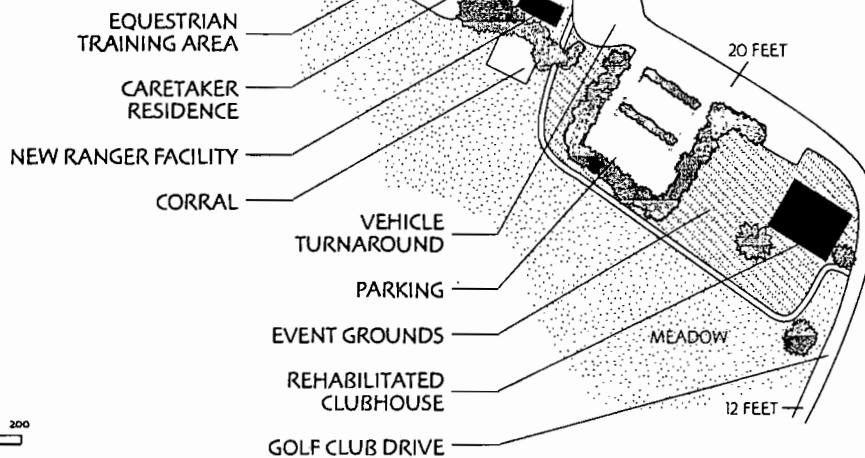
Figure III-2
Photographs of Clubhouse and Tennis Courts

BRADY ■ LSA
PLANNERS AND LANDSCAPE ARCHITECTS

UPPER MAIN MEADOW EXISTING FACILITIES



UPPER MAIN MEADOW PROPOSED USES



Source: City of Santa Cruz Parks and Recreation Department 1997

DRAFT POGONIP MASTER PLAN DRAFT ENVIRONMENTAL IMPACT REPORT

Figure III-3
Upper Main Meadow Facilities and Uses

B R A D Y ▯ L S A
PLANNERS AND LANDSCAPE ARCHITECTS

Provision of new water/wastewater improvements utilizing municipal water and wastewater service is also addressed in the *Draft Pogonip Master Plan*. These lines are expected to be constructed underground within the alignment of Golf Club Drive and not to traverse undeveloped lands. Upgrades of electrical and telecommunication service include undergrounding of existing lines to the Clubhouse area from the site's eastern boundary at the north end of the Lower Main Meadow.

The proposed "Community Clubhouse and Grounds Management Actions" recommend limiting indoor meetings and events as well as outdoor events to about 200 people, and requiring shuttle transportation service to off-site parking for any events that result in a parking demand that exceeds available on-site parking. It is expected that 45 spaces of on-site parking would be available on the Clubhouse grounds.

No amplified music would be allowed in outdoor areas, but limited amplified sound may be available in the Clubhouse. After sunset, events would be limited to indoor areas only. Overnight use is not proposed for the Clubhouse.

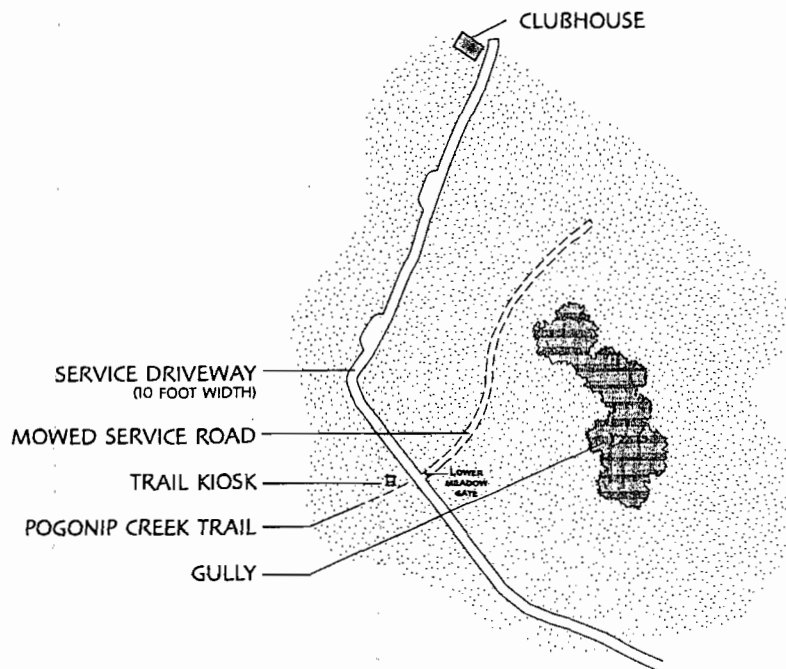
b. Pogonip Garden. An Pogonip garden, to be leased and operated by the private non-profit Homeless Garden Project (HGP), would be located in the Lower Main Meadow area (see Figure III-4). The garden would include support facilities, agricultural plots, and greenhouses (see Figure III-5).

The HGP fulfills a community need of providing transitional employment and job training for homeless people. About 12 to 36 workers would be employed at the HGP.

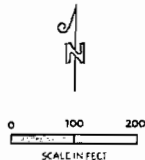
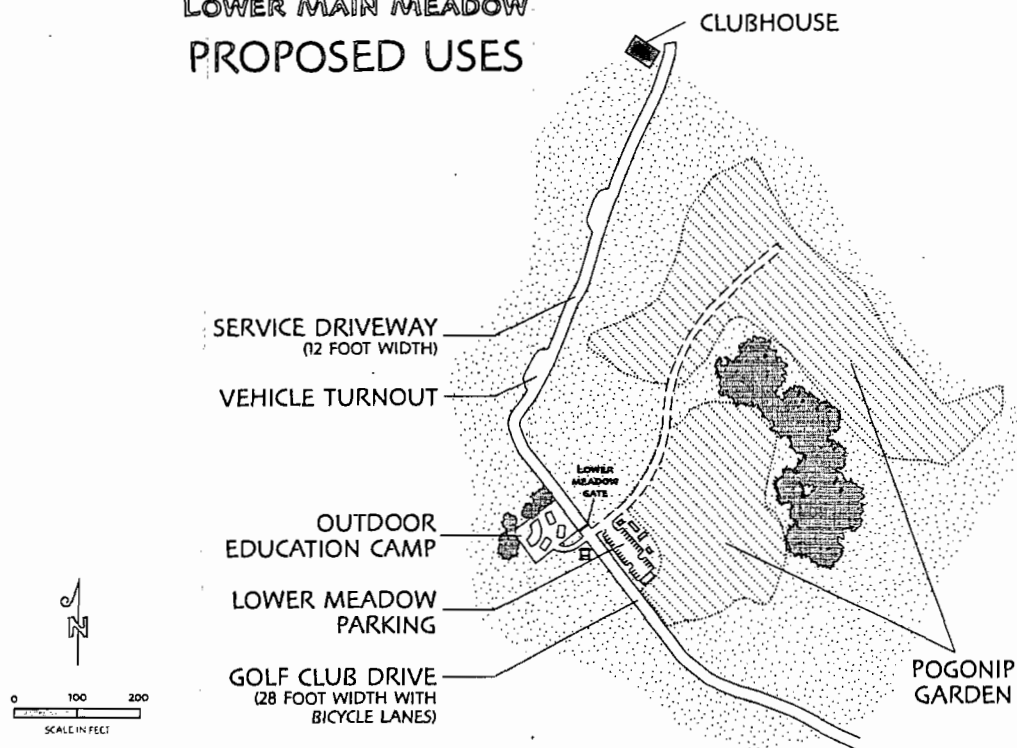
School groups would be allowed to visit the agricultural plots to learn about sustainable agricultural practices and community-supported agriculture. This opportunity would go hand-in-hand with the proposed development of the Outdoor Education Camp at the Pogonip site which would be used by school groups. The Pogonip garden would also provide opportunities for college intern programs and as an organic farming educational center for the community at large.

The Community Support Agriculture program is critical to the success of the HGP. This program provides opportunities for residents to purchase "crop" shares to offset management and cultivation costs, in exchange for the right to harvest fresh produce during the growing season. The number of shareholders would likely range from 100 to 150 per growing season. Shareholder pickups would be scheduled to minimize conflicts with peak Pogonip visitor periods.

LOWER MAIN MEADOW EXISTING FACILITIES



LOWER MAIN MEADOW PROPOSED USES



Source: City of Santa Cruz Parks and Recreation Department 1997

DRAFT POGONIP MASTER PLAN DRAFT ENVIRONMENTAL IMPACT REPORT

Figure III-4
Lower Main Meadow Facilities and Uses

BRADY & LSA
PLANNERS AND LANDSCAPE ARCHITECTS

Improvements that would be associated with the Pogonip garden include irrigation, drainage facilities, an access roadway, and fencing to exclude deer and rodents. Water supply for the Pogonip garden is expected to be met by an extension of the municipal water supply line along Golf Club Drive and a drip irrigation system.

This line would continue along Golf Club Drive and connect to the garden at the vehicle access point. With average water demand of 2.0 acre-feet per acre from March through November, annual water demand for the Pogonip garden would be about 21.4-acre-feet or nearly seven million gallons.

Best management practices (BMPs) are proposed to be used to control surface runoff and erosion from the site. In order to reduce erosion of cultivated soil during heavy rainfall periods, the Pogonip garden would have a cover crop planted and/or mulch put in place.

The Pogonip garden would be located within the most level portion of the Lower Main Meadow, with some cultivation extending into the slope at the northern and southern areas of the meadow. It would likely include a mix of vegetable crops, permacrops (soft fruit and perennials), herb plots and orchards. Native vegetation would be maintained in areas not under cultivation. Row crops would be located on the more level areas of the site, while sloping or otherwise more sensitive areas would be used for less intensive crops or other more appropriate planting.

Access would include a service road, surfaced with decomposed granite, capable of supporting small trucks and equipment. This service road would also provide public access through the Pogonip garden for the general public visiting Pogonip.

c. Pogonip Garden Support Facilities and Infrastructure. The Pogonip garden includes two locations for clusters of buildings. The Garden Center, located near the Lower Meadow parking area, would include approximately 1,500 square feet of space for office use, storage area, classroom use, kitchen and bathroom. All buildings would be one story. The exterior area would include meeting and work areas. Trees, hedges, and other plantings may be used to screen structures, parking, provide windscreens, and provide visual interest. The Garden Center would have minimal outdoor lighting.

The second cluster of buildings, the Greenhouse Area, would be located in the eastern portion of the site, at the base of the slope to minimize visual impacts. Approximately 2,800 square feet of greenhouse space is proposed. The Greenhouse Area would be divided into at least two structures, not exceeding 15 feet in height. Shade cloth structures and a small storage area not exceeding 500 square feet would be constructed to support activities in this area. Planting and screening may be used to reduce the impact of buildings. Lighting may be installed at the

greenhouse area for security purposes or occasional use. The greenhouses would not be illuminated on a regular basis.

Parking for garden employees would be provided at the Lower Meadow parking area. Eight spaces would be clearly marked for employees and would be separated from the public parking area. In addition, a covered area is proposed nearby for garden equipment.

Trellis structures to support plants, benches, rest stops, works of art, and other amenities may also be located within the garden site. Fencing may be required to keep deer from cultivated plots. The fenced height would not exceed eight feet. Posts and fence materials would be of a type compatible with the landscape.

The garden at Pogonip would be operated as an Pogonip garden, in accordance with California Certified Organic Farm (CCOF) standards. Thus, no unapproved pesticides or herbicides will be used. Instead, the Pogonip garden would rely on natural methods of pest control, such as the use of ducks.

d. Outdoor Education Camp. A one-acre Outdoor Education Camp is proposed for the Lower Main Meadow, to the west of Golf Club Drive (see Figure III-4). This facility is intended to serve primarily youth groups and other community organizations, in groups of no more than about 30 people at one time for daytime use. It would also be available for overnight use by organized youth groups and other organizations. Proposed amenities include a shade structure, a grouping of six to eight picnic tables, an open area for tents, amphitheater-style seating and restrooms.

Design guidelines for the Outdoor Education Camp address a variety of issues such as the following:

- The shade structure should be heavy timber construction for fire resistance and the design is to complement the site's historic and rural character.
- A restroom facility would be provided to serve camp users and general visitors.
- Existing acacia trees are to be removed and native trees are to be planted to provide shade for amphitheater seating.
- A small shed would be allowed for storage of educational program materials.
- A wooden fence is recommended for the exterior of the camp facility to minimize impacts to adjacent riparian areas and other vegetation.
- Portable toilets would be allowed as an interim measure until the extension of the proposed sewer line to the Clubhouse. These are to be located to minimize visual intrusion.

- A service driveway is to be provided for maintenance and emergency vehicle access.

The management actions for the Outdoor Education Camp suggest limiting overnight use to May through August to minimize excessive trampling and erosion during the wet season. Overnight use may also be restricted during periods of high fire risk. Camp stoves, versus grills, would be allowed to minimize fire hazard.

e. Sycamore Grove Nature Area. Sycamore Grove, the portion of Pogonip along the San Lorenzo River (see Figure I-2), is part of one of the northernmost stands of central coast cottonwood-sycamore riparian forest in California. Historically, the site's habitat value has been degraded by a campground, the presence of invasive non-native understory vegetation, and illegal transient use.

This area is proposed to be used primarily for passive recreation and educational uses. Proposed amenities in this area include a nature loop trail, interpretive displays and picnic tables. Limited parking to serve the area is available in the small unimproved parking area along Highway 9. A pedestrian trail would connect Sycamore Grove with the remainder of Pogonip (see Trails section which follows below). As part of the plan for Sycamore Grove, invasive understory species which are threatening the health of the grove would be removed. This area may also be a candidate for a community group stewardship program.

Design guidelines and management actions for this area address the following:

- Potential development of a meeting area for school groups and others in the area previously disturbed by the campground.
- Development of an informational kiosk.
- Provision of five to six picnic tables near the existing unimproved parking area.
- Provision of one portable toilet, but no lighting.
- Restriction to daylight hours and no provisions for overnight camping.
- Continued efforts to remove invasive non-native vegetation.

f. Trails. Approximately eight miles of trails existed within Pogonip when the City purchased the property. Existing trails are shown in Figure I-2. Three trail use alternatives are presented in the *Draft Pogonip Master Plan*. These alternatives primarily utilize the existing trail alignments with a few new trail segments proposed. The alternatives generally differ in the types of uses allowed on each trail.

The existing trail system includes both unpaved service roads and single-track trails.¹ The service roads, which total approximately three miles, are about 10 feet in width. Service roads include Rincon Trail, Spring Trail and Brayshaw Trail. Some segments of these roads were constructed over 100 years ago for limestone quarrying and logging operations. In addition to the service roads, there are about five and one-half miles of single-track trails. These trails are typically 3 to 4 feet wide.

Current trail use is limited to pedestrians only. Dogs on leashes are presently permitted on all trails. The Rangers conduct patrols on the service roads in motorized vehicles and by horseback. Single-track trails are also patrolled by horseback. Where terrain permits, on some trails a 10 foot mow strip is maintained to allow for patrol vehicle access and emergency response.

Existing service roads and trails, proposed new trails and proposed trail alternatives are described in the following paragraphs. Also, realignments and improvements to existing trails are identified.

(1) Service Roads. Three existing service roads, known as the Rincon Trail, Spring Trail, and Brayshaw Trail are described below. Each is discussed in terms of improvements proposed in the *Draft Pogonip Master Plan*.

(a) Rincon Trail (0.9-mile). Rincon Trail is a service road which is believed to have been constructed in the 19th century to provide access for the limestone quarrying operations. The trail is approximately 10 feet wide; in some locations the limestone bed is several feet deep. Rincon Trail descends from UCSC at Coolidge drive to Highway 9. Rincon Trail continues through Henry Cowell Redwoods State Park and is open to pedestrian, equestrian and bicycle use within the State Park. Within Pogonip, Rincon Trail ranges in elevation from approximately 640 feet to 400 feet with an overall grade of approximately 6 percent. The trail passes through upland redwood forest and mixed evergreen forest.

Concerns over traffic safety at the entrance to Rincon Trail off on Glen Coolidge Drive have been identified. Traffic safety measures to provide safe bicycle and pedestrian access at this entrance will require coordination with Santa Cruz County and UCSC. The northern entrance to Rincon Trail off of Highway 9 also poses traffic safety issues. Cowell Trail (which is discussed in greater detail below) is proposed as the Highway 9 crossing to avoid these issues.

¹ Single-track trails generally refer to trails that have 4 to 5 feet of clearance. Actual trail width may be less than the area of clearance.

(b) *Spring Trail (1.6 miles).* Spring Trail, approximately 10 feet in width, is a service road which was also used historically. Spring Trail is named for the springs which exist along the route. The trail extends from the boundary with UCSC at the terminus of the Spring Street cul-de-sac to the intersection with Rincon Trail in the northern portion of Pogonip. There is a minimal change in elevation from approximately 400 to 450 feet, with an overall grade of less than one percent.

Portions of Spring Trail are experiencing serious erosion problems due to high run-off from the Coolidge Drive and UCSC during the winter months. The southern portion of Spring Trail passes through grassland; the northern portion of the trail is shaded by upland redwood forest and mixed evergreen forest. Spring Trail intersects with Rincon Trail at the edge of Haunted Meadow, a highly diverse remnant of coastal terrace prairie.

Improvements to Spring Trail include measures to address gully washouts due to run-off from Coolidge Drive and UCSC. These improvements would be completed as part of separate cooperative effort between the City, Santa Cruz County and UCSC.

(c) *Brayshaw Trail (.5 mile).* Brayshaw Trail is a service road which connects the Upper Main Meadow area to Spring Trail. Brayshaw Trail is relatively level in the vicinity of the Upper Main Meadow, but then climbs steeply along the edge of the old reservoir. Brayshaw Trail passes through mixed evergreen forest and a eucalyptus grove.

The overall change in elevation is approximately 250 to 450 feet; in the steepest section the trail exceeds 25 percent grade. In the area of the steepest section of Brayshaw Trail, the ridge is very narrow and limits opportunities for realigning the trail. If Brayshaw Trail is designated for multi-use, this upper steep section may need to be marked as a "Walk Bicycles" zone from both directions.

(2) Existing Trails. Ten existing trails through or adjacent to Pogonip and their modification under the *Draft Pogonip Master Plan* are described below.

(a) *Fern Trail (0.8 mile).* Fern Trail extends from Brayshaw Trail to Rincon Trail within the northeastern portion of Pogonip. The northern half of this trail route was previously known as Haunted Meadow Trail. From Brayshaw Trail, the route passes through a small area of coastal terrace prairie. Beyond the meadow, the trail drops down into a drainage which currently lacks a stable crossing. The trail continues north, climbing through mixed evergreen forest and several meadows, some of which are feature ferns. At the northern end, the trail passes through Haunted Meadow, an area of highly diverse coastal terrace prairie and known rare plant species.

Proposed improvements include rerouting the alignment at the southern end to provide the most stable crossing of Redwood Creek. The existing crossing is badly eroded and unstable. Within steeper slope areas, open turns are recommended. Open turns refer to turns with a wide radius to minimize slope cuts. Several informal pathways exist along this route leading to illegal transient campsites; steps would be taken to close these trails. At Haunted Meadow, the trail should be relocated out of the meadow area to the edge of the woodland to alleviate impacts to the coastal terrace prairie and rare plant species.

(b) *Limekiln Trail (0.5 mile)*. Limekiln Trail existed as an informal footpath when the City acquired the property. The trail route was improved to minimize erosion. Limekiln Trail is named for the historic limekilns, located at the southern terminus of the trail. The trail somewhat parallels the Rincon Trail route through upland redwood forest.

Some minor realignments are proposed to avoid potential future erosion problems. A planked foot bridge is also needed at the drainage crossing which lies approximately mid-way along the trail route.

If the UCSC Connector Trail Northern Route is approved, the northernmost segment of Limekiln Trail would be realigned to intersect with Rincon Trail in the vicinity of Haunted Meadow.

(c) *Lookout Trail (0.5 mile)*. Lookout Trail extends from the recent Wavecrest acquisition westward to Spring Trail. Another trail also connects Spring Trail to the "Lookout" at UCSC on Coolidge Drive. However, the Lookout Trail parking area is not considered to be a staging site for Pogonip.

The change in elevation along the Lookout Trail is nearly 500 feet; portions of the trail are very steep. The trail passes through grasslands primarily, mostly low diversity coastal prairie. In the lower portion, the trail climbs through mixed evergreen forest. Within the steep portions of Lookout Trail, additional open turns and cross slope improvements are needed to avoid further erosion.

(d) *Lower Meadow Trail (0.6 mile)*. Portions of the Lower Meadow Trail presently exist as informal footpaths through the grassland. Portions of the route lie within areas that are mowed as fuel breaks. The *Draft Pogonip Master Plan* proposes improving this informal route as a pedestrian trail encircling the Lower Main Meadow area. The portion of this trail along the easternmost edge of the meadow was previously known as Honeymoon Trail. This trail would connect the Golf Club Drive entrance, the Lower Meadow Parking lot, the Pogonip garden and the Clubhouse. The trail climbs from approximately 60 feet at the entrance to 250 feet at the Clubhouse.

Proposed improvements include creating a new trail along the Golf Club Drive corridor, preferably on the east side of the paved road, from the property entrance to the Lower Main Meadow. The remainder of the loop would be cleared of grassland vegetation, approximately three to 4 feet in width. Open turns are needed in steeper slope areas.

(e) *Ohlone Trail (0.3 mile)*. Ohlone Trail provides a pedestrian path connection along the route of the Brayshaw Trail. This trail winds up a relatively steep slope through mixed evergreen forest and grassland areas. Proposed improvements to this trail include creation of switchbacks or open turns to avoid potential future erosion and to provide an improved gradient.

(f) *Pogonip Creek Nature Loop (1.2 miles)*. Pogonip Creek Loop would connect existing portions of trails previously known as Old Stables Trail and Pogonip Creek Trail. The trail would begin near the future Outdoor Education Camp site at the Lower Main Meadow. This trail is proposed as a nature loop because it features an amazing diversity of plant communities, including coastal terrace prairie, mixed evergreen forest, central coast riparian scrub, redwood stands, and a bay grove.

Improvements to Pogonip Creek Nature Trail would include appropriate trail markers corresponding to an interpretive trail brochure. Within a wet meadow area, a raised boardwalk or log turnpike type is needed. Within the Upper Main Meadow area, a portion of the trail should be rerouted out of an emergent wetland site. A bridge crossing is also needed at Pogonip Creek; this bridge should accommodate pedestrians and horses, mounted ranger patrols need to use this creek crossing.

(g) *Prairie Trail (0.3 mile)*. Prairie Trail is a relatively short trail connection through the Upper Main Meadow which connects to the Pogonip Creek Nature Trail. An area of known Ohlone tiger beetle habitat is found at the intersection with Pogonip Creek trail. Improvements would include any rerouting necessary to avoid wetlands within the Upper Main Meadow and to enhance Ohlone tiger beetle habitat.

(h) *Rincon Trail Connector (0.2 mile)*. The Rincon Trail Connector is located in the northernmost tip of Pogonip. Approximately three feet in width, this trail segment was constructed after the City acquired the property to provide a through connection to Henry Cowell Redwoods State Park. The trail is located within an area of upland redwood forest.

This connector trail crosses Route 9 just south of the existing parking lot at the Rincon Trail entrance to the State Park. If equestrian and bicycle use were allowed on the Rincon Trail Connector, the trail bed may be widened in some locations as

needed. The trail would be widened only if increased future trail use warranted improvements. A single-track connector between existing fire/service road segments is consistent with the State Park's trail policy.

(i) *Sycamore Grove Trail (1 mile)*. Sycamore Grove Trail includes a nature loop within the Sycamore Grove area and a connection across Highway 9 and the railroad to Brayshaw Trail. A portion of this route was previously known as Redwood Trail. The lower loop lies within the Central Coast cottonwood sycamore riparian forest. To the west side of Highway 9, the trail climbs through upland redwood forest and mixed evergreen forest. Much of the lower portion within Sycamore Grove and along Highway 9 is plagued with invasive ivy. The upper portion of the trail offers scenic views of Redwood Creek.

Improvements to Sycamore Grove Trail include designation of the nature loop route through Sycamore Grove and closure of several informal pathways. An appropriate crossing of Highway 9 and the railroad must also be identified. The upper portion of Sycamore Grove would be improved to connect to Brayshaw Trail just beyond the ranger facilities.

(j) *Spring Box Trail (0.1 mile)*. Several informal pathways have been created by pedestrians over the past years to provide a connection between Spring Trail and Rincon Trail and access to the Spring Box and limekiln areas. These trails include some very steep sections which are experiencing serious erosion problems. A well-designed and clearly marked trail alignment is needed to alleviate the erosion caused along the informal pathways.

Improvements include designation of a pedestrian trail alignment which avoids impacts to the prairie habitat and wet spring area. In order to successfully close access to the informal trails, wooden fencing may need to be installed at some locations along Rincon Trail and Spring Trail where cut-through trails are heavily used. Wood-rail fencing is also proposed around the lower spring box to discourage use as a swimming hole.

(3) Proposed New Trails. The *Draft Pogonip Master Plan* proposes two new trails; each of which is described below.

(a) *Harvey West Trail (0.4 mile)*. A portion of Harvey West Trail presently exists in the area northwest of the existing office complex, upslope and west of Dubois Street. This trail was constructed with permission of the previous property owner to provide a trail connection from the Harvey West Park area to Pogonip.

The new trail would begin at the Harvey West Park entrance located off of Dubois Street, before entering the picnic table area. The new alignment would lead north along the edge of the Harvey West Park boundary to the corner of Pogonip, and then proceed along the southern boundary of the recently acquired parcel to the existing Lookout Trail. This trail would be situated along the edge of the tree line to screen views of adjacent light industrial buildings to the maximum extent feasible.

A kiosk would also be installed at the Harvey West Park entrance to Pogonip, featuring a Pogonip trail map and other park information. Benches would also be provided at the top of the trail, offering visitors a resting area and scenic viewpoint.

(b) UCSC Connector Trail (0.5 mile). This new trail route is proposed as a multi-use trail connection between Pogonip and the UCSC campus. It would provide a convenient route between the Rincon Trail service road within Pogonip to the existing Fuel Break fire road within the UCSC campus. Fuel Break connects to Chinquipin Trail, which then continues across the upper campus lands, ultimately providing access to Wilder Ranch State Park.

Two potential routes are included in the *Draft Pogonip Master Plan*. These alternate routes are described below. Only one of these routes would be constructed.

(1) UCSC Connector Trail - Southern Route. The southern route would begin to the south of the intersection of Rincon Trail and Spring Trail. It would then climb through the woodland, crossing Limekiln Trail. A crossing at a relatively small drainage is needed on the souther leg. The route continues to the north until the vicinity of a steep gully area, at which point the alignment curves back to the south to maintain a steady ascent to the UCSC campus, connecting to Fuel Break fire road. This trail route passes through woodland, chaparral, and a small grassland area at the western end.

(2) UCSC Connector Trail - Northern Route. The northern route would begin to the north of the intersection of Rincon and Spring Trail. This route would avoid crossing Limekiln Trail, requiring a minor realignment of Limekiln Trail. This route would require crossing two drainages; one of these drainages features a relatively deep gully. Consultation with a biologist and hydrologist will help identify the most stable crossing and minimize environmental impacts. Beyond the larger gully, the trail alignment is similar to the southern route. This trail route also passes through woodland, chaparral, and a small grassland area at the western end.

This connector trail route within Pogonip would be constructed at no greater than 12 percent gradient at a width of approximately 4 to 6 feet. The segment within UCSC property may need to be approximately 8 to 10 feet in width to conform with

existing trail use policies. Within the UCSC segment, fencing may be needed to deter access/vandalism to adjacent trailers and other structures.

Development of this trail would require cooperation and close coordination with UCSC. Approximately 95 percent of this trail alignment lies within the Pogonip boundaries, with the remaining segment proposed within UCSC property. The construction of any new segment which traverses University property would be required to go through the UCSC planning and approval process. Also, because dogs are not allowed on UCSC lands, dogs would not be allowed on the UCSC Connector Trail within Pogonip.

(3) Trail Use Alternatives. The *Draft Pogonip Master Plan* includes three trail use alternatives. The trail alignments for all of the alternatives are basically the same. However, the allowed use for specific trails varies. Two of the alternatives include multi-use trails and pedestrian only trails; the third alternative limits Pogonip to pedestrian use only. A summary of the proposed trail alternatives is provided in Table III-1. The preferred trail use alternative will be selected by the City Council as part of adoption of the *Final Master Plan*.

Multi-use trails would allow pedestrian, equestrian and bicycle use and would be between 4 to 10 feet in width. Where multi-use trails also serve as service roads, they will be maintained to 10 feet in width (see *Transportation and Circulation* section of Chapter IV). Where possible, multi-use trails will be at least 8 feet in width. However, where steep terrain, mature trees, or sensitive vegetation exists, multi-use trails may be 4 to 6 feet in width to minimize impacts to these resources.

Allowable activities on pedestrian trails would include hiking, jogging, walking, and dogs on leash. Pedestrian trails are recommended to be 3 to 4 feet wide. Pedestrian trails may also be used by mounted Ranger patrols, including the Sheriff's Department Mounted Search and Rescue patrol. Rangers also conduct motorized vehicle patrols on some pedestrian trails as needed to respond to emergencies and for enforcement of regulations, such as illegal camping violations. Several trails are not accessible by vehicle, including Pogonip Creek Trail, Prairie Trail, Limekiln Trail, Lookout Trail, Sycamore Grove Trail, and the lower portion of Fern Trail.

Each of the three trail use alternatives is summarized below.

- **Alternative A.** Alternative A includes multi-use on Spring Trail, Rincon Trail, Brayshaw Trail, the new UCSC Connector Trail and the Rincon Connector Trail totaling approximately 3.8 miles. Approximately six miles would be designated as pedestrian only trails. It provides regional connections to UCSC and Henry Cowell Redwoods State Park, multi-use access to the Clubhouse area and a multi-use connection to the upper westside of Santa Cruz from the Spring Trail.

Table III-1
TRAIL USE ALTERNATIVES

	A	B	C
Service Roads			
Rincon Trail	E ^a /B ^b /P ^c	E/B/P	P
Spring Trail	E/B/P	P	P
Brayshaw Trail	E/B/P	P	P
Existing Trails			
Rincon Connector Trail	E/B/P	E/B/P	P
Fern Trail	P	P	P
Limekiln Trail	P	P	P
Lookout Trail	P	P	P
Ohlone Trail	P	P	P
Pogonip Creek Trail	P	P	P
Prairie Trail	P	P	P
Sycamore Grove Trail	P	P	P
Spring Box Trail	P	P	P
Lower Meadow Trail	P	P	P
New Trails			
UCSC Connector Trail	E/B/P	E/B/P	N/A
Harvey West Park Trail	P	P	P

^a E = Equestrians permitted

^b B = Bicycles permitted

^c P = Pedestrians permitted

Source: Santa Cruz Parks and Recreation Department, 1997.

This alternative is very similar to the trail system identified in the Mixed Land Use Option, which was conceptually approved by the City Council in 1993. This alternative was also supported by two-thirds of the Trails Focus Group, which was organized as part of the Pogonip Master Plan process.

- **Alternative B.** Alternative B allows multi-use on Rincon Trail, Rincon Connector Trail, and the new UCSC Connector Trail, totaling 1.5 miles. Over 8 miles would be for pedestrian use only. This alternative provides a regional connection between the State Park, northern Pogonip and UCSC. However, it does not provide multi-use access to the Clubhouse area or the Golf Club Drive entrance. This alternative was included at the direction of the Santa Cruz City Council.

- **Alternative C.** Alternative C limits all trails, approximately 9 miles, to pedestrian use only. The new UCSC connector is not proposed as part of this alternative. This alternative would not provide for any equestrian or bicycle connections with either UCSC or the State Park. This alternative was supported by approximately one-third of the Focus Group participants.

(4) Trail Management and Design Guidelines. A multi-faceted approach is recommended for trail management and enforcement of trail use regulations. This approach is based upon lessons learned from other jurisdictions and various analyses and compilations of trail management information. Such an approach would involve appropriate trail design, education, regulations, enforcement, and monitoring.

The following discussion summarizes key trail design guidelines:

- Trails which serve as service roads will be 10 feet in width. Where existing trails exceed 10 feet, these wide areas shall be maintained to provide vehicle turn-arounds.
- Multi-use trails will be a minimum of 8 feet where possible. In some areas, where multi-use trail connections are needed between existing services and fire roads, single-track trails, approximately 3 to 4 feet in width, may be utilized as connector routes to minimize impacts to sensitive environmental resources and site conditions.
- Pedestrian trails will be between 3 to 4 feet in width.
- Wet meadows and spring areas should be avoided. If re-routing is not feasible, a raised boardwalk or log turnpike should be constructed (Pogonip Creek Trail).
- Bridges will be installed as needed for creek crossings (Pogonip Creek Trail, Spring Box Trail, Limekiln Trail, Fern Trail).
- Drainage improvements should be provided on trail routes, to include culvert pipes, waterbars, and check dams as appropriate and recommended by technical specialists.
- Clearing of vegetation along trails will be limited to a maximum vertical height of 12 feet and a maximum width of 4 feet on either side of the treadway.
- Interpretive kiosks should be provided at trail entrances to Pogonip, including: Harvey West Trail at Friendship Garden in Harvey West Park; Spring Trail at the Spring Street entrance; Sycamore Grove Nature Area, Lower Meadow parking area, Outdoor Education Camp; Rincon Connector Trail entrance at north end of Pogonip; and in the vicinity of the Clubhouse.

At kiosks, trail system maps, safety information, and interpretive displays should be provided.

- A coordinated trail sign program will be implemented to ensure signs are easy to read, consistent in message and design, and do not detract from the visual quality of Pogonip.
- Trail identification should be posted at intersections of all trails.
- Cause and effect sign messages should be posted such as "Cutting switchbacks causes erosion," or "Please stay on the trail. Off-trail use tramples fragile rare plants," to discourage inappropriate trail use.
- As determined by the Ranger staff, speed limit signs should be posted in areas where excessive speed problems occur.

Trail management actions included in the *Draft Pogonip Master Plan* include a wide variety of activities related to patrolling, educating, signing, temporarily closing, and monitoring. These are addressed throughout the EIR where appropriate, especially where they would serve to mitigate potential impacts.

2. Maintenance and Support Facilities

These facilities include ranger facilities and a caretaker's residence. The existing facilities are located at the Upper Main Meadow (Figure I-2), but would be inadequate when the new uses envisioned by the *Draft Pogonip Master Plan* are fully implemented. The maintenance facility concept features replacement of the two existing smaller accessory structures with one larger accessory structure to better accommodate future increased maintenance needs. The equestrian facilities, which are used for training and quartering horses for mounted ranger patrols, would also be upgraded and situated to minimize environmental impacts.

The caretaker residence concept involves providing a permanent and more aesthetically compatible residence, in character with the Clubhouse and rural site. The site for the caretaker residence would be relocated to the edge of the Upper Main Meadow between the Clubhouse parking and the maintenance facilities (Figure I-2). A trailer was previously located to the rear of the Clubhouse and was used as the caretaker residence. The caretaker was initially established for the private Pogonip Club operations. The Parks and Recreation Department continued to allow the caretaker to reside on site to prevent vandalism and other illegal activities in the vicinity of the historic Clubhouse.

The existing facilities utilized by the City of Santa Cruz Parks and Recreation Department ranger staff are located to the west of the Pogonip Clubhouse in the Upper Main Meadow; the main office for Ranger staff is located at Harvey West

Park. This site was selected for the maintenance facilities because it had been previously disturbed and altered by the previous owners' dairy and ranch maintenance operations.

The ranger facilities at Pogonip include two accessory structures (approximately 10 by 14 feet and 12 by 20 feet), horse corrals and an equestrian training area (see Figure III-3). The accessory structures, installed in 1987, provide operational office space and equipment storage for maintenance and patrols at Pogonip. Access to the site is provided by Brayshaw Trail. Unimproved parking exists along the trail.

Seven horses are presently quartered at Pogonip. The horses are used for conducting mounted ranger patrols. The existing, uncovered corral is approximately 60 by 60 feet, and is located to the south of the existing buildings. The area just to the northwest of the corrals is used for equestrian training. Most of the Upper Main Meadow area is grazed by the horses.

The following discussion summarizes key design guidelines related to maintenance and support facilities:

- Construct a new maintenance facility, maximum 1,800 square feet and not to exceed two stories, to provide space for a work area, storage, and an operational office for Pogonip staff.
- Construct a new caretaker residence, maximum 1,600 square feet and not to exceed two stories.
- Obtain a Design Review Permit for new structures.
- Locate the maintenance facilities and caretaker residence within areas disturbed by existing or prior activities.
- Design new facilities to be compatible with the historic nature of the Clubhouse and the rural nature of the site.
- Provide approximately six parking spaces for the maintenance/support facilities.
- Provide an upgraded, covered corral.
- Relocate the equestrian training area to the edge of the meadow to avoid impacts to the nearby wetland.
- Provide an adequate storage area in the vicinity of the Park.
- Minimize outdoor lighting and use low-level lighting as needed.
- Install wood rail fencing along the boundary of the caretaker residence, ranger facility and equestrian training area.

As part of the recommended management actions, the interim caretaker residence program would continue until either a new caretaker residence is constructed or the temporary residence is relocated as part of the Clubhouse rehabilitation project. The number of horses at Pogonip would be limited to 12, but in cases of emergencies, more horses may be sheltered at Pogonip to supplement the facility run by the Sheriff's Department Mounted Search and Rescue facility. This facility is located immediately across the San Lorenzo River at Sycamore Grove.

3. Transportation and Circulation

Existing vehicle access and parking within Pogonip is very limited. While future plans include improvements to roadways and parking, vehicle access would continue to be limited in order to preserve the site's rural, undeveloped character.

Golf Club Drive is the only roadway proposed for public vehicle access. The existing road alignment is proposed to be widened from its current 10-foot width to 28 feet in width, to include bicycle lanes from the Pogonip entrance to the Lower Main Meadow area. This road is used for service and emergency vehicle access only. Improvement of the narrow roadway would provide convenient and safe access for the Pogonip Garden, Outdoor Education Camp, and for other Pogonip visitors. Beyond the Lower Main Meadow, the paved access route to the Clubhouse and Upper Meadow parking would be considered a "driveway." Upper Meadow parking would need to be restricted and controlled for Clubhouse events only.

A railroad right-of-way, owned by the Big Trees and Pacific Railway Company, runs through the eastern edge of Pogonip. A tourist train runs on these tracks between the Felton area and Santa Cruz. No improvements are proposed for the rail line. However, a designated trail crossing is needed on the Sycamore Grove Trail.

The railroad trestle, located east of the site on Golf Club Drive, is also owned by the Big Trees and Pacific Railway Company. The trestle is limited in height and width clearance. From the trestle to the intersection with Highway 9, Golf Club Drive is a two lane street with curb, gutter and sidewalk. A stop sign controls traffic on Golf Club Drive as vehicles exit onto Highway 9.

Vernon Street is located just to the north of Golf Club Drive. Vernon Street is fully improved to the railroad crossing. Vernon Street could be considered as a possible vehicle access route to Pogonip; however, it would cross existing private property. Given the level of use proposed for Pogonip in the *Draft Pogonip Master Plan*, Vernon Street is not considered a feasible access route.

Service/maintenance roads include Rincon, Spring and Brayshaw trails. Service entrances are located at the terminus of the Spring Street cul-de-sac, at the southern

Rincon Trail entrance at Coolidge Drive, and the northern Rincon Trail entrance at Highway 9. These roads provide access for Ranger patrols and emergency vehicles.

Some of the key design guidelines related to vehicle access are summarized below:

- Preserve the rural character of the Golf Club Drive entrance to the maximum extent possible.
- Improve Golf Club Drive to 28 feet in width from the entrance gate to the Lower Main Meadow gate within Pogonip to include paved shoulders, four feet in width, on both sides of the roadway to accommodate bicycle traffic.
- Designate the roadway from the Lower Main Meadow gate to the Upper Meadow parking as a service driveway. Improve the driveway to a minimum of 12 feet in width. Provide turnouts every 400 feet consistent with the Municipal Code requirements for a driveway. Design turnouts to minimize grading and impacts to biological and visual resources. Post "No Parking" signs at turnouts on the service driveway. Ensure this regulation is strictly enforced during Clubhouse events.
- Where possible, access along the rear of the Clubhouse through the parking area to Brayshaw Trail should be a minimum of 20 feet to provide for emergency vehicle staging areas.
- Design the turn-around at the end of service driveway to be a minimum of 90 feet in diameter. The actual dimension should be determined by the Fire Department to ensure an adequate turning radius for response fire vehicles.
- Create a "gateway" experience at the Golf Club Drive Pogonip entrance. Create an entry sign using natural materials, such as timber and river cobble.
- Install gates just above the Lower Meadow parking area to control access to the Upper Main Meadow.
- All service road entrances should be gated, with access provided for trail users.

Presently, no public parking is available within Pogonip. New visitor parking is proposed for the Lower Main Meadow and Upper Main Meadow. Sycamore Grove would remain as unimproved parking. Limited wheelchair accessible parking is also proposed at the terminus of the Spring Street cul-de-sac. To augment future parking within Pogonip, off-site parking and alternative transportation would also be encouraged. Off-site parking on Spring Street or on the UCSC campus would not be encouraged.

Off-site parking opportunities exist at some entrances, including on-street parking in the vicinity of Harvey West Park on Dubois Street and lower Golf Club Drive near the City's Corporation Yard. On-street parking for Pogonip users would not be

encouraged on Spring Street, a residential cul-de-sac, to avoid potential neighborhood parking conflicts. UCSC campus parking also should not be considered as staging for Pogonip users. A small wheelchair accessible parking area is proposed at the terminus of Spring Street. Any future parking area would need to address residents' concerns and must be designed to be compatible with the existing utility corridor and future utility improvements.

As part of the design guidelines for parking, the *Draft Pogonip Master Plan* recommends that secure bicycle storage facilities be installed at all parking areas. The guidelines also state that a maximum of 45 spaces should be provided at the Upper Main Meadow area to the west of the Clubhouse in the area of the existing tennis court. Use of berms and native trees in parking areas is recommended to minimize visual impacts.

A maximum of 30 spaces is recommended in the Lower Main Meadow to the east of Golf Club Drive. The parking is to be as close as possible to Golf Club Drive to minimize visual impacts, and no lighting is to be provided in this lot.

The City proposes to evaluate the feasibility of designing a small parking lot, with a maximum of five spaces, for wheelchair accessible parking only to be located in vicinity of Spring Trail staging, with access from Spring Street.

The Upper Meadow parking area is to be for Clubhouse events only. Off-site parking information is to be provided in printed materials, and alternative transportation modes are to be encouraged. Parking at the Lower Meadow lot is to be for daylight hours only.

4. Utilities

Proposed new uses at Pogonip would require substantial improvements to utilities. To meet the water demand for the Clubhouse and Pogonip Garden, and to provide for adequate fire protection, municipal water service would be extended to the Upper Main Meadow. Sanitary sewer service would also be extended to avoid environmental and maintenance impacts associated with improvements and expansion of the septic system. The electrical utilities and telephone service would require upgrades and extension of service for the various uses at the Upper and Lower Main Meadows. Drainage improvements would be addressed as part of the Clubhouse, Golf Club Drive, and garden improvements.

The closest municipal water line terminates just below the southeastern boundary of Pogonip. This 6-inch line extends from Highway 9 along the Golf Club Drive alignment. Historically, a gravity-fed water system carried spring water to the Clubhouse site. This water system continues to be utilized as a source of non-

potable water for irrigation, equipment and livestock maintenance. In 1993, the private Pogonip Club drilled a well with the intent to serve the Clubhouse. The well produces approximately 11 gallons per minute; however, it was never actually utilized to provide for potable water needs.

Thousands of feet of irrigation piping were also installed within Pogonip as part of the golf course and other operations in the early part of this century. In some places, the piping appears to be made of redwood. Also, a "reservoir" or "pool" was constructed several decades ago. This basin still exists, just to the south of Brayshaw Trail, but is fenced and no longer utilized.

A 6-inch sanitary sewer line extends along Golf Club Drive from the intersection with Highway 9 to approximately 230 feet beyond the center line of the railroad trestle. No existing hook-ups exist west of the railroad trestle. The Clubhouse and all residential properties are on septic systems. The leachfield for the Clubhouse is located in the low-lying area to the north of the structure. This system is in need of improvements and could not be utilized to serve future Clubhouse needs. The existing ranger facility at Pogonip utilizes portable toilet facilities.

A Pacific Gas & Electric overhead utility line extends through Pogonip, to the west of the railroad alignment, to the Clubhouse. The Clubhouse and ranger facility also have existing telephone service.

Minimal storm drainage improvements currently exist within Pogonip. Runoff from portions of the Upper Main Meadow and Lower Main Meadow areas collects in a drainage ditch along the site's southeastern boundary. A culvert at the railroad crossing carries runoff to the San Lorenzo River.

Design guidelines and management actions related to utilities address the following improvements: 1) extension of the water line; 2) installation of a 20,000-gallon steel tank for backup water supply near the ranger facility area; 3) new fire hydrants and water systems booster pump for fire protection; 4) retention of the spring-feed water supply; 5) extension of a 6-inch sanitary sewer line; 6) installation of a propane gas tank for the Clubhouse kitchen; and 7) extensions and undergrounding of electrical and telephone lines to serve the Clubhouse and support facilities.

5. Resource Management Areas

Sensitive biotic resources, including rare plant and wildlife species and unique plant communities, would be protected and enhanced. Resource Management Areas are proposed to include: coastal terrace prairie wetland/freshwater marsh; central coast cottonwood-sycamore riparian forest; central coast riparian scrub; robust spineflower habitat; and Ohlone tiger beetle habitat.

6. Fire Management

The *Draft Pogonip Master Plan* includes a *Fire Management Element* for the entire 640-acre property. This plan includes the following key components:

- Discussion of relevant setting components at the Pogonip site, including topography and general local weather patterns;
- Distribution and composition of fuels on the Pogonip site;
- Current hazardous conditions at the Pogonip site, including topics listed above, as well as access limitations and water availability;
- Risks of ignition, including ways to limit ignition through human behavior and fuel modification; and
- Methods and guidelines for fuel management.

7. Historic Sites

The Draft Pogonip Master Plan includes an Historic Resources Element that addresses the following historic resources: the limekilns; quarries and associated historic features; the historic Clubhouse; and the McCormick House site. Design Guidelines and Management Action within this element address the preservation and interpretation of these historic structures and features.

F. Phasing Construction Period

Phase I focuses on providing infrastructure to facilitate development of the following: Pogonip Garden; day-use facilities at the Outdoor Education Camp; Lower Meadow parking area; trail improvements; and, restoration programs at Sycamore Grove and Haunted Meadow. The Clubhouse Rehabilitation Plan is also proposed as part of Phase I which would cover fiscal years 1998 through 2001.

Phase II includes the Clubhouse rehabilitation as the primary improvement target. This phase would also include the following: development of the Sycamore Grove Nature Area; overnight facilities at the Outdoor Education Camp; additional trail improvements to improve existing alignments; expansion of the ranger facilities; and, construction of a permanent caretaker residence. Phase II would cover fiscal years 2001 through 2004. Fiscal years begin in July of each calendar year.

Chapter IV SETTING, IMPACTS, AND MITIGATION MEASURES

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This chapter contains an analysis of each issue that has been identified through preliminary environmental analysis and the public scoping session for the *Draft Pogonip Master Plan* project, and as such, constitutes the major portion of the Draft EIR.

1. Determination of Significance

Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment.¹ The guidelines implementing CEQA direct that this determination be based on scientific and factual data. Each impact and mitigation measure section of this chapter is prefaced by a summary of criteria of significance. These criteria have been developed using Appendix G of the *CEQA Guidelines* and the professional opinions of the EIR authors.

2. Issues Addressed in the Draft EIR

The following environmental issues are addressed in this chapter:

- Land Use
- Vegetation and Wildlife
- Geology, Soils, and Seismicity
- Water Resources
- Archaeological and Historic Resources
- Visual Quality and Aesthetics
- Transportation and Circulation
- Service Systems and Utilities

¹ Public Resources Code Section 21068.

Preliminary analysis determined that the proposed project would not result in significant impacts related to noise, air quality, population/housing, energy and mineral resources or public health and safety. Subsequently, these issues are not examined in this chapter of the EIR, but are briefly discussed in Chapter VI, CEQA Required Assessment Conclusions.

3. Format of Issue Sections

Each environmental issue section has two parts: 1) Setting and 2) Impacts and Mitigation Measures of the proposed project.

Impacts are numbered and shown in bold type, and the corresponding mitigation measures are numbered and indented. Impacts and mitigation measures are numbered consecutively within each topic and begin with an acronymic reference to the impact section (e.g., LU). The following symbols are used for individual topics:

LAND:	Land Use
BIO:	Vegetation and Wildlife
GEO:	Geology, Soils, and Seismicity
WAT:	Water Resources
ARCH:	Archaeological and Historic Resources
VIS:	Visual Quality and Aesthetics
TRANS:	Transportation and Circulation
SER:	Service Systems and Utilities

Impacts are also categorized by type of impact as follows:

- S = Significant
- SU = Significant and Unavoidable
- LTS = Less than Significant

These notations are found following each impact and each mitigation measure to identify their significance before and after mitigation.

A. LAND USE AND PUBLIC POLICY

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This section assesses the effects of the proposed project on existing land uses in the vicinity of the project site, as well as on established uses within the site. The analysis examines the compatibility of the proposed *Draft Pogonip Master Plan* with current and planned land use. It also addresses whether the *Draft Pogonip Master Plan* conflicts with applicable adopted plans, policies and regulations of the City, County and University of California Santa Cruz (UCSC).

1. Environmental Setting

This setting section is divided into two sub-sections: Land Use and Public Policy and Regulation. Under Land Use, the site's existing use is discussed first, followed by a discussion of the use of surrounding properties. Land Use Policy and Regulation is broken down by each applicable guiding document including: City of Santa Cruz General Plan; City of Santa Cruz Zoning Ordinance; County of Santa Cruz General Plan; County of Santa Cruz Zoning Ordinance; and the Long Range Development Plan of the University of California, Santa Cruz.

a. Land Use. Land uses for the project site and the surrounding area are described below.

(1) Existing Land Use of the Project Site. The site is generally undeveloped grassland and forested open space with an extensive trail system used for hiking. No public parking on-site or public vehicle access is provided. Bicycle, equestrian and motorized recreational uses are not permitted. A historic Clubhouse and associated facilities exist on the site, but these are not currently open to public use. The Clubhouse has been declared unsafe for occupancy. A small park ranger station is located near the Clubhouse. Overnight use of Pogonip is prohibited. However, some amount of illegal overnight use does occur. The site serves as an important open space area for the City of Santa Cruz and its residents.

(2) Existing Land Use of the Surrounding Area. Surrounding development and land use includes the following:

(a) *North of the Project Site.* The Henry Cowell Redwoods State Park lies to the northwest of Pogonip. The state park is connected to Pogonip by the Rincon Connector Trail on the north end of the site.

(b) *East of the Project Site.* The eastern boundary of Pogonip is bordered by State Highway 9 and the San Lorenzo River. Beyond the river to the northeast is a single-family residential subdivision and to the southeast lie agricultural lands and low-density residential uses.

(c) *South of the Project Site.* The site is bounded on the south by large-lot, single-family homes. Adjacent to these, further south but still close to Pogonip, are industrial and commercial developments. An undeveloped parcel located in the central area of the southern boundary of the site was recently acquired to expand Pogonip. This parcel is connected at the south end to Harvey West Park and is flanked on the west by a single-family residence and on the east by a single-family residence and industrial development.

(d) *West of the Project Site.* The UCSC campus is adjacent to the western boundary of Pogonip, along all but the very northern end of the site's western boundary. The campus is generally at a higher elevation than Pogonip. Only a small portion of the campus area immediately adjacent to Pogonip is developed.

b. Public Policy and Regulation. This sub-section addresses planning and zoning issues pertinent to the proposed project. Documents reviewed include the General Plans and zoning regulations for the City and County of Santa Cruz, and the University's Long Range Development Plan (LRDP). Policies related to other topics such as visual resources are addressed in other sections of this report.

(1) City General Plan. The City of Santa Cruz General Plan sets forth specific policies for land uses. General Plan designations for the project site and vicinity are described below.

(a) *The Project Site.* There are two existing General Plan land use designations for the Pogonip site: Natural Area (NA) and Very Low Density Residential (VL). The majority of the site is designated as a *Natural Area*, which includes land that, for reasons of safety, habitat protection, and aesthetic and recreational purposes should remain in an undeveloped state. Allowable uses include recreational, educational, and public facility uses that are related to the natural area, and are dependent on the environmental sensitivity of each area. Hence, the allowable types and intensities of uses must be individually determined for each individual site with this plan designation.

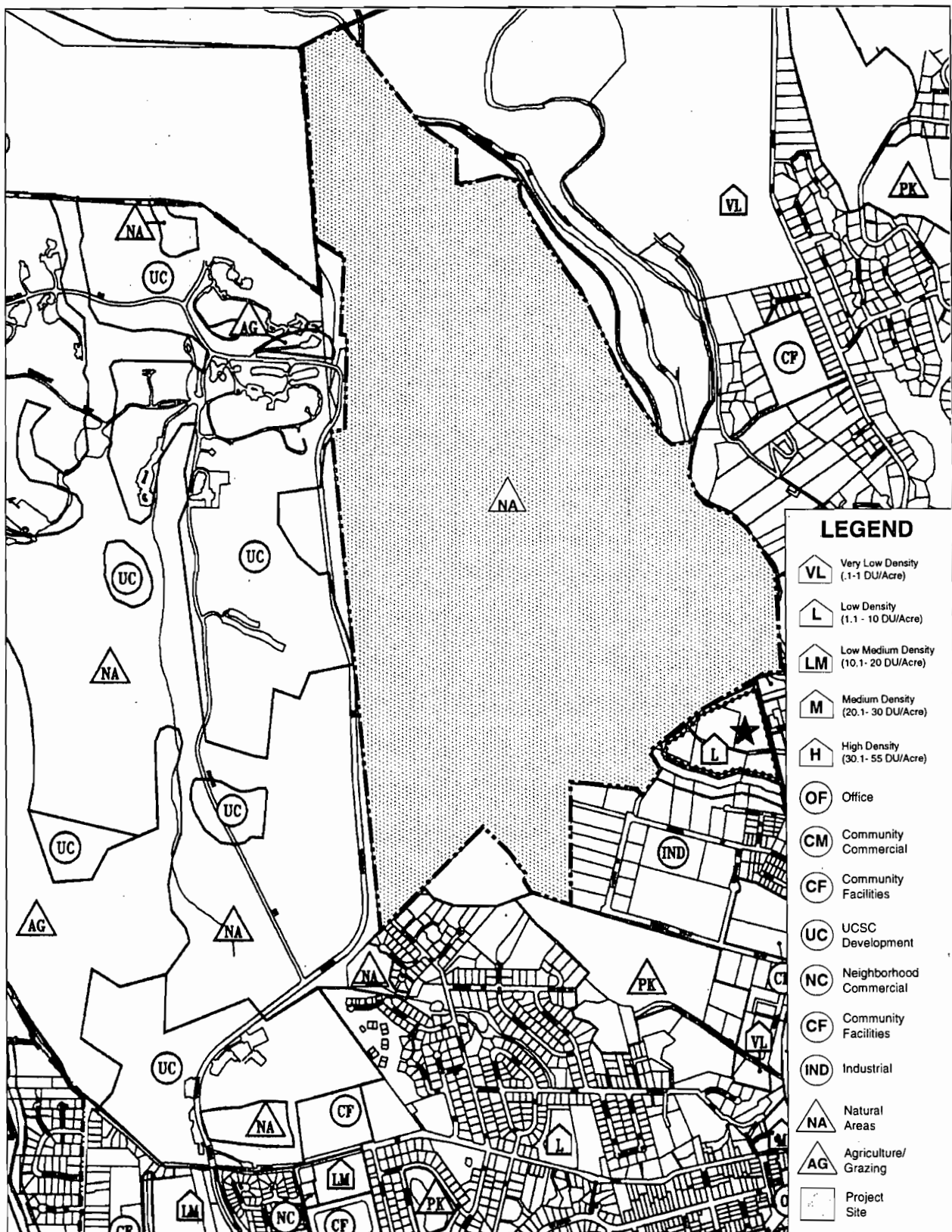
A small piece of land at the southern edge of the site, the recently acquired Wavecrest property, is designated as *Very Low Density Residential*. This designation allows for .1 to 1 dwelling unit per acre densities used in rural transition areas and areas where environmental constraints are high. Some non-residential uses are allowed in residential designations, including churches, day care, and small businesses. The City's General Plan designations for the site and vicinity are shown in Figure IV.A-1.

Pogonip is cited in the Land Use Element of the City of Santa Cruz General Plan as a "sparsely populated hilly terrain" that provides an open space buffer to the north. The Land Use Element defines open space land as "any parcel or area essentially unimproved for the purpose of (1) preservation of natural resources; (2) public health and safety, (3) managed production of resources; and (4) recreational and aesthetic purposes" (City of Santa Cruz, 1994). It further states that these lands "help to define and protect the City's sense of place and environmental quality, and provide public safety, wildlife habitat and recreational opportunities." The Land Use Element also says that such areas "form a perimeter of open space around the City serving to inhibit sprawl and concentrate urban development within existing City limits."

Policies from the Land Use Element related to preservation and use of the site as an open space and recreation area are summarized in Table IV.A-1, found at the end of this Land Use section.

(b) *The Surrounding Area.* As noted above, General Plan land use designations for lands in the vicinity of the Pogonip site are shown in Figure IV.A-1. Adjacent and nearby designations include the following allowable uses:

- *Low Medium Density Residential (LM), Low Density Residential (L), and Very Low Density Residential (VL):* These designations are intended to indicate densities and not building type, and can include other allowable uses, as noted above. Densities for these designations are 10.1 to 55 units per acre for LM, 1.1 to 10 units per acre for L, and .1 to 1 units per acre for VL. One area adjacent to the southeastern side of Pogonip is designated L and also requires a Specific Plan, as shown in Figure IV.A-1.
- *Industrial (IND):* The IND land use designation identifies lands that will be used for industrial development.
- *Parks (P):* The Parks designation includes neighborhood, community and regional park lands used for passive and/or active recreational uses by residents and visitors. Parcels designated with the Parks land use designation are owned by the City of Santa Cruz or the State Department of Parks and Recreation.



Source: City of Santa Cruz Planning Department 1994

DRAFT POGONIP MASTER PLAN DRAFT ENVIRONMENTAL IMPACT REPORT

Figure IV.A-1
Existing General Plan Designations

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 PLANNERS AND LANDSCAPE ARCHITECTS

- *UCSC Development (UC)*: UCSC is a State institution with its own development plan (referred to as the Long Range Development Plan and last revised in 1988). There are a variety of land uses on the UCSC campus.
- *Community Facilities (CF)*: The CF designation identifies existing and potential community facilities, including schools, government offices, post offices, sewer and water facilities, the Civic Auditorium, and the landfill.
- *Agriculture/Grazing (AG)*: The AG designation includes land that is used for production of food and fiber.

(2) City Zoning Ordinance. The City of Santa Cruz Zoning Ordinance is a detailed plan for the use of land in the City that sets forth specific requirements to implement the General Plan. Zoning designations and relevant regulations for the project site and vicinity are described below and shown in Figure IV.A-2.

(a) *The Project Site*. The site is primarily designated as Parks District (P-K), and the intended purpose is as a public park. The recently-acquired 25-acre Wavecrest parcel is zoned Residential-Suburban District (RS-10A) which allows residential uses on lots of 10 acres or more. In the P-K District, recreational and government facilities are subject to the approval of a special use permit and a design permit unless exempted by state or federal law. A Park Master Plan is also required for the approval of new uses. Regulations mandate that setbacks reflect those required by adjacent districts. In the Pogonip area, a mixture of commercial, residential, and industrial surrounding land uses can be found outside the Pogonip boundaries.

The project site also falls within a Greenbelt Overlay District (GB-O). The purpose of this overlay district (where the underlying land is not already protected by General Plan, zoning, or other constraints on development) is to maintain essentially undeveloped lands until a time when urban expansion is necessary. Only land uses that are environmentally and visually compatible with the existing physical characteristics of the land, or which are permitted mitigated uses, are allowed.

(b) *The Surrounding Area*. Property located in the general vicinity of Pogonip is designated as described below and shown in Figure IV.A-2;

- *Public Facilities District (P-F)*. UCSC is classified according to this designation (see Figure IV.A-2). This district allows public buildings and facilities including art galleries, museums, cemeteries, government buildings, hospitals, libraries, schools, public utilities and publicly-owned recreational facilities.

- *Single-Family Residence District (R-1).* Three areas of land adjacent to the site at the south end are classified R-1 (see Figure IV.A-2). Each has a different minimum lot area: 5,000; 7,000; and 10,000 square feet (R-1-5, R-1-7, and R-1-10). The purpose of the R-1 district is to stabilize and protect the residential characteristics of the district and to promote and encourage a suitable environment for family life and single persons. Permitted uses include single-family dwellings, community care facilities, community gardens and accessory uses. The maximum building height allowed is two and one-half stories (30 feet) and setbacks range from 5 to 30 feet.
- *Residential Suburban District (R-S).* The two parcels of land on either side of the recently acquired Wavecrest property are zoned R-S (see Figure IV.A-2). They have a minimum lot area of one acre and two acres (RS-2A). The purpose of the R-S District is to provide a residential living area within the City which allows low residential densities and provides a transition to rural areas that adjoin portions of the City. Permitted uses include single-family dwellings, community care facilities, agriculture, grazing, community gardens, accessory uses, home occupations and accessory residential uses. No building may be greater than 30 feet in height. Setbacks range from 15 to 40 feet.
- *Multiple Residence Low Density District (R-L).* An area of land located near the southeast corner of Pogonip (north of Vernon Street) is designated R-L. The purpose of this district is to promote the development of multi-family townhouses, condominiums and apartments at a low to medium density, to stabilize and protect the residential characteristics of the district and to promote and encourage a suitable environment for the lives of families and single persons. Single, two- and multi-family dwelling units are allowed in addition to community care facilities, community gardens, accessory uses, park and recreational facilities, and accessory residential uses. The maximum building height allowed is two and one-half stories, or 30 feet. The minimum lot area for a single unit is 5,000 square feet and 5,500 square feet for two or more units. For each dwelling unit, 400 square feet of usable open space must be provided.
- *General Industrial District (I-G).* Within a quarter of a mile of Pogonip and adjacent to the newly-acquired Wavecrest property, there is an I-G District. The purpose of this district is to encourage sound industrial development by providing and protecting an environment for such development, necessary to ensure the purity of the land, air and waters in Santa Cruz County, and the protection of nearby residential, commercial and industrial uses of the land from hazards, noise and other disturbances. Uses permitted outright include: art and performance schools and studios; building materials and garden supply stores; financial, insurance and real estate offices; food and beverage preparation; furniture and fixtures; laboratories, research and development

and film processing; medical facilities; millwork textile production; publishing; professional services and offices; rental services; repair and maintenance; fabrication, assembly and packaging; warehousing; and wholesale trade goods. Buildings may be up to 50 feet in height, and setbacks range from 10 to 20 feet.

(3) County General Plan. The entirety of the Pogonip site lies within the Santa Cruz city limits. Property to the north, northwest and northeast of the project site lies outside of the City limits and is under the jurisdiction of the County of Santa Cruz.

County General Plan land use designations for lands adjacent to Pogonip include Agriculture, Mountain Residential, Suburban Residential, and Parks, Recreation and Open Space. Nearby land use designations also include Low Density Residential. Allowable uses for the residential land use designations include the following:

- *Mountain Residential (R-M)*: The R-M designation provides for very low density residential development of 10 to 40 net developable acres per dwelling unit in areas which are unsuited to more intensive development, due to the presence of hazards, physical development constraints, or lack of public services.
- *Suburban Residential (R-S)*: The R-S designation provides for development of 1-5 net developable acres per unit in areas with developable land, access from adequate roads, water service, soils with good septic suitability, and fire protection.
- *Urban Residential, Low Density (R-UL)*: This designation provides for development of 4.4 to 7.2 units per net developable acre in areas within the Urban Services line which have a full range of urban services, or in Urban or Rural Services Line areas currently developed to an urban density.
- *Parks, Recreation and Open Space (O-R)*: The Parks designation allows for low intensity uses which are compatible with the scenic values and natural setting of the county for open space lands which are not developable; it also allows for commercial recreation, County, State and Federal parks, preserves, biotic research stations, local parks, and passive open space uses for park lands which are developable.
- *Agriculture (A)*: Principal permitted uses in the commercial agriculture zone within the Agriculture land use designation include only agricultural pursuits for the commercial cultivation of plant crops, including food, flower, and fiber crops and the raising of animals including grazing and livestock production.

The County General Plan does not call out specific allowable uses for the Parks and Agriculture land use designations.

(4) County Zoning Ordinance. Lands within a quarter of a mile of Pogonip that are located in the County of Santa Cruz are zoned as follows:

(a) *Special Use District (SU)*. Henry Cowell Redwoods State Park and the land area between the park and the university are classified as SU lands and designated as *Parks, Recreation and Open Space* in the County General Plan as described above in section (3). The former area is located within the San Lorenzo Valley Planning Area and the latter, the Bonny Doon Planning Area. The purpose of the SU District is to encourage the planning of large parcels to achieve integrated design of major developments, good land use planning and the protection of open space, resources and environmental values. These lands typically have a variety of physical hazards and other constraints or there is insufficient information to determine what constraints may exist. This district promotes a mix of uses and includes areas where uses have not yet been specified or determined in detail. Only single-family dwellings on existing parcels of record and agricultural uses are permitted outright. Residential density is Rural Residential. Visitor accommodations must be consistent with a variety of General Plan policies. All development is regulated according to the applicable codes and policies.

(b) *Single-Family Residential District (R-1)*. This area is generally consistent in location with the County General Plan *Urban Low Density Residential* designation described above in section (3). The purpose of this district is to provide for areas that are predominantly single-family residential and which have access to urban services. Permitted uses include single-family dwellings, accessory structures and uses, certain signs, gardens, animal raising, private recreation facilities, day care in homes, foster homes, residential care homes, home occupations and wineries. The minimum lot size is 6,000 square feet. Building height is limited to 20 feet. Setbacks range from 5 to 20 feet.

(c) *Residential Agricultural District (RA)*. This district includes the narrow strip east of Pogonip that is generally consistent with the County General Plan designations of Mountain Residential and Suburban Residential described in section (3) above. The purpose of this district is to provide residential use in areas where development is limited to a range of non-urban densities and where urban services are unavailable. Permitted uses include single-family dwellings, accessory structures and uses, certain signs, small-scale commercial agriculture, gardens, animal keeping and raising, private recreation facilities, daycare in homes, foster homes, residential care homes, home occupations, wineries and timber harvesting. The minimum lot size is 1 acre. Building height is limited to 20 feet. Setbacks range from 20 to 40 feet.

(d) *Parks, Recreation and Open Space District (PR).* In the residential area east of Pogonip there are several small areas that are zoned as parks, recreation or open space. There are a number of purposes for these including to preserve the County's undevelopable lands and to provide for recreation. Different types of facilities and uses require various levels of approval.

(e) *Timber Production District.* The small area described above in (c), located a quarter of a mile to the east of Pogonip is also generally consistent with the County General Plan Mountain Residential Designation. The purpose of this district is to protect and maintain timberland that is consistent with the mandates of the Forest Taxation Reform Act of 1976, and to preserve agriculture and other open space uses where compatible with timberland. Uses permitted within this zone include the growing and harvesting of timber, watershed management, fish and wildlife management, grazing, agriculture, public utilities and single-family dwellings. Recreation uses are conditional.

(f) *Commercial Agriculture.* This area is generally consistent in location with the County General Plan designation of Agriculture described above in section (3). The purpose of this district is to preserve agricultural lands and maintain the economic integrity of farms. Only agriculture, grazing and single-family homes and accessory structures, foster homes, home occupations, certain signs and wineries are permitted outright in this district. There is no minimum parcel size but land may not be divided for residential use. The maximum building height is 40 feet. Setbacks range from 20 to 40 feet.

(5) UCSC Long Range Development Plan (LRDP). In the 1988 plan, property immediately adjacent to Pogonip on the UCSC campus was classified into five categories. These are briefly described below, beginning at the north end of the campus along the University/Pogonip boundary.

(a) *Campus Resource Lands.* These areas are not planned for extensive development and are maintained in their natural state. The construction or rehabilitation of minor projects and multi-use trails would probably be considered consistent with the policies of this land use category, with appropriate approvals, if the alignment would not compromise future development (Zwart, 1997).

(b) *Environmental Reserve.* The intent of this land use category is to protect natural features and processes of the campus for teaching and research. These areas are maintained in their natural state as much as possible. The development of multi-use trails is not considered a permissible use under LRDP guidelines or Environmental Reserve management policies (Zwart, 1997).

(c) *Colleges and Graduate Housing.* Two of these areas are adjacent to Pogonip. Many of the campus buildings are found here, including academic, administrative and residential facilities. Short trail segments that would not compromise the campus's ability to construct additional college facilities in the future might be considered consistent with the policies of this category (Zwart, 1997).

(d) *Site-Specific Research.* New buildings and related development planned for these areas will only be allowed if associated with specific research projects. A small area with this designation is wedged between the two development areas described above and adjacent to Pogonip.

(e) *Protected Landscapes.* More than half of the campus lands along the common boundary are classified as Protected Landscapes. The purpose of this designation is to protect the scenic value of the campus landscape and maintain special vegetation and wildlife corridors. Any development allowed in these areas may not impinge on the overall character of the landscape or disrupt wildlife migration.

2. Impacts and Mitigation Measures

a. Significance Criteria. The proposed project would have a significant impact on land use and land use policy if it would:

- Introduce new land uses that conflict with established and/or proposed uses on the project site or adjacent to the project site;
- Disrupt or divide the physical arrangement of an established community; or
- Conflict or otherwise be inconsistent with applicable adopted plans, policies or regulations.

The project's relationship to the City of Santa Cruz General Plan Land Use Element policies is identified in Table IV.A-1 and discussed below. The proposed project would not introduce land uses that would conflict with established and/or proposed uses on or adjacent to the project site. Secondary land-use impacts of noise and traffic are discussed in their respective sections, and potential impacts related to lighting are discussed in the Visual Quality and Aesthetics section. The proposed project would not disrupt or divide the physical arrangement of an established community or conflict with applicable adopted plans, policies, or regulations.

Some may perceive the Pogonip garden as incompatible with the Greenbelt Overlay designation applicable to the project site due to the introduction of developed features associated with the garden. However, prior City Councils have approved the garden, on a conceptual level, as an appropriate use for the Greenbelt.

- b. Impacts and Mitigation Measures. No land use impacts would result from implementation of the proposed project. Therefore, no mitigation measures would be necessary.

Table IV.A-1
RELATIONSHIP OF PROJECT TO POLICIES IN THE
LAND USE ELEMENT

Policy	Relationship of Project to Policy	Mitigation Measure
CD 1.3 Preserve open space land uses at the edge of the City to inhibit urban sprawl and maintain identity.	The project would preserve the natural open space that Pogonip currently provides, as no urban development is proposed.	None necessary.
CD 1.4 Where development abuts open space land uses, utilize careful site planning to emphasize the natural edges provided by topography and vegetation and maintain visual and physical access to open space areas.	The <i>Draft Pogonip Master Plan</i> is designed so that proposed on-site facilities would be located sufficiently distant from adjacent development, or would otherwise be buffered by vegetation and topography.	None necessary.
L 2.2.6 Require a specific plan for the Golf Club Drive area before any development occurs, and preservation of approximately seven acres of open space, including riparian protection, and possibly including a combination of agricultural land, and community gardens, and integration with the <i>Draft Pogonip Master Plan</i> . Pedestrian and bicycle access to Pogonip and nearby employment areas shall be incorporated into the Plan.	Any Specific Plan prepared for the Golf Club Drive area in the future should be compatible with the <i>Pogonip Master Plan</i> .	None necessary.
L 3.1 Work with appropriate landowners, agencies and organizations to pursue long-term acquisition and/or maintenance of natural areas, agricultural and grazing lands throughout and on the periphery of the City and pursue the creation of community garden areas, recognizing their open space, natural resource, and food production value.	The <i>Draft Pogonip Master Plan</i> reflects ongoing efforts of the City to work with agencies and organizations in acquiring land to expand Pogonip, in maintaining Pogonip's natural open space, and in providing for the development of a community garden. The Wavecrest property was recently obtained to expand Pogonip and is addressed by the <i>Draft Pogonip Master Plan</i> .	None necessary.
L 3.3 Require development adjacent to natural areas and agricultural/grazing lands to be compatible with adjacent lands in terms of land use, visual transition and siting.	Proposed Pogonip development would be sited to be compatible with on-site open space land and the adjacent institutional, residential and recreational land uses.	None necessary.
L 3.4 Develop, implement and maintain updated management plans for the protection and enhancement of natural areas throughout the City including...Pogonip. Management plans should address the following: description of the resource, preservation objectives, strategies to fulfill the objectives, and the means to carry out those strategies.	The <i>Draft Pogonip Master Plan</i> is intended as a strategic, long-term and comprehensive land use and resource management plan for preserving the natural open space and providing recreation and other related land use opportunities (see below as well as other sections in this chapter).	None necessary.

Table IV.A-1 *continued*

Policy	Relationship of Project to Policy	Mitigation Measure
L 3.4.1 Develop and implement the master plan for Pogonip per the mixed-use plan in the Pogonip Land Use Options Assessment Report.	The <i>Draft Pogonip Master Plan</i> has evolved from the Pogonip Land Use Options Assessment Report. The proposed project would provide for a mix of uses (recreational, educational, agricultural and commercial).	None necessary.
PR 1.2.17 Improve access (pedestrian, bicycle, automobile) from existing and proposed residential developments to Harvey West Park and Pogonip.	With the implementation of the <i>Draft Pogonip Master Plan</i> , pedestrian, bicycle and automobile access to Pogonip and between Pogonip and Harvey West Park would be enhanced. Access is also addressed under the "Traffic and Circulation" section of Chapter IV of the EIR.	None necessary. Refer to the Traffic and Circulation section of the EIR.
PR 1.3 Expand the development and use of community gardens and encourage the development of environmentally sensitive community gardening practices by providing educational programs and literature related to composting and pest management.	The proposed project would expand opportunities for community gardening by providing space for agricultural plots, an orchard, greenhouses and other support facilities. The <i>Draft Pogonip Master Plan</i> encourages environmentally sensitive gardening practices by requiring that the garden be organic, in accordance with California Certified Organic Farm (CCOF) standards. It would be managed by the non-profit group Pogonip Garden Project. Educationally-related programs would also be available through the Outdoor Education Camp.	None necessary.
PR 1.6 Where the recreational use of a natural area is deemed suitable and desirable, ensure that the types, location, design and character of the improvements preserve the quality and are compatible with the character of these areas.	The types of uses proposed in the <i>Draft Pogonip Master Plan</i> would generally preserve the quality of and be compatible with the character of the existing Pogonip site. Impacts of the proposed Pogonip Garden are addressed in other sections of the EIR such as Visual Quality and Biotic Resources.	Specific recommendations are addressed under mitigation measures in the Visual Quality and Biotic Resources section of the EIR.

Source: Brady/LSA.

B. VEGETATION AND WILDLIFE

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This section presents the assessment of biotic resources within Pogonip and the potential affects the proposed project may have on sensitive species and habitats. The biotic assessment was conducted in the summer of 1997, supplemented by earlier biological assessment work conducted in 1995 and 1996 (*Pogonip Park Biotic Assessment* [Habitat Restoration Group, 1996 and 1995]; *Pogonip Environmental Constraints Analysis* [HRG, 1996]). As part of this assessment, a literature review was conducted to gather information on biotic resources of Pogonip. Reports reviewed included the *Draft Pogonip Biotic Study* (John Gilchrist and Associates, 1986); *Pogonip Land Use Options Assessment* (Pogonip Task Force, 1992); *Pogonip: A Study of the Main Meadow* (J. Mumford, 1991); *Major Predators in the Pogonip Open Spaces* (Rawlings, UCSC Senior Thesis, 1994); *Pogonip Clubhouse Biotic Assessment* (HRG, 1991); *A Feasibility Study For the Proposed Development of an RV Park in the Sycamore Grove Area of the Pogonip* (Davis, no date); *Santa Cruz County Breeding Bird Atlas* (Suddjian, 1990); and records of Ohlone tiger beetle sightings within Pogonip conducted and kept by personnel at UCSC Natural Reserve. The *California Natural Diversity Database (CNDDDB)* (1996 edition) was also accessed to identify any records of sensitive species occurring on or immediately adjacent to the study area.

A list of potential special status animals and plants on the site was prepared using the *California Native Plant Society (CNPS) Electronic Inventory*, *CNPS Inventory* (Skinner & Pavlik, 1996), and *California Department of Fish and Game (CDFG) Rare Find Database* (Tables IV.B-1 and IV.B-2). The occurrence and spatial distribution of rare plants was recorded from 1985 and 1986 data and updated, based on limited 1995 and 1997 observations. In addition to the habitat surveys mentioned above, a re-check of nesting sites for the white tailed kite was also conducted.

1. Environmental Setting

The Pogonip area supports a diversity of natural habitats and plant communities. Nine plant communities, ranging from grasslands to scrub and forests, occur on the site. The location of these communities are depicted on Figure IV.B-1, Plant Community Map. The location of sensitive biotic resources is depicted on Figure

Table IV.B-1
SPECIAL STATUS PLANT SPECIES KNOWN OR WITH
POTENTIAL TO OCCUR IN THE VICINITY OF POGONIP,
SANTA CRUZ COUNTY, CALIFORNIA

Species	CNPS	State Status	Federal Status	Known Occurrence on Site
Gairdner's yampah (<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>)	List 4	None	Species of Special Concern	Yes
Robust spineflower (<i>Chorizanthe robusta</i> var. <i>robusta</i>)	List 1B	None	Endangered	Yes
San Francisco popcorn flower (<i>Plagiobothrys diffusus</i>)	List 1B	Endangered	Species of Special Concern	Yes
Santa Cruz Clover (<i>Trifolium buckwestiorum</i>)	List 1B	None	None	Yes
Santa Cruz tarplant (<i>Holocarpha macradenia</i>)	List 1B	Endangered	CI	No
Kellogg's horkelia (<i>Horkelia cuneata</i> ssp. <i>sericea</i>)	List 1B	None	Species of Special Concern	No
Maple-leaved checkerbloom (<i>Sidalcea malachroides</i>)	List 1B	None	None	No
San Francisco campion (<i>Silene verecunda</i> ssp. <i>verecunda</i>)	List 1B	None	Species of Special Concern	No

CNPS Status:

List 1B: These plants (predominately endemic) are rare through their range and are currently vulnerable or have a high potential for vulnerability due to limited or threatened habitat, few individuals per population, or a limited number of populations. List 1B plants meet the definitions of Section 1901, Chapter 10 of the CDF&G Code.

List 3: This is a review list of plants which lack sufficient data to assign them to another list.

List 4: List 4 is a watch list of plants with limited distribution in the state that have low vulnerability and threat at this time. These plants are uncommon, often significant locally, and should be monitored.

Figure IV.B-2, Sensitive Biotic Resources Map. Each of these communities is described below in terms of vegetation resources and wildlife resources.

a. Mixed Evergreen Forest.

(1) Vegetation Resources. The mixed evergreen forest is a tan oak-madrone association that is characteristic of the central coast ranges and Santa Cruz Mountains (Sawyer, *et al.*, 1988). At Pogonip, the mixed evergreen forest is the

**TABLE IV.B-2
SPECIAL STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR OR KNOWN TO OCCUR IN POGONIP
SANTA CRUZ COUNTY, CALIFORNIA**

SPECIES		LEGAL STATUS*	OCCURRENCE IN POGONIP	OCCURRENCE NOTES
Common Name	Species Name	Federal/State	Known or Potential	Reproductive Status In Pogonip
Amphibians and Reptiles				
California Red-legged Frog	<i>Rana aurora draytoni</i>	FT/--	Potential	Reproduction Unlikely
Western Pond Turtle	<i>Clemmys marmorata pallida</i>	--/SSC	Potential	Potential
Insects				
Monarch Butterfly (Winter Roost Sites)	<i>Danaus plexippus</i>	--/SSC	Potential	Migrants Only
Ohlone Tiger Beetle	<i>Cicindela ohlone</i>	FSC/--	Known	Assumed As Nesting
Birds				
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FE/FP	Potential	Migrants Only
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FT/ FP	Potential	Migrants Only
Golden Eagle	<i>Aquila chryseatus</i>	--/SSC,FP	Potential	Migrants Only
Osprey	<i>Pandion haliaetus</i>	--/SSC, FP	Potential	Nesting Unlikely
Merlin	<i>Falco columbarius</i>	--/SSC, FP	Potential	Migrants Only
Yellow Warbler	<i>Dendroica petechia</i>	--/SSC,LR, BI	Potential	Potential
Tri-colored Blackbird	<i>Agelaius tricolor</i>	FSC/SSC, BL	Potential	Nesting Unlikely
Willow Flycatcher	<i>Empidonax traillii</i>	--/SSC	Potential	Nesting Unlikely
White-tailed Kite	<i>Elanus caeruleus</i>	--/FP	Known	Nesting Species
Short eared Owl	<i>Asio flammeus</i>	--/SSC, FP	Potential	Migrants Only
Long eared Owl	<i>Asio otus</i>	--/SSC, FP	Potential	Potential

SPECIES		LEGAL STATUS*	OCCURRENCE IN POGONIP	OCCURRENCE NOTES
Common Name	Species Name	Federal/State	Known or Potential	Reproductive Status In Pogonip
Burrowing Owl	<i>Athene cunicularia</i>	--/SSC, FP	Potential	Nesting Unlikely
Sharp Shinned Hawk	<i>Accipiter striatus</i>	--/SSC, FP, BL	Potential	Potential
Cooper's Hawk	<i>Accipiter cooperii</i>	--/SSC, FP	Potential	Potential
Red-shouldered Hawk	<i>Buteo lineatus</i>	--/ FP, LR	Known	Nesting Species
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	--/LR, BL	Known	Potential
Lark Sparrow	<i>Chondestes grammacus</i>	--/LR	Known	Potential
Loggerhead Shrike	<i>Lanius ludovicianus</i>	--/SSC, FP	Potential	
Western Bluebird	<i>Sialia mexicana</i>	--/SSC, FP	Known	Migrant Only
House Wren	<i>Troglodytes aedon</i>	--/LR	Known	Migrant Only
Horned Lark	<i>Eremophila alpestris</i>	--/LR	Known	Migrant Only
Mammals				
Ringtail Cat	<i>Bassariscus astutus</i>	--/FP	Potential	Potential
Bobcat	<i>Lynx rufus</i>	--/LR	Known	Known Den Site
Mountain Lion	<i>Felis concolor</i>	--/LR	Potential	Potential
Black-tailed Hare	<i>Lepus californicus</i>	--/LR	Potential	Assumed As Reproductive
Pallid Bat	<i>Antrozous pallidus</i>	--/SSC	Potential	Foraging Only: No Nesting Habitat
Greater Western Mastiff Bat	<i>Eumops perotis californicus</i>	--/SSC	Potential	Foraging Only: No Nesting Habitat
Pacific Western Big-eared Bat	<i>Plecotus townsendii townsedii</i>	--/SSC	Potential	Foraging Only: No Nesting Habitat
San Francisco Dusky-footed Woodrat	<i>Neotoma fuscipes annectens</i>	--/SSC	Potential	Potential

SPECIES		LEGAL STATUS*	OCCURRENCE IN POGONIP	OCCURRENCE NOTES
Common Name	Species Name	Federal/State	Known or Potential	Reproductive Status In Pogonip
American Badger	<i>Taxidea taxus</i>	--/SSC	Potential	Unlikely: Migrant Only
Fish				
Coho Salmon	<i>Oncorhynchus kisutch</i>	--/SE	Known	Known
Pacific Lamprey	<i>Lampetra tridentata</i>	--/SSC	Known	Known
Steelhead	<i>Oncorhynchus myskiss</i>	--/SE	Known	Known

***STATUS EXPLANATIONS**

Federal

FSC = Category 2 candidate for Federal listing. Category 2 includes species for which the U.S. Fish and Wildlife Service has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status.

FE = Listed as endangered under the Federal Endangered Species Act.

FM = Protected under the Federal Marine Mammal Protection Act of 1972.

FS = U.S. Forest Service sensitive species.

FT = Listed as threatened under the Federal Endangered Species Act.

PE = Proposed for Federal listing as endangered under the Federal Endangered Species Act.

State

SE = Listed as endangered under the California Endangered Species Act.

ST = Listed as threatened under the California Endangered Species Act.

SSC = Species of special concern.

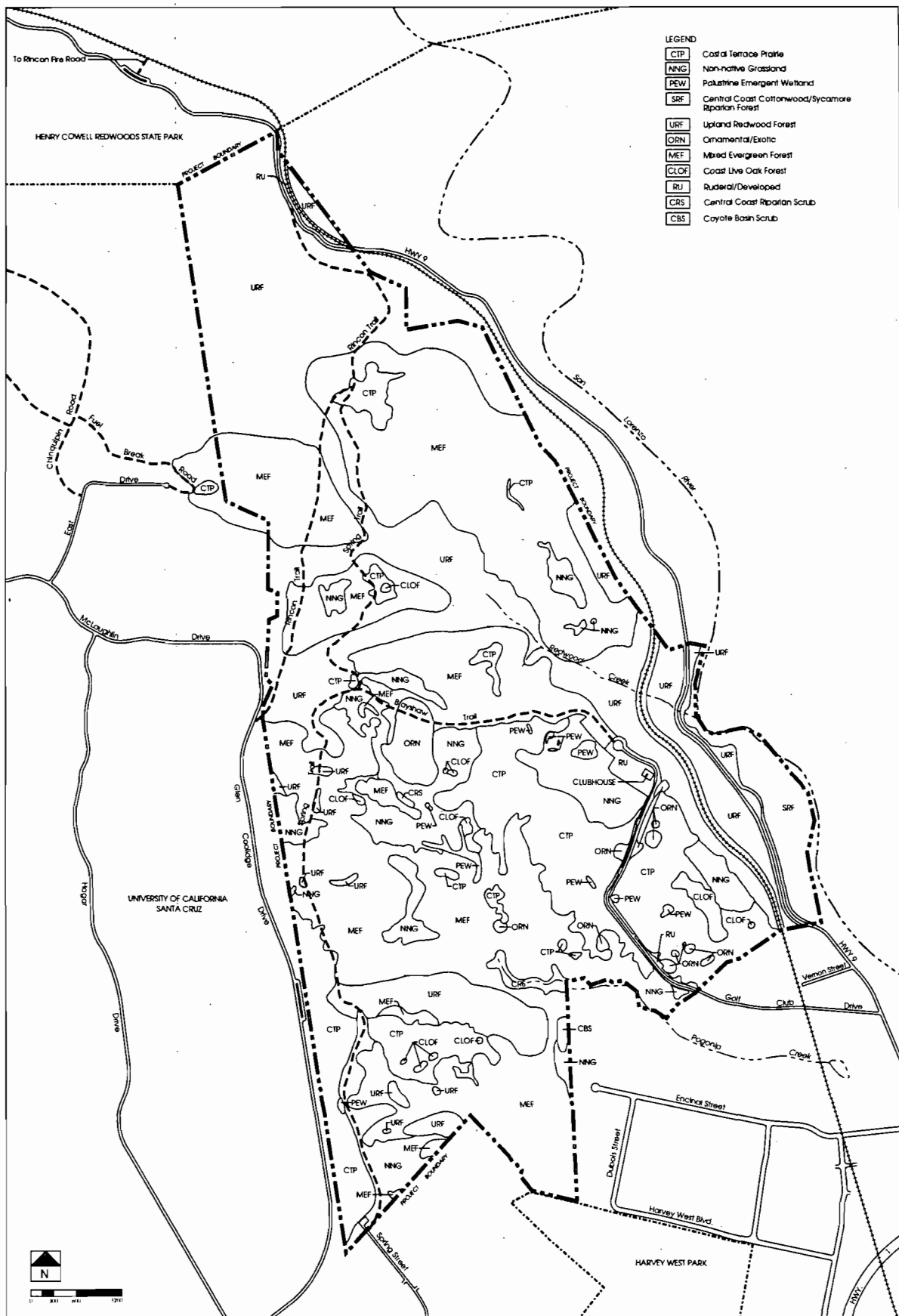
FP = Fully protected under the California Fish and Game Code.

Other

LR = Listed as locally rare by the County of Santa Cruz. Locally rare species are rare or unique to the Santa Cruz region but may be common or abundant in other areas.

BL = National Audubon Society's "Blue List" bird species are those species which are undergoing non-cyclical population declines, either wide spread or locally.

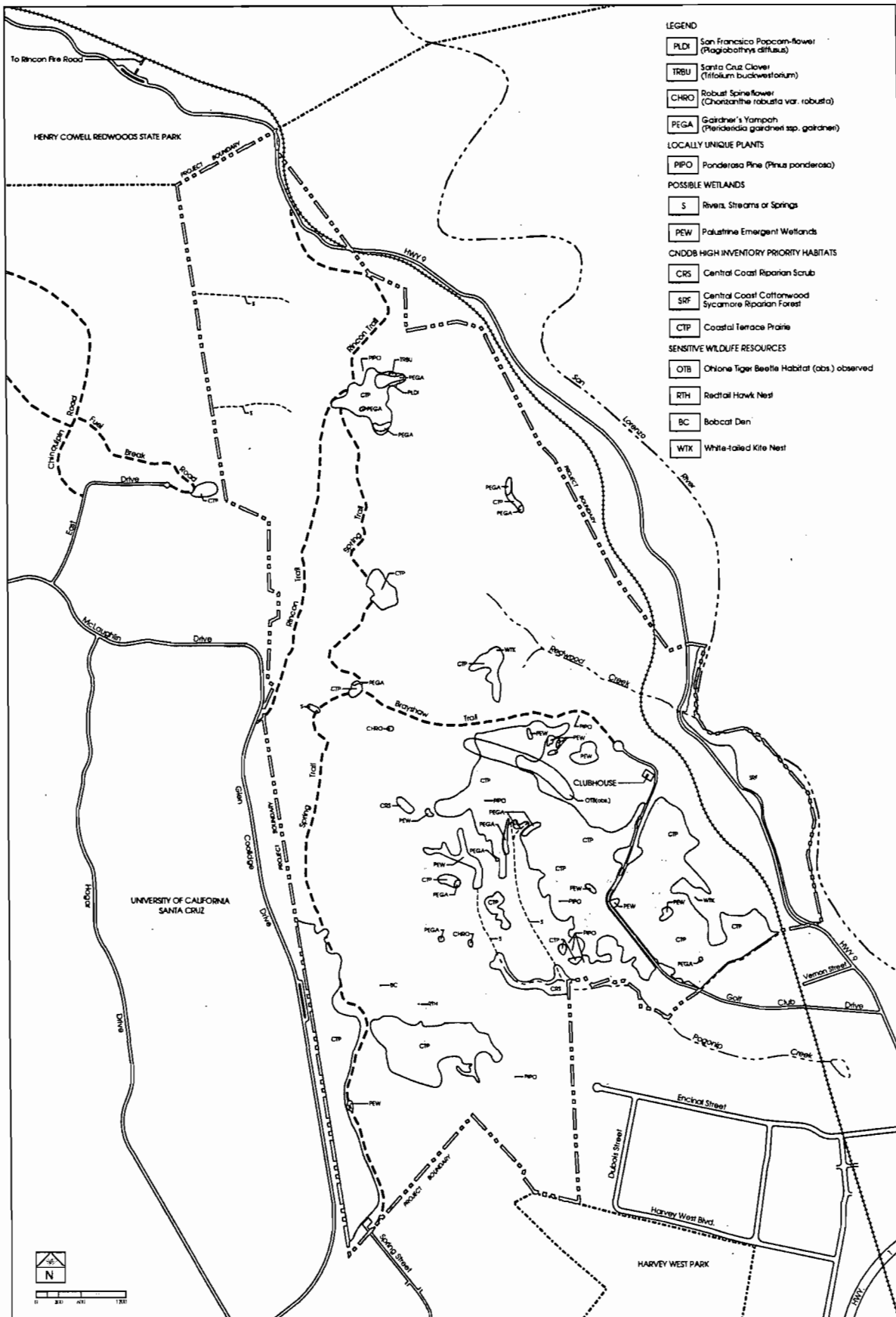
Sources: 50 CFR 7.11 and 7.12; Natural Diversity Data Base 1996, and Zeiner *et al.* 1990; Assembly Bill No. 1671; County of Santa Cruz General Plan 1980.



Source: Habitat Restoration Group, Biotic Resource Group, Brady/LSA 1997.

DRAFT POGONIP MASTER PLAN DRAFT ENVIRONMENTAL IMPACT REPORT

Figure IV.B-1
Plant Community Map



Source: Habitat Restoration Group, Botanic Resource Group, Brady/LSA 1997.

DRAFT POGONIP MASTER PLAN **DRAFT ENVIRONMENTAL IMPACT REPORT**

Figure IV.B-2
Sensitive Habitats and Wetlands

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 PLANNERS AND LANDSCAPE ARCHITECTS

dominant plant community of the park. It consists of dense coast live oaks (*Quercus agrifolia*), mixed with madrone (*Arbutus menziesii*) and tan oak (*Lithocarpus densiflorus*) and an understory of poison oak (*Toxicodendron diversilobum*) and hazelnut (*Corylus cornuta* ssp. *californica*), coffeeberry (*Rhamnus californica* ssp. *californica*), and blackberry (*Rubus ursinus*). Several variations of this forest type occur on the property and they have been described in the earlier biotic survey (John Gilchrist & Associates, 1986). Several groves of nearly pure stands of California bay (*Umbellularia californica*) occur in Pogonip, as documented in 1986. In other sites within the mixed evergreen forest type, both large and small Douglas fir (*Pseudotsuga menziesii*) or big-leaf maple (*Acer macrophyllum*) occur. The mixed evergreen forest borders with or intergrades with upland redwood forest. Examples of the mixed evergreen forest occur along the Brayshaw, Haunted Meadow, and Pogonip Creek trails.

(2) Wildlife Resources. The wildlife value of the mixed evergreen forest varies with the degree of canopy cover and the density and diversity of understory plant species. In general, wildlife species diversity and abundance are highest where vegetation is highly stratified, offering a greater variety of micro-habitats that are used by various wildlife species. Areas where the mixed evergreen forest intergrade with scrub communities, such as near the Wavecrest acquisition, create edge habitat that is also highly stratified and of high value to wildlife.

The predominance of oak in the mixed evergreen forest of Pogonip provides an important habitat for many bird and mammal species. Significant habitat features include acorns and the presence of cavity-bearing trees. Mature oak trees bear natural cavities which are important resources for cavity-nesting birds and small mammals. Also, mature oaks and douglas fir in the mixed evergreen forest typically contain snags (i.e., standing dead trees or dead branches). Snags are valuable resources for woodpeckers, which prefer dead trees or limbs for excavation of roost and nest sites (Thomas, 1979). Snags receive high levels of use by secondary cavity-nesting birds such as owls, chickadees and wrens. Snags also support wood-boring insects which provide food for bark-gleaning insectivorous birds.

The understory plants of the mixed evergreen forest offer food (e.g., hazelnut, toyon, coffeeberry, blackberry, and poison oak) for wildlife. These plants provide seasonal food, such as berries and nuts, which are consumed by many bird and mammal species.

Bird species richness and abundance is high where the understory is stratified and dense. This habitat is especially important to cavity-nesters and those species which consume acorns. Typical cavity-nesting birds observed during the 1995 assessment included chestnut-backed chickadee, Bewick's wren, plain titmouse, and acorn woodpeckers. Great horned owls, western screech owls, and northern pygmy owls

nest in mixed evergreen forest and prey on rodents that are active at night. Four diurnal raptors in this habitat include white-tailed kite, red-shouldered hawk, Cooper's hawk, and sharp-shinned hawk. These raptors feed primarily on small mammals or other birds. Successful breeding of raptors was observed during the 1995 and 1997 field assessments and included white-tailed kites and red-tailed hawks.

Representative mammal species that utilize the mixed evergreen forest in Pogonip include broad-footed mole, dusky-footed woodrat, deer mouse, black-tailed deer, Merriam's chipmunk, western gray squirrel, bobcat, gray fox, coyote, striped skunk, Virginia opossum, and many bat species. Mountain lions are also expected to use the Pogonip area, particularly the upper ridges as a movement corridor to adjacent open space lands (e.g., upper UCSC lands). Feral pigs have been reported from nearby Henry Cowell Redwoods State Park; however, pigs, or signs of pig activity, were not observed in Pogonip during the 1995 or 1997 surveys. Most of the mammals that occur in this habitat are essentially year-round residents. Where the duff layer is abundant, creating moist ground conditions, large invertebrate populations occur, providing prey for insectivorous such as shrews, skunks and moles. Acorns provide a valuable seasonal food for deer and squirrels, and oaks offer suitable denning sites for cavity-dwelling mammals such as bats. The areas of denser vegetation provide good escape cover during the day for larger wildlife that feed at dusk and at night such as deer and bobcats.

Another feature of the mixed evergreen forest is the abundance of fallen woody debris (e.g., limbs and logs). Woody debris adds structural complexity to the forest habitat, and is important as cover, nesting, roosting, and foraging substrate for small mammals, insects, amphibians and reptiles. Downed wood also helps moderate arid conditions, creating microclimates suitable for amphibians and reptiles. The mesic microclimate resulting from the shade of canopy trees and the presence of downed woody debris offers suitable cover for many amphibians such as arboreal salamander, Ensatina salamander and California slender salamander. Aquatic breeding species such as California newt typically spend their terrestrial existence in rodent burrows in grasslands, but also may take refuge under woody debris in adjacent forests. Representative species found in the moist, wooded drainage bottoms of the mixed evergreen forest of Pogonip include western skunk, common kingsnake, and ringneck snake. Western fence lizard and southern alligator lizard are found in the dryer areas of mixed evergreen habitat.

b. Upland Redwood Forest.

(1) Vegetation Resources. This forest type is dominated by the coast redwood (*Sequoia sempervirens*) (Figure IV.B-1). The community occurs at several ecological stages, as evidenced by areas of large-sized trees and areas of smaller tree groves. These stages are probably due to the frequency of wildfire as well as historic land uses (i.e., logging and/or tree harvests for lime kiln operations). While some areas are comprised of homogenous stands of redwood, such as along the Rincon and Redwood trails, other areas contain trees such as tan oak, madrone and Douglas fir. Typical understory plants included sword fern (*Polystichum munitum*), sorrel (*Oxalis oregana*), hazelnut and redwood violet (*Viola sempervirens*). Open areas amid the forest also include poison oak, snowberry (*Symphoricarpos* sp.) and California blackberry.

(2) Wildlife Resources. The presence of water within some of the drainages and springs enables a variety of sensitive species to potentially occur in this habitat. Species, such as ringtail cat, estivating red-legged frogs, Pacific giant salamanders, California newts, Ensatina salamanders, and rough-skinned newts are expected to occur in the creeks of the forest. Due to the small stand size of redwoods which occur in Pogonip, bird and mammal species that are expected to occur in the redwood forest are similar to the species which are expected in the adjacent mixed evergreen forest. A pair of red-tailed hawks successfully produced a fledgling in a nest in a redwood tree above the Pogonip Creek Trail in 1995.

c. Central Coast Cottonwood-Sycamore Riparian Forest.

(1) Vegetation Resources. The northernmost stand of central coast cottonwood-sycamore riparian forest in the State occurs along the San Lorenzo River in Santa Cruz County. In Pogonip, this riparian type culminates in a large grove of sycamore (*Platanus racemosa*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), and several willow species including red willow (*Salix laevigata*) and yellow willow (*Salix lasiandra* ssp. *lasiolopsis*) located on a broad floodplain bench between Highway 9 and the River. The forest is comprised of several large-sized trees, most notably sycamores. Younger willows and alders (*Alnus rhombifolia*) occur immediately adjacent to the river's edge. The understory is characterized by California blackberry, sword fern and poison oak; however, it also includes dense occurrences of invasive non-native plant species, such as periwinkle (*Vinca major*), English ivy (*Hedera helix*), and German ivy (*Senecio mikanioides*). Efforts to remove invasive plants that have entangled the native trees have been implemented recently by the City.

(2) Wildlife Resources. One of highest levels of wildlife species diversity and abundance in California is associated with riparian habitats. Factors which contribute to the high wildlife value include the presence of surface water, the variety of niches provided by the high structural complexity of the habitat, and the abundance of plant growth.

Riparian habitats within Pogonip are used by wildlife for food, water, escape cover, nesting, migration and dispersal corridors, and thermal cover. However, the value of the corridor at Sycamore Grove is somewhat reduced by the presence of invasive non-native groundcover species such as periwinkle and ivy. These plant species preclude the growth of native shrubs and limit the habitat's structural diversity which is usually associated with riparian habitats. The riparian area also receives significant unauthorized use by transients; litter associated with camping moderates the value of the area for native wildlife.

Amphibians are expected to be more numerous and diverse in this habitat than elsewhere in the project area. Streamside pools and low-flow shallows provide breeding habitat for Pacific tree frog, California newt and western toad. Other species, such as the California slender salamander, seek the mesic conditions underneath fallen logs and woodland debris for breeding and refuge. California red-legged frogs, currently listed as a threatened species, have been found both north and south of the Sycamore Grove area along the San Lorenzo River (George Grey, 1995). Other common reptile species that utilize aquatic habitat for foraging or escape cover include western aquatic garter snake, western terrestrial garter snake, western skunks, and northern alligator lizard. Southwestern pond turtles, a California and Federal species of special concern, have been found both north and south of the Sycamore Grove area along the San Lorenzo River (George Grey, 1995). Sycamore Grove provides potentially suitable nesting habitat for this species.

The sycamore trees on the site provide nesting cavities favored by many bird species. The deciduous trees attract insects which, in turn, attract neo-tropical bird species. These migrating birds feed on the numerous insects to replenish their migratory fat reserves. Neo-tropical migrants such as Wilson's warbler, warbling vireo, olive-sided flycatcher, as well as resident birds such as winter wren and song sparrow, are more abundant in riparian habitats than in adjacent forests. American dippers, herons, belted kingfishers, and waterfowl also utilize the River. Northern pygmy-owls are limited to streamside forests in Santa Cruz County and may nest in or near Pogonip. Swifts, swallows and flycatchers can be found hawking their insect prey over water. Red-shouldered hawks may also utilize the riparian trees for nesting.

In addition to using adjacent forests, raccoon, opossum, ringtail cat, long-tailed weasel, and bobcat probably drink and forage from the San Lorenzo River. The

riparian areas also provides movement corridors and water sources for black-tailed deer, gray fox, coyote, and mountain lion. Bats associated with riparian forests include Townsend's big-eared bat (a Federal and State species of concern), and California myotis.

d. Central Coast Riparian Scrub.

(1) Vegetation Resources. Two relatively small areas of willow riparian scrub occur in an unnamed, intermittent stream at the south end of the property. These sites are dominated by yellow willow, forming dense homogeneous thickets. The understory is dominated by annual weeds such as purple star-thistle (*Centaurea calcitrapa*) and poison hemlock (*Conium maculatum*).

(2) Wildlife Resources. Wildlife use of central coast riparian scrub habitat is similar to wildlife use of central coast cottonwood-sycamore riparian forest as discussed above. However, the scrub occurs along an intermittent stream such that wildlife use is expected to be more seasonal (e.g., during periods of water flow). Since the major vegetative component of this habitat is willow, relatively high use by neotropical migrant birds is expected.

e. Non-Native Grassland.

(1) Vegetation Resources. Situated in openings within the mixed evergreen forest and along slopes near UCSC lands, are relatively broad expanses of relatively homogenous non-native grassland. Rattlesnake grass (*Briza maxima*) and slender wild oats (*Avena barbata*) dominate the landscape together with annual fescue (*Vulpia myuros* ssp. *myuros*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordaceus*), cat's ear (*Hypochaeris radicata*), plantain (*Plantago lanceolata*) and Bermuda grass (*Cynodon dactylon*). The areas mapped as non-native grassland have few native plant species, as determined by the 1986 survey and 1995 and 1997 observations. The grassland areas were historically grazed by cattle and horses. Since cessation of such grazing on Pogonip, the succession from grassland to scrub, woodland, and/or non-native vegetation (i.e., periwinkle and acacia trees) is evident in some meadow areas (Mumford, 1991). Areas of non-native grassland occur near the Clubhouse and stable area (currently grazed by the Park's horses), along the Spring Trail and in small areas along the Lower Main Meadow Trail and Fern Trail.

(2) Wildlife Resources. Grasslands provide an important foraging resource for a wide variety of wildlife species. The grasses and forbs produce an abundance of seeds and attract numerous insects, providing food for granivorous and insectivorous wildlife. Sparrows, rabbits and rodents are commonly found in this habitat. Consequently, grasslands are valuable foraging sites for raptors such as hawks and owls, and other predators including coyote, fox, skunk and snakes. Aerial foraging

species that occur over grasslands of Pogonip include bats, swallows, American kestrels and flycatchers.

In general, the wildlife values of grasslands are highest adjacent to forested or scrub habitats. This mosaic increases wildlife species richness for wildlife that utilize grasslands for feeding, as well as trees and shrubs for cover and/or nest sites. Grasses provide good escape cover, food, nesting material, and nest concealment for wildlife. Typical reptile species in this habitat are southern alligator lizard, western fence lizard, common garter snake, western terrestrial garter snake, and western rattlesnake. Amphibians are not generally abundant in grasslands but may occasionally use mammal burrows for cover while traveling between other habitats.

Passerine birds that commonly occur in grasslands include savannah sparrow, house finch, lesser goldfinch, and lark sparrow. Grasshopper sparrow, western bluebird, western meadowlark, and American robin forage for invertebrates in the ground and grasses. Say's phoebe and several swallows hawk insects while flying above grasslands. Raptors which feed on small mammals in grassland habitat include white-tailed kites, golden eagle, northern harrier, American kestrel, red-tailed hawk and common barn-owl. Turkey vultures are commonly seen soaring in search of carrion. Birds which breed in grasslands include horned lark, western meadowlark, and burrowing owl.

Grasslands are productive habitats for small mammals, providing abundant food plants and cover. California ground squirrels are one of the most numerous species, especially in disturbed or heavily grazed areas near the Pogonip Clubhouse. Other common species include black-tailed jackrabbit, Botta's pocket gopher, western harvest mouse, and California vole. These small mammals provide a prey base for diurnal and nocturnal raptors, coyote, gray fox, badger, long-tailed weasel, and bobcat. Bats forage for insects in this habitat. Black-tailed deer are often seen browsing in the late evening. Feral pigs typically forage on grasses and bulbs in grasslands; however, no evidence of pig rooting was seen at Pogonip.

f. Coastal Terrace Prairie.

(1) Vegetation Resources. Several grassland areas in Pogonip possess few non-native grasses and a high frequency of perennial native grasses, specifically California oatgrass (*Danthonia californica*) and purple needlegrass (*Nassella pulchra*). The previous biotic study (John Gilchrist & Associates, 1986) described in detail the underlying substrate of grasslands at Pogonip and compared edaphic factors with species composition. At least four variations of coastal terrace prairie were reported in the 1986 study: "level", "slope", "mima mounds", and "outcrop". These grassland types fall into the broad category of coastal terrace prairie. Coastal

terrace prairie occurs along the Lookout, Fern, Lower Main Meadow, and the Old Stables trails (see Figure IV.B-1).

The "level" subtype was found in the grasslands south, west and east of Golf Club Drive (locally known as the "Main Meadow"). Ten years ago, California oatgrass, purple needlegrass, and the koilolepid bulrush (*Scirpus koilolepis*) dominated these sites. In 1995, these areas, such as the level terraces on either side of Golf Club Drive, included non-native species such as rattlesnake grass and annual ryegrass, with the native species constituting a minor floristic component. "Slope" and "mima-mound" subtypes exhibited similar changes during the last decade.

In the meadow at the north end of the site, locally known as "Haunted Meadow", the "level" subtype occurs but its floristic composition differs from the "Main Meadow" discussed above. In addition to California oatgrass, rattlesnake grass, dogtail, and annual ryegrass, this meadow supports populations of three rare plants: the San Francisco popcorn flower, Santa Cruz clover, and Gairdner's yampah. Despite the presence of these rare species, invasive non-native plant species are prevalent, especially Italian thistle.

The "outcrop" coastal terrace prairie type possesses California oatgrass, purple needlegrass and several showy species such as owl's clover, Indian soap root (*Chlorogalum pomeridianum*) and terrestrial brodiaea (*Brodiaea terrestris*). An example of this type is located along the Lower Main Meadow Trail.

(2) Wildlife Resources. The value of grasslands to wildlife is similar to the non-native grasslands. However, the presence of native grasses in the coastal terrace prairie increase the value to wildlife. For example, Ohlone tiger beetles, a rare and locally unique beetle proposed for Federal endangered status, are closely associated with the native California oat grass and purple needlegrass found in this habitat.

g. Freshwater Marsh (Palustrine Emergent Wetlands).

(1) Vegetation Resources. Relatively small areas of palustrine ("marshy") emergent wetlands or freshwater marsh occur at Pogonip. The wetlands are characterized by the presence of wet-loving plants, such as brown-headed rush (*Juncus phaeocephalus*), common rush (*Juncus patens*), tall fescue (*Festuca arundinacea*), velvetgrass (*Holcus lanatus*), sedges (*Carex densa*), spikerush (*Eleocharis macrostachya*) and western bentgrass (*Agrostis exarata*). The wetlands occur in depressions in meadows or near the numerous springs and seeps. Typical wetland areas occur in the Lower Main Meadow area proposed for the Pogonip garden along Golf Club Drive and along the Pogonip Creek Trail.

(2) Wildlife Resources. In general, freshwater marshes provide wildlife with drinking water, and are excellent breeding areas for aquatic amphibians such as tree frogs and western toad, if sufficient water is available. If standing water is present, small mammals drink from marshes, and bats frequently hawk insects over marsh areas. The seasonal wetlands at Pogonip are not known to hold standing water; however, in wet years, ponded water may be evident. Water and the associated wetland habitat at the springs/seeps provides an important resource for area wildlife, providing drinking water for many species and potential breeding habitat for amphibians.

h. Coast Live Oak Forest.

(1) Vegetation Resources. Coast live oak forest occurs at Pogonip, often adjacent to the mixed evergreen forest. These areas possess homogenous stands of coast live oak with a dense understory of poison oak, snowberry and herbaceous grasses and herbs. A typical occurrence of this intergradation of habitat is along the Lookout Trail.

(2) Wildlife Resources. Oak woodlands are considered critical habitats for the conservation of many bird and mammal species (Block, *et al.*, 1990). Important habitat features of oak woodlands include acorns and the presence of cavity-bearing trees. As a seasonal food, acorns are important for the survival of many species of wildlife in fall and winter (Tietje, 1990). Birds that are dependent on acorns as a seasonal food include acorn woodpecker, scrub jay, band-tailed pigeon, and California quail.

Mature oak trees bear natural cavities which are important resources for cavity-nesting birds and small mammals. Also, mature oak forests typically contain snags (standing dead trees). Snags are valuable resources for woodpeckers which prefer dead trees and limbs for excavation of roost and nest sites (Thomas, 1979). Subsequently, snags receive high levels of use by secondary cavity-nesting birds and mammals. Oak woodlands are expected to be used by many of the same species which use mixed evergreen forests.

i. Coyote Brush Scrub.

(1) Vegetation Resources. This scrub habitat is dominated by coyote brush (*Baccharis pilularis*). Although characterized as a homogeneous thicket of coyote brush, there are scattered occurrences of California blackberry, poison oak and sticky monkeyflower (*Mimulus aurantiacus*). This habitat typically occurs in areas previously disturbed; within Pogonip, the scrub occurs along the east-facing slopes of the recent Wavecrest acquisition (see Figure IV.B-1). Previous land clearing activities disturbed the site, such that coyote brush is now dominant. Also occurring

within and adjacent to the scrub in this area are dense thickets of French broom (*Genista monspessulanus*), an invasive, non-native plant species.

(2) Wildlife Resources. Coyote brush scrub provides protective cover and perch sites for mammals and birds which forage in the adjacent grasslands. The coyote brush also provides cover for deer which will bed down in the grasses between the shrubs.

j. Sensitive Habitats.

(1) High Inventory Priority Plant Communities. Four plant communities at Pogonip - coastal terrace prairie, central coast riparian scrub, central coast cottonwood-sycamore riparian forest, and wetlands - are designated as a high priority in the CDFG Inventory (Holland, 1986). This category contains native plant communities that are regarded by CDFG as having special significance under the California Environmental Quality Act (CDFG, 1995a). These habitats deserve special management consideration; however, some of these communities at Pogonip are degraded by large amounts of invasive non-native plant species.

The frequency of native species in coastal terrace prairie at Pogonip is sometimes dependent on geologic substrate and soil thickness. For example, purple needlegrass favors slopes; Gairdner's yampah (*Perideridia gairdneri*) occurs both on slopes and terraces; Mariposa lilies (*Calochortus luteus*), terrestrial brodiaea (*Brodiaea terrestris*), and owl's clover (*Castilleja densiflora*) seem to thrive on rocky outcrops. The 1986 Biotic Study (John Gilchrist & Associates, 1986) defines sandy areas as "sand deposit grasslands". These tiny patches possess several plant species not found elsewhere in Pogonip, most notably the robust spineflower (*Chorizanthe robusta* var. *robusta*), and are considered as sensitive, highly localized microsites.

Many of the riparian areas at Pogonip have been invaded by invasive, non-native plant species such as German ivy, English ivy, periwinkle and poison hemlock. The non-native plants sometimes obliterate the native understory species, moderating the riparian habitat value. The old-growth sycamore trees within Sycamore Grove, however, are of botanical interest, as they are at the northernmost extent of their range and are of "heritage size" (trunks greater than 14 inches in diameter).

(2) Seasonal Wetlands. There are several areas on Pogonip where year-round, free-flowing springs originate (Nolan and Associates, 1996). Three principal areas include: 1) the source of Pogonip Creek, 2) the spring adjacent to the Spring Trail near the concrete trough, and 3) the spring between the Rincon and Spring trails that feeds the concrete tank. There are also other less obvious springs. Each of these springs has associated wetland areas, as evidenced by the occurrence of wet-loving plant species and saturated soil conditions. In addition, there are several isolated

seasonal wetlands in and around the Upper and Lower portions of the Main Meadow at Pogonip. These have formed as a result of underlying clay or rock strata that hold or impede subsurface flow long enough to provide the necessary hydrology favoring the growth of wetland plant species.

The wetland areas are significant biotic resource areas in that they can provide an important water source for wildlife (i.e., perennial springs), provide breeding areas for amphibians and often are dominated by native plant species.

k. Rare, Threatened or Endangered Plant Species. The biotic assessment for Pogonip focused on special status plant species that are officially listed by the State and/or Federal government and CNPS (Skinner & Pavlik, 1994). The earlier 1986 biotic study provides an in-depth account of not only "rare and endangered species", but also "undescribed taxa", "taxonomically interesting species", "locally rare/uncommon plants", and "other significant plant species" (John Gilchrist & Associates, 1986). Of the eight special status plant species believed to have the potential to occur at Pogonip, four species have been documented. One of these is perennial, while the other three species are annuals (Table IV.B-1) and are described below.

(1) Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*). Considered as a Federal species of special concern, the CNPS currently maintains Gairdner's yampah on its watch list (CNPS List 4) (Table IV.B-1). It is the most common rare plant found at Pogonip. The species has been documented to occur in coastal terrace prairie at the Lower Main Meadow, along the Fern Trail, on grassland slopes west of the Upper Main Meadow, and at three other widely scattered locations on slope or terrace grasslands (Figure IV.B-2). The extent of yampah in 1986, 1995 and 1997 appears similar; however, detailed census data are not available.

Early in the growing season (i.e., February and March), Gairdner's yampah sends up green, grass-like leaves that soon wither as the adjacent grasses mature. Growing from over-wintering underground rhizomes, the yampah produces a flowering stalk that grows equal to the grass stems of competing species. The yampah typically flowers in July and August.

(2) Robust Spineflower (*Chorizanthe robusta* var. *robusta*). In 1994, the USFWS listed the robust spineflower as an endangered species (USFWS, 1994). It is currently on CNPS List 1B. This annual species has been found in two colonies: one in the bottom of the sandy gully below the abandoned reservoir pool and one in a sandy-substrate grassland southwest of the main meadow, near the Pogonip Creek Trail (Figure IV.B-2). The occurrence of the robust spineflower at Pogonip is a significant botanical resource. Fewer than a dozen populations of this species have been documented in the region; two of which are located within Pogonip. Other

occurrences include Manresa State Beach and scattered occurrences in the Aptos (Hilyard, 1995, Rutherford, 1998). The robust spineflower is best viewed during April and May when the plants are in flower, displaying their colorful bracts and pink foliage.

(3) San Francisco Popcorn Flower (*Plagiobothrys diffusus*). Also known as the San Francisco allocarya, the State of California listed this species as endangered in 1979 (CDFG, 1994). This species is on CNPS List 1B. The only locality for this species at Pogonip is in the coastal terrace prairie along the Fern Trail in the northernmost meadow ("Haunted Meadow"). The species was once thought to be extinct, but has been "re-discovered" at several sites in the Santa Cruz region. Known sites include grasslands along Graham Hill Road, in the Soquel Hills, in the Scotts Valley area and in westside Santa Cruz. The San Francisco popcorn flower is an early spring (i.e., March) annual that quickly produces seed and dies well before the onset of summer.

(4) Santa Cruz Clover (*Trifolium buckwestiorum*). Known as "*Trifolium gianonei* pro. sp." in the 1986 biotic study, the Santa Cruz clover was formally described about three years ago (Isely, 1992). Santa Cruz clover is regarded by CNPS as a List 1B species. It occurs in areas of disturbance in or at the edges of coastal prairie. At Pogonip, it occurs in the northerly meadow along the Fern Trail. This species is known from a limited number of sites in the region, including grasslands in UCSC and the Soquel Hills. The Santa Cruz clover's bluish corollas, flattened heads, and array of inflorescence bracts distinguish this species from other clovers. It typically blooms in April and May.

1. Locally Unique Plants. In addition to special status species discussed above, Pogonip provides habitat for locally unique plant species. These are plant species that may be common elsewhere in California but are relatively uncommon or unique for Santa Cruz County. Within Pogonip, there are several occurrences of ponderosa pine (*Pinus ponderosa*) (e.g., along the lower portion of the Pogonip Creek Trail).

This pine normally is found in the inland marine deposits of Santa Cruz County (i.e., Bonny Doon, Zayante regions) as well as in the Sierra Nevada. Its occurrence with Pogonip is botanically interesting.

Other locally unique species that have limited distribution in the County, yet occur in Pogonip, were described in the 1986 Draft Biotic Study. Focused surveys for these species have not been conducted for the EIR.

m. Special Status Wildlife Species.

(1) Southwestern Pond Turtle (*Clemmys marmorata marmorata*).

Southwestern pond turtles are found in ponds, marshes, rivers, streams, and irrigation ditches containing aquatic vegetation. They are usually seen sunning on logs, banks, or rocks near banks. They nest in burrows which can be up to several hundred feet away from river or pond banks and may therefore be found in woodlands, grasslands, and in open forest. Eggs are laid April to August, although time varies with locality.

Southwestern pond turtles are a Federal and State species of special concern. Southwestern pond turtles have been found both north and south of the proposed Pogonip picnic site in Sycamore Grove along the San Lorenzo River (George Grey, 1995). Suitable habitat for southwestern pond turtle nest burrows occurs throughout Sycamore Grove based on the 1995 reconnaissance. More focused studies are needed to document potential burrow sites.

(2) California Red-legged Frog (*Rana aurora draytoni*). The California red-legged frog is a State species of special concern and is proposed for Federal listing as endangered. This species is found in quiet pools along streams, in marshes, and ponds. Red-legged frogs are closely tied to aquatic environments, and favor intermittent streams which include some areas with water at least 0.7 meters deep, largely intact emergent or shoreline vegetation, and a lack of introduced bullfrogs and non-native fishes. They are generally found on streams having a small drainage area and slow velocities (Hayes and Jennings, 1988). The red-legged frog occurs west of the Sierra Nevada-Cascade crest and in the Coast Ranges along the entire length of the state. Much of its habitat has undergone significant alterations in recent years, leading to extirpation of many populations. Other factors contributing to its decline include its former exploitation as food, water pollution, and predation and competition by the introduced bullfrog and green sunfish (Moyle, 1973; Hayes and Jennings, 1988). This species' breeding season spans January to April (Stebbins, 1985). Females deposit 1,000 to 4,000 eggs on submerged vegetation at or near the surface.

Based on the 1995 daytime surveys, red-legged frog habitat exists along the San Lorenzo River, adjacent to the proposed picnic area of Sycamore Grove. Red-legged frogs have been observed along the San Lorenzo River both north and south of a previously-proposed campground in Sycamore Grove (George Grey, 1995). More detailed surveys (e.g., night surveys, sampling) are needed to document its presence or absence.

(3) Foothill Yellow-legged Frog (*Rana boylei*). The foothill yellow-legged frog is a Federal and State species of special concern. It is found in or near rocky streams in a variety of habitats, including valley foothill hardwood, valley-foothill riparian, coastal scrub, mixed conifer, mixed chaparral, and wet meadows (Zeiner, *et al.*, 1988). This species is very closely tied to its aquatic habitat, and is rarely found far from perennial or intermittent streams (Stebbins, 1985). Foothill yellow-legged frogs are typically found in shallow water of partly shaded streams. They prefer sites with riffles and at least cobble-sized substrates (Hayes and Jennings, 1988). Adults seek moving, but usually not swiftly, flowing water (Stebbins, 1985). Pools are used on intermittent streams during the dry season (Hayes and Jennings, 1988). Breeding takes place from mid-March to early June. The female attaches grape-like clusters of eggs to gravel or rocks in moving water near stream margins.

Foothill yellow-legged frogs have been found in Santa Cruz County in the Soquel Creek drainage (Marangio, 1995). However, foothill yellow-legged frogs have not been recorded within the San Lorenzo River watershed, and are unlikely although potential habitat occurs. No focused surveys were conducted in Pogonip for this species.

(4) Cooper's Hawk (*Accipiter cooperi*). The Cooper's hawk is a State species of special concern. Like the sharp-shinned hawk, this species is a rare breeder in the Santa Cruz mountains, but is somewhat more numerous than the former. Cooper's hawks prefer forested habitats in mountainous regions, but also use riparian woodlands. Cooper's hawks build stick nests in similar situations as the sharp-shinned hawk. The local breeding season probably spans March/April through July. Cooper's hawks are uncommon migrants and winter visitors. Migrant and wintering individuals occur in a variety of habitats, including oak woodland, conifer and mixed broadleaf forests, grasslands, residential areas and riparian woodland. Habitat destruction and falconry practices have been attributed to this species' decline in California (Remsen, 1978).

Potentially suitable wintering habitat for Cooper's hawks occurs throughout the site. No nesting activity was observed during the 1995 raptor nest surveys.

(5) Sharp-shinned Hawk (*Accipiter striatus*). These hawks frequent a variety of habitats, but appear to favor woodland and forest habitats. Breeding birds are expected to favor forested mountainous terrain. Sharp-shinned hawks were apparently significantly more numerous during the breeding season earlier in this century, but populations have declined since the 1950's (Remsen, 1978). The sharp-shinned hawk is now a State species of special concern.

This species may be the rarest breeding raptor in the Santa Cruz Mountains (Suddjian, 1990). Potentially suitable breeding habitat occurs over much of the forested mountainous terrain of the Santa Cruz mountains. Sharp-shinned hawks prefer to build their stick nests in conifers in thick cover. Migrant and wintering individuals frequent a variety of habitats, but favor edges of wooded habitats. Sharp-shinned hawks prey mostly on small song birds, but small mammals, insects, reptiles, and amphibians are also eaten. The local breeding season spans April to July. This species is uncommon throughout the study region from September to early May.

This species may occur in the mixed-evergreen forest northwest of the proposed Outdoor Education Camp and adjacent to the Clubhouse during the non-breeding season as a migrant. The close proximity of the Clubhouse and use of the habitat adjacent to the Clubhouse by hikers probably makes the habitat unsuitable for nesting by this species. No nesting activity was observed during the 1995 raptor nest surveys.

(6) Golden Eagle (*Aquila chryseatos*). The golden eagle is a State species of special concern. Golden eagles require large expanses of habitat as territory for feeding and nesting. Grasslands and open wooded habitats are needed for hunting, with ground squirrels and jackrabbits being the primary prey species of golden eagles. Nests are built at sites with a good view of the surrounding area, and are usually placed on cliffs, in trees, or occasionally on transmission towers. Golden eagles are very sensitive to human disturbance at nest sites. Agricultural and urban developments of grasslands, as well as human persecution, have led to this species' decline in California (Remsen, 1978; Clark, 1987).

Golden eagles have been reported flying over the Spring Street access area of Pogonip (Rawlings, 1994). The Pogonip property could potentially provide habitat for nesting golden eagles. Ground squirrels and rodent populations of the grasslands in Pogonip, combined with the adjacent UCSC campus and Wilder Ranch State Park, provide excellent foraging depending on the level of human activity. No nesting activity was observed during the 1995 raptor nest surveys.

(7) White-tailed Kite (*Elanus caeruleus*). White-tailed kites (also known as black-shouldered kite) are federally protected under the Migratory Bird Treaty Act. The Act protects that the birds, their nest and young and a boundary around the nest during the reproductive season, which last from nest construction/use until approximately 3 weeks after the young have fledged. Sometimes kits double clutch (i.e., raise two sets of young in one season) so that the birds need to be observed to determine how long the reproductive season may extend. White-tailed kites are also protected under the California Department of Fish and Game Codes 2511, 4700, 5050, and 5515. These CDFG Codes support the Federal Migratory Bird Treaty Act

(B. Elliott, CDFG, pers. comm, 1998). White-tailed kites were at one time listed by the CDFG as a Species of Special Concern, however, due to population and range expansion they are no longer so listed. The species does not have any Federal status as threatened or endangered. Within Santa Cruz County, the best available information documents approximately 25 nests (D. Suddjian, Santa Cruz Bird Club pers. comm, 1998). Known locations of nesting white-tailed kites in Santa Cruz County include coastal grasslands between Pogonip and Laguna Creek and in the Pajaro Valley (e.g., Harkins Slough, College Lake, Upper Watsonville Slough and Elkhorn Slough [Monterey County]).

White-tailed kite populations in California are thought to be reflective of the diurnal, small-mammal populations, especially California meadow mice populations. Although white-tailed kites will forage on a wide array of small mammals, lizards, insects and even birds, studies have indicated that over 80 percent of the white-tailed kite's diet in California consists of California meadow mice (Stendell and Myers, 1973). Nesting and communal wintering locations are intrinsically dependent on prey availability.

Stick nests are made near the tops of trees, camouflaged from below but open on top. Nests are located near herbaceous and open stages of most habitats. In Santa Cruz County, kite breeding season spans from late February to early August (Suddjian, 1990), although occasionally a double brood may occur (CDFG, 1990). Nest sites may be used from year to year with four to five eggs laid (Erlich, *et al.*, 1988). Under favorable conditions, kites may nest semicolonially (Erlich, *et al.*, 1988). White-tailed kites live approximately 15 years; the species are often communal and young may stay with their parents for some time after being fledged.

Males feed both the females and young during nesting season (Erlich, *et al.*, 1988; and Walton, 1996). Human activity within kite foraging areas during breeding and nesting season may result in interference of foraging and abandonment of nest sites (Walton, 1995). Two kite nests were confirmed in Pogonip during the 1995 survey. One nest was located on the edge of the meadow near Fern Trail ("Ohlone Meadow"); the second nest was located in a pine tree adjacent to the proposed Pogonip garden site. Adult birds from both nesting areas were seen foraging regularly over the nearby grassland/prairie area of the proposed garden site. Foraging kites and evidence of use of the kite nest near the proposed Pogonip garden site were confirmed during the 1997 survey.

(8) Burrowing Owl (*Athene cunicularia*). Burrowing owls are currently listed as a California species of special concern (CDFG, 1995). Nests are usually found in mammal burrows such as ground squirrel or prairie dog holes located in short grassland vegetation (native grasses or disturbed grassland areas due to grazing) (Linthicum, 1995). Burrowing owl populations have been declining along

the Pacific coast due to poisoning and nest site loss as a result of human efforts to eradicate ground squirrels and prairie dogs (Erlich, *et al.*, 1988).

Burrowing owls have previously nested in the adjacent UCSC grasslands. Although nesting has not been reported over the last few years, one individual was observed on UCSC lands in June of 1995, suggesting that further nesting studies should be conducted (Linthicum, 1995). A current well-established wintering population of burrowing owls exists in the adjacent UCSC property. The grasslands the Spring Street access area may provide suitable foraging habitat critical to both the well established wintering population and the potential spring through fall nesting population. No nesting activity was observed during the 1995 reconnaissance.

(9) Yellow Warbler (*Dendroica petechia*). Yellow warblers are common during spring and fall migration in central California, and uncommon to locally fairly common during the breeding season (McCaskie, *et al.*, 1979; Roberson, 1985; Suddjian, 1990). Breeding pairs are closely associated with open canopy riparian habitat along streams and lakes, and are most numerous where substantial areas of riparian habitat remain along major creeks and rivers. A variety of riparian trees are used during foraging, but habitats with willows and cottonwoods or willows and sycamores, with dense undergrowth, seem to be favored. Outside the breeding season, this species may occur in a variety of habitats, but is still most numerous in riparian habitats. Yellow warblers are much reduced in numbers over much of their California breeding range, largely due to loss of riparian habitat and nest parasitism by the brown-headed cowbird (Remsen, 1978).

The yellow warbler's diet consists of spiders and insects, which it gleans from understory vegetation and the canopies of deciduous trees. Yellow warblers are relatively numerous in good riparian habitat (in Santa Cruz County), preferring willows and cottonwoods for nest trees (Suddjian, 1990). Nests are constructed low in trees, typically from 2 to 12 feet above the ground (Harrison, 1978). Breeding pairs of yellow warblers are known to occur along the San Lorenzo River (Suddjian, 1990). Nesting was not observed during the 1995 reconnaissance.

(10) Ohlone Tiger Beetle (*Cicindela ohlone*). All known populations of Ohlone tiger beetles, a species recently re-petitioned for Federal endangered status, have been found in remnant stands of native grasslands containing California oatgrass and purple needlegrass. All known *C. ohlone* populations are found on level or nearly level sites with a shallow layer of poorly drained clay or sandy clay soil over bedrock of Santa Cruz mudstone (Freitag, *et al.*, 1992). Ohlone beetle populations found in association with this soil type include the Santa Cruz Gardens areas of Soquel, Meder Street area, UCSC in Santa Cruz and the Glenwood Drive area in Scotts Valley. Most of the adults have been found in sparse or low-growing grass cover with areas of exposed bare ground. However, the adults utilize the

denser grass cover when disturbed. Little is known about the life history of this species, as larva of Ohlone tiger beetles have never been found (Freitag, *et al.*, 1992); therefore complete habitat requirements remain unknown.

A known population of Ohlone tiger beetles exists in the upper portion of the Main Meadow in close proximity to the Prairie Trail (also previously called Old Stables Trail) (Pritchard, 1995). No focused surveys were conducted for this species by HRG during the 1995 or 1997 assessments; however, field surveys conducted in 1997 for the Santa Cruz Parks and Recreation Department confirmed the occurrence of the species within the Upper Main Meadow area of Pogonip. Earlier studies stated that the Lower Main Meadow area may also provide suitable habitat for the beetle; however, the 1997 assessment concluded that the area is not suitable for the species due to the dense grass cover (Harris, 1997).

(11) Pallid Bat (*Antrozous pallidus*). The pallid bat is a State species of special concern. Pallid bats are found in a variety of habitats. This species moves about locally on a seasonal basis, but is not considered to be migratory (Jameson and Peeters, 1988). During the day, pallid bats roost in buildings, crevices, caves, mines, and hollow trees (CDFG, 1986). Maternity roosts are colonial, while males and feeding bats roost singly. During the night, pallid bats glean moths from leaves and forage on the ground for invertebrates, especially Jerusalem crickets.

The oak trees and annual grassland on the project site provide foraging habitat for the pallid bat, while abandoned buildings such as the Clubhouse provide potential roost sites. However, pallid bats have not been reported in Pogonip, nor were surveys conducted during the 1995 assessment.

(12) American Badger (*Taxidea taxus*). The American badger is a State species of special concern. This species primarily occurs in grassland and savannah habitats with friable soils. However, a variety of other habitats are utilized including shrub and open stages of forests. The abundant supply of prey species (especially fossorial mammals) is an essential habitat requirement. Badgers excavate burrows for denning sites, and dig for ground squirrels, gophers, and other prey species. Once fairly widespread, this species has declined or disappeared over large areas of the state, due to agriculture and urban development (Williams, 1986). Predator control programs using indiscriminate trapping and certain poisons may have detrimental affects on badger populations.

Badgers are known to occur in the Santa Cruz mountains in extensive grasslands. The grasslands in Pogonip may support denning and foraging sites for badgers. However, this species has not been recorded in Pogonip, nor were surveys conducted during the 1995 assessment.

(13) Long-eared Owl (*Asio otus*). The long-eared owl is a State species of special concern. This species is a rare breeding species in the Santa Cruz Mountains. Long-eared owls occur in a variety of wooded habitats. However, all of the breeding season sightings in the Santa Cruz mountains have been in mixed-evergreen forest with Douglas fir and live oak. They typically use abandoned nests of other raptors and tree squirrels, occasionally in tree cavities, and rarely in hollows on the ground (Harrison, 1979; Marks, 1986). The local breeding season spans February through July. The forested habitats within and surrounding the project vicinity offer potentially suitable breeding habitat for long-eared owls. No nesting activity was observed during the 1995 assessment.

(14) Coho Salmon (*Oncorhynchus kisutch*). The San Lorenzo River is one of the few streams south of San Francisco which still maintains a run of coho salmon, a species listed as endangered by Federal and State government agencies (i.e., National Marine Fisheries Service and Department of Fish and Game). The river is perennial and well-shaded and provides deep pools for these fish. The Pogonip includes a portion of the San Lorenzo River in the Sycamore Grove area.

(15) Steelhead Trout (*Oncorhynchus mykiss*). Steelhead trout occur in the San Lorenzo River, which traverses along and near the eastern edge of Pogonip. Steelhead trout occurring in central coast streams were recently listed as threatened species by the National Marine Fisheries Service. Similar to coho salmon, steelhead spend their first few years of their lives in freshwater before migrating to the ocean. They return to their spawning grounds as adults to breed. Steelhead trout are known to migrate up the San Lorenzo River past Pogonip, to upstream spawning grounds. Other creeks in Pogonip, such as Pogonip Creek, are not known to support steelhead.

2. Impacts and Mitigation Measures

a. Significance Criteria. Thresholds of significance have been developed to evaluate project impacts to biotic resources and to determine which of the potential impacts are significant. The thresholds follow *California Environmental Quality Act (CEQA) Guidelines* (Section 15065) wherein an impact is considered significant if any of the following occur:

- Action conflicts with adopted environmental plans and goals of the community where it is located;
- Action substantially affects a rare or endangered plant or animal species, or the habitat of the species;
- Action interferes substantially with the movement of any resident or migratory fish or wildlife species;
- Action substantially diminishes habitat for fish, wildlife or plants;

- Actions causes a fish or wildlife population to drop below self sustaining levels; or
- Action threatens to eliminate a plant or animal community.

Based of the interpretation of the *CEQA Guidelines*, impacts to the following biological resources within the Pogonip would be considered significant if the action would:

- Substantially affect Federal or State-listed plant or animal species (and/or their habitat): San Francisco popcorn flower (*Plagiobothrys diffusus*), robust spineflower (*Chorizanthe robusta* var. *robusta*), California red-legged frog (*Rana aurora draytonii*).
- Substantially affect plant or animal species (and/or their habitat) proposed for federal or State listing as endangered or threatened: none in this category at present, however the Ohlone tiger beetle (*Cicindela ohlone*) is the subject of a petition for Federal listing as endangered.
- Substantially affect plant or animal species (and/or their habitat) designated as California Species of Special Concern, Special Animal or California Native Plant Society List 1B plant species: Santa Cruz clover (*Trifolium buckwestiorum*), burrowing owl (*Athene cunicularia*) and yellow warbler (*Dendroica petechia*).
- Substantially affect sensitive habitat or sensitive/locally unique plant or animal species designated as such by State, Federal resource agencies and/or by the City of Santa Cruz: coastal terrace prairie, central coast cottonwood-sycamore riparian forest, wetlands and springs, central coast riparian scrub, coast live oak woodlands, locally unique plants (e.g., Gairdner's yampah [*Perideridia gairdneri* ssp. *gairdneri*]), white-tailed kite (*Elanus caeruleus*), large-sized native trees and wildlife migration corridors

b. Impacts and Mitigation Measures.

Impact BIO-1. Implementation of the *Draft Pogonip Master Plan* has the potential to impact populations of rare, threatened or endangered species. These species include those listed by either State or Federal agencies (e.g., CDFG and/or USFWS), species proposed for State or Federal listing, species recognized as State or Federal species of concern, or species considered locally rare or unique. (S)

This potential impact is evaluated in the following discussions of each major component of the *Draft Pogonip Master Plan*.

(1) Clubhouse Rehabilitation. Significant impacts to rare, threatened or endangered species, or their habitats, are not expected from activities relating to the Clubhouse rehabilitation.

(2) Pogonip Garden and Related Facilities. The proposed Pogonip garden development has the potential to impact known nesting and foraging habitat for the white-tailed kite, a sensitive species. This would be a significant impact.

White-tailed kites are a species protected under the Federal Migratory Bird Treaty Act and California Department of Fish and Game Codes. Significant indirect impacts to white-tailed kites are expected to occur as a result of the prey loss (Faanes, 1987) and increase in human activity in the foraging area (Brian Walton, 1995) associated with implementation of the *Master Plan*. The presence of white-tailed kite nests in Pogonip is intrinsically dependent on prey availability. The proposed Pogonip garden site currently supports a large small-mammal population. The area was observed to be the foraging area for white-tailed kites during the 1995 and 1997 reconnaissance surveys. In 1995, an adult white-tailed kite was observed foraging in the Lower Main Meadow proposed for the Pogonip garden site. The kite was transferring food to a second adult and chicks in a nest located near the Fern Trail in Ohlone Meadow. An additional pair of adult and juvenile white-tailed kites was also observed foraging in the Lower Main Meadow proposed for the Pogonip garden. This adult pair and juvenile kite maintained a daily roost in the woodland swale (and presumed nest site) adjacent to the proposed Pogonip garden site.

Vegetable, flower and orchard farming activities associated with the proposed Pogonip garden, (e.g., soil tilling, small-mammal trapping, and habitat displacement) are expected to result in significant direct and indirect impacts to the kite. As farming activities would significantly reduce the small-mammal population in the Lower Main Meadow, kite foraging and nesting success may be significantly affected. Additionally, the increase in human and vehicular noise in the area by farm and Pogonip garden activities may also contribute to the displacement of white-tailed kites from their foraging and nesting areas.

Associated with the development of the Pogonip garden area is the improvement of an existing mowed grass cut through the Lower Main Meadow. This grass cut trail is proposed to be improved with decomposed granite to provide all-season access to the eastern Lower Main Meadow areas. It is expected that other Pogonip visitors will use this trail for recreation. Increased use of the trail may also contribute to displacement of the white-tailed kites from their foraging and nesting areas.

(3) Outdoor Education Camp. Impacts to rare, threatened or endangered species, or their habitats, are not expected from activities relating to the Outdoor Education Camp. However, large group activities may increase noise levels in the area. This noise, in conjunction with noise generated by the Pogonip garden operation, may contribute to the displacement of white-tailed kites from their foraging and nesting area.

(4) Sycamore Grove Nature Area. The proposed nature area in Sycamore Grove is potential habitat for the California red-legged frog (Federally listed as threatened), western pond turtle (State species of special concern), and yellow warbler (State species of special concern).

Focused surveys for turtles would be necessary to determine usage of the area by turtles. If pond turtles are present in the upland habitat of the proposed nature area, construction activities (i.e., any grading activities) occurring between June and September could have potential direct impacts to wandering adult western pond turtles searching for upland nesting habitat. Potential direct impacts to western pond turtle eggs and turtle hatchlings are not expected as the Sycamore Grove nature area is an unlikely nest location due to the shaded characteristic of this upland habitat.

Focused surveys for California red-legged frogs would be necessary to determine usage of this portion of the San Lorenzo River by this species. If California red-legged frogs are present along the San Lorenzo River within Pogonip, potential direct impacts to frogs could occur from unauthorized collection of adult frogs by Pogonip visitors. Construction activities relating to development of the nature area are not expected to adversely impact the California red-legged frog. This upland habitat area is an unlikely movement corridor for frogs.

Focused surveys for the warbler would be necessary to determine usage of this portion of San Lorenzo River by this species. If yellow warblers occur along this portion of the San Lorenzo River, potential direct and indirect impacts may occur if native vegetation is removed for development of the nature area.

(5) Trails. Potential impacts to rare, threatened or endangered species may occur from implementation of the proposed trail plan (all alternatives). Species that may be affected include State and/or Federally-listed plants within the coastal terrace prairie (i.e., San Francisco popcorn flower, robust spineflower), non-listed rare or locally unique plants species (i.e., Santa Cruz clover and Gairdner's yampah), rare insects within coastal terrace prairie (i.e., Ohlone tiger beetle) and species of concern in forested areas (i.e., dusky-footed wood rat).

- *Rincon Trail*: The Rincon Trail abuts an area of coastal terrace prairie (with rare and endangered plant species) at it's junction with Spring Trail (i.e., Haunted Meadow). Increased levels of human use of this area, as expected

with any of the alternative trail plans, may result in impacts to rare species in the prairie habitat. Impacts may occur from unauthorized use of the meadow (e.g., traversing the meadow by foot, horse or bicycle) that results in trampling of rare plant species and or/their habitat. No other impacts to rare or endangered species, or their habitats, are anticipated from use of the Rincon Trail (any alternative).

- *Brayshaw Trail:* The Brayshaw Trail currently ends at its junction with Spring Trail. A small area of coastal terrace prairie, supporting two colonies of Gairdner's yampah, a locally rare plant species, occurs east of the junction of Brayshaw and Spring trails. Use of the existing trail may result in indirect impacts to the prairie, such as trampling of prairie plant species.
- *Spring Trail:* No impacts to rare or endangered species, or their habitats, are anticipated from use of the Spring Trail (any alternative), except as discussed above for the jurisdiction of Spring Trail with Rincon Trail and Brayshaw Trail.
- *Pogonip Creek Nature Loop:* For each alternative, this trail is designated as pedestrian only. A colony of Gairdner's yampah and a colony of robust spineflower occur near the trail. Due to a lack of updated census data, it is not known if current pedestrian (and dog) use of the trail has affected these species. An increase in visitor use is expected with implementation of any trail alternative due to the close proximity of the proposed Lower Meadow parking lot and Outdoor Education Camp. Impacts may occur from trampling of the plants adjacent to the trail or changes in hillside runoff from trail use.
- *Fern Trail:* For each alternative, Fern Trail is designated for pedestrian use only. Re-routing of the trail to the north of Haunted Meadow, as proposed in the *Draft Pogonip Master Plan*, would be a beneficial impact as it would reduce impacts to existing populations of rare plant species. Unauthorized pedestrian, bicycle or equestrian access into the meadow, however, may impact rare plant species by trampling or other prairie disturbances (see discussion above for Rincon Trail).
- *Prairie Trail:* Ohlone tiger beetles, a species recently petitioned for federal endangered status, occur in the grassland along the Prairie Trail. In each of the trail use alternatives, this trail is proposed for pedestrian-only use. Ohlone tiger beetles could be impacted by trail use through inadvertent crushing of beetles and/or their burrows. Similarly, however, there may be beneficial indirect impacts to the beetles from foot traffic as the activity maintains bare ground habitat, a habitat desirable for the beetle.
- *Sycamore Grove Trail:* For each alternative, this trail is designated as pedestrian only. No impacts to rare or endangered species, or their habitats, are anticipated.

- *Spring Box Trail*: For each alternative, this trail is designated as pedestrian only. The *Draft Pogonip Master Plan* proposes to route this trail in a manner that reduces existing impacts to the spring box area. No impacts to rare or endangered species, or their habitats, are anticipated.
- *Lower Main Meadow Trail*: For each alternative, this trail is designated as pedestrian only. No impacts to rare or endangered species, or their habitats, are anticipated. A colony of Gairdner's yampah grows upslope of the trail. However, since the colony is approximately 100 feet away from the trail, no significant impacts are anticipated.
- *Limekiln Trail*: For each alternative, this trail is designated as pedestrian only. No impacts to rare or endangered species, or their habitats, are anticipated.
- *Ohlone Trail*: For each alternative, this trail is designated as pedestrian only. No impacts to rare or endangered species, or their habitats, are anticipated.
- *Lookout Trail*: For each alternative, this trail is designated as pedestrian only. No impacts to rare or endangered species, or their habitats, are anticipated.
- *Harvey West Trail*: Potential habitat for the Ohlone tiger beetle may also occur in the grassland habitat on the recent Wavecrest acquisition. As discussed for the Prairie Trail, there may be both beneficial and adverse impacts to the species from continued pedestrian use of this habitat.

Focused surveys for Ohlone tiger beetle would be necessary to confirm the presence or absence of the species within the Wavecrest lands.
- *UCSC Connector Trail*: The upper portion of this trail traverses brushy areas supporting wood rat dens. Since the wood rat is a species of special concern, trail construction that removes active wood rat nests would be considered a significant impact. No other impacts to other rare, endangered or locally unique species, or their habitats, are anticipated from use of the UCSC Connector Trail (for both the southern and northern alternatives) due to the lack of suitable habitat crossed by the proposed route.
- *Rincon Connector Trail*: No impacts to rare or endangered species, or their habitats, are anticipated from use of the Rincon Connector Trail due to the habitat crossed by the proposed route.

(6) Lower Meadow Parking Area. Indirect impacts to white-tailed kites (i.e., loss of foraging habitat) are expected from development of the Lower Meadow parking lot. As discussed earlier for the Pogonip garden, the presence of white-tailed kite nests in Pogonip is intrinsically dependent on prey availability. The proposed lower parking lot site currently supports a small-mammal population which has been observed to be within the foraging area for white-tailed kites in 1995

and 1997. Additionally, the parking lot would increase the amount of noise and foot traffic in the area which may cause displacement of the white-tailed kites from their nesting and foraging areas. The significance of this impact depends on the scale and intensity of adjacent *Draft Pogonip Master Plan* activities. For example, if the parking area were developed concurrently with the Pogonip garden, the impact from the two actions would significantly impact kite foraging and nesting. The two projects would remove approximately 14 acres of grassland from the Lower Main Meadow area. If, however, only the parking lot were developed and the remainder of the Lower Main Meadow were preserved, the impact to kite foraging and nesting would be lessened but is still expected to be significant.

(7) Spring Trail Parking Area. No direct or indirect impacts to burrowing owls are expected to occur by development of the Spring Trail parking area. With the exception of one unoccupied ground squirrel burrow, the area of the proposed parking lot is devoid of ground squirrel holes (which could be used by nesting burrowing owls). In addition, the proposed parking area has a low abundance of foraging prey for burrowing owls (presumably due to mowing and hunting of small mammals by neighboring domestic cats).

(8) Upper Meadow Parking Area. No impacts to rare or endangered species, or their habitats, are anticipated as this area has been disturbed by previous activities.

The following combination of mitigation measures should be implemented to reduce the impact to a less-than-significant level. For some mitigation measures that have alternatives, the alternatives are clearly stated.

As currently proposed, the Pogonip garden and associated facilities pose significant and unmitigable impacts to white-tailed kite nesting and foraging habitat unless the Pogonip garden is located elsewhere on Pogonip or off the site (see Alternatives discussion in Chapter V of this EIR). Given the acreage needs for the garden, an alternative on-site location is not considered feasible. The following combination of mitigation measures is recommended to reduce the impact but it would remain significant and unavoidable without relocation.

Mitigation Measure BIO-1a: To protect white-tailed kite habitat, the Pogonip garden site should be relocated to an alternative off-site location, as discussed under the Off-Site Garden and Relocated Parking Alternative. Adequate on-site alternative locations are not available without causing harm to equally or greater value habitat. The garden is considered by the City to be a key element of the *Master Plan*. Without relocation of the garden, this impact remains significant and unavoidable. Other mitigation measures are recommended to avoid and/or minimize other biotic impacts. (SU)

Mitigation Measure BIO-1b: Activities associated with the Outdoor Education Camp should be limited to passive educational activities with low noise levels, particularly during the the months of March through August, the breeding season of the white-tailed kite. Night-lighting and overnight camping should not be allowed during the kite's breeding season. All group activities should be directed away from the kite nesting area and education groups should be informed of these use restrictions. (LTS)

Mitigation Measure BIO-1c: Development of the Sycamore Grove Nature Area should include all of the following combination of measures to avoid impacts to sensitive wildlife species:

- Any site grading should be conducted in a manner that avoids impact to migrating western pond turtles (assuming turtles utilize the area).
- Construction activities should be scheduled outside of the turtle's movement periods (between September and May), assuming turtles utilize the area.
- If construction were to occur between June and September, focused surveys for turtles should be conducted by a qualified biologist to determine the presence or absence of this species.
- If the surveys show that the species is present, construction activities should be modified to avoid impacts (i.e., change construction window).
- Fire management activities that include removal of understory vegetation should be coordinated with CDFG and/or a qualified biologist such that impacts to biotic resources are avoided or minimized. (LTS)

Mitigation Measure BIO-1d: Assuming that California red-legged frogs utilize the Sycamore Grove portion of Pogonip, park visitors should be informed of the sensitive status of the frog. Interpretive signs, describing the natural history, protective status and restrictions on collection of adult frogs and tadpoles, should be installed within the nature area. Focused species surveys should be conducted prior to any construction activity in the Sycamore Grove area to ascertain presence or absence of the species within Pogonip. (LTS)

Mitigation Measure BIO-1e: Development of the Sycamore Grove Nature Area should avoid removal of native riparian trees that may impact the yellow warbler. If large native trees, or any size willows, are to be removed, focused surveys for yellow warblers should be conducted. If yellow warblers are found, suitable revegetation of riparian habitat should be implemented.

Revegetation should include a minimum 1:1 replacement ratio (i.e., acre for acre) to compensate for impacts to warbler habitat. The revegetation should occur within a suitable area of Sycamore Grove and the revegetation plan should be reviewed and approved by California Department of Fish and Game prior to removal of any native trees. The planting plan should be consistent with guidelines in the *Draft Fire Management Element* of the *Draft Pogonip Master Plan*. (LTS)

Mitigation Measure BIO-1f: The Prairie Trail, in the vicinity of the known Ohlone tiger beetle colony, should be monitored to ensure that continued pedestrian use of the trail is not impacting the beetle. If the beetle becomes listed by the USFWS, the City should confer with the USFWS on grassland management techniques to preserve and enhance the area for the long-term protection of the species. Grassland management actions, such as prescribed fire and/or selective grazing, should be implemented, in consultation with USFWS. The City may be required to obtain a Section 10(a)(1)(b) permit, pursuant to the Endangered Species Act (ESA), for grassland management actions if the beetle becomes federally listed as threatened or endangered. Use of prescribed fires is consistent with the *Draft Fire Management Element*. (LTS)

Mitigation Measure BIO-1g: Focused presence or absence surveys for Ohlone tiger beetles should be conducted in the area proposed for the Harvey West Trail. This trail should be designed to avoid impacts to Ohlone tiger beetles, if they are found to be present. As discussed above, if the beetle becomes federally listed, a consultation with the U.S. Fish and Wildlife Service should be conducted, pursuant to the Endangered Species Act (ESA). Management actions within the Harvey West Trail area, such as grazing and/or prescribed fire, may require permitting from USFWS. (LTS)

Mitigation Measure BIO-1h: The rare plant species within the prairie habitat near the Fern Trail (i.e., Haunted Meadow near junction of Rincon, Spring and Fern trails), near the Brayshaw Trail (junction of Brayshaw Trail and Spring Trail) and in prairie and woodland habitat along the Pogonip Creek Trail should be protected from potential direct and/or indirect trail user impacts by a combination of all the following measures:

- A two-rail fence should be installed along the edge of the Spring Trail next to Haunted Meadow and at the junction with the Brayshaw Trail to preclude off-trail uses in these meadows.
- Fencing should be installed prior to or concurrent with area trail improvements.

- Interpretive signs should be provided describing the plants' status and need for protective measures.
- The re-routing of the Fern Trail out of Haunted Meadow should be implemented concurrent with the fencing.
- If the emergency vehicle access near Haunted Meadow is necessary, a gate would be needed at the north end of the fencing. Vehicle access and horse patrols through the prairies should be limited to the dry season when the potential for soil compaction is least. (LTS)

Mitigation Measure BIO-1i: As presented in the *Draft Pogonip Master Plan*, habitats supporting rare species (i.e., coastal terrace prairie and scattered occurrences within other habitats) within Pogonip require active resource management. Since the prairie habitat near Fern Trail, the Pogonip Creek Nature Trail and Brayshaw Trail supports known occurrences of rare plant species, these are high priority areas for management. The following combination of steps should be implemented:

- Prior to any trail improvements near these areas, prairie management plans should be developed for these prairie areas. The plan(s) should specify measures to preserve and promote the occurrence of the rare plant species, such as selective grazing, prescribed fire and/or seasonal mowing. This action is consistent with the *Draft Fire Management Element* of the *Draft Pogonip Master Plan*.
- The plan(s) should identify the current distribution and population size of the rare plants within the prairie and evaluate potential changes in such distribution with historical records (as available).
- The plan(s) should specify a goal of preserving the extant populations and, over the next five years of active management, population size and distribution should expand by a minimum average of 20 percent.
- The plan(s) should specify monitoring and reporting methodologies such that the effectiveness of the management techniques can be evaluated. Contingency measures to be implemented if management techniques fail to meet the stated performance standards should also be specified; such measures may include changes in management actions, emergency seed collection or other measures as approved by CDFG and USFWS.
- The City should obtain an agreement with CDFG on management actions affecting populations of San Francisco popcorn flower (a State-listed species) and conduct voluntary consultation with USFWS and CDFG on management actions affecting populations of robust spineflower, Santa Cruz clover and Gairdner's yampah.

- The prairie management plan(s) should be reviewed and approved by USFWS and CDFG prior to implementation of management actions.
- Selected grassland management techniques should be implemented within one year of trail changes or improvements.
- A program to monitor the status of the rare plant species and the effects of the selected grassland management actions should be developed as part of the grassland management program. Results of the monitoring should be made available for regulatory agency review. (LTS)

Mitigation Measure BIO-1j: The UCSC Connector Trail should be aligned to avoid impacting existing wood rat nests. The proposed trail layout near the Pogonip - UCSC boundary should re-routed a short distance upslope to avoid the nests sites in this area. The final trail alignment should be field-checked by a qualified wildlife biologist prior to construction to document that trail construction will not impact the nests. (LTS)

Impact BIO-2: Implementation of the *Draft Pogonip Master Plan* has the potential to impact habitats (i.e., riparian woodland, wetland habitat and coastal terrace prairie) considered sensitive by either State or Federal agencies (e.g., CDFG and/or USFWS) and/or City of Santa Cruz. (S)

The following combination of mitigation measures should be implemented to reduce the impact to a less-than-significant level. For some mitigation measures that have alternatives, the alternatives are clearly stated. For example, relocation of the Pogonip garden is suggested. If this cannot be done, alternative mitigation measures are identified.

(1) Clubhouse Rehabilitation. Impacts to sensitive habitats are not expected from activities relating to Clubhouse rehabilitation.

(2) Pogonip Garden and Related Facilities. The proposed Pogonip garden development has the potential to impact two sensitive habitats: seasonal wetlands (see Figure IV.B-2) and coastal terrace prairie. These are significant, yet mitigable, impacts. The proposed Pogonip garden has been designed to avoid direct impacts to the existing seasonal wetland. Pogonip garden fields and orchards, however, surround the wetland. The edge of these facilities is approximately 20 feet from the wetland. The close proximity of the Pogonip garden facilities to the wetland area has the potential to indirectly impact the quality of the seasonal wetland. This impact could occur from Pogonip garden runoff (containing elevated nutrient levels) entering the wetland. The proposed 20-foot setback is not consistent with the City's

General Plan Policy EQ4.2.2, which specifies a setback of 100 feet from the edge of wetlands to developed areas.

Development of the Pogonip garden facility (Pogonip garden areas and associated facilities) would impact approximately 12.5 acres of coastal terrace prairie. The grassland has a higher incidence of non-native grasses than some of the other coastal terrace prairie areas within Pogonip. However, several native grasses species grow within the prairie. The Pogonip garden facility would also convert an existing grassy trail through the meadow to a Pogonip garden access road of decomposed granite. It is expected that some native grasses growing along the existing trail would be impacted by the creation of this all-season roadway.

(3) Outdoor Education Camp. The development of the Outdoor Education Camp would impact an area of coastal terrace prairie (approximately 1.0 acre). As discussed above for the Pogonip garden site, the prairie has a high incidence of annual non-native grasses, yet does contain several native species.

(4) Sycamore Grove Nature Area. The proposed nature area in Sycamore Grove is within riparian woodland, a sensitive habitat. Since the nature area is proposed within an area dominated by invasive, non-native understory plants (i.e., periwinkle and ivy), removal of these species for picnic and nature study facilities is not considered a significant impact to botanical resources. Revegetation of the area with native plant species would be a beneficial impact of the project.

Riparian corridors are considered sensitive wildlife habitats due to species diversity and abundance. The removal of native riparian trees directly and indirectly impacts nesting and foraging habitat for riparian dependent species. Due to the large amount of non-native understory vegetation which occurs on the site, however, the removal of non-native understory vegetation and the revegetation of these areas with native species would be beneficial to wildlife. Day use of the area may increase with the formation of the nature area. While this may increase noise levels and possibly affect native wildlife use of the riparian area, this impact is moderated by the existing use of the area by transients. Unauthorized camping is expected to be reduced.

(5) Trails. Potential impacts to sensitive habitats may occur from implementation of the proposed trail plan.

- *Rincon Trail*: No impacts to sensitive habitats are anticipated from any of the trail alternatives. The UCSC Connector Trail, which would connect to Rincon Trail, originates on lands owned and managed by UCSC. The lands in UCSC contain some scattered coastal terrace prairie plant species, including purple needlegrass, California oatgrass amid non-native wild oat and rattlesnake grass. Development of a multi-use trail in this off-site area

may impact a small area of native grassland (1,200 square feet). The remainder of the trail is within Pogonip and would traverse mixed evergreen and redwood forest habitats. Small drainage swales with seasonal wetlands were observed along the proposed trail route. However, the trail is designed to avoid these areas through the use of bridges. If the wetland areas were avoided, impacts to sensitive habitat types would not be anticipated.

- *Brayshaw Trail:* The Brayshaw Trail currently ends at its junction with Spring Trail. Use of the trail may result in indirect impacts to the prairie, such as from off-trail use and trampling of prairie plant species. No other impacts to sensitive habitats are anticipated from trail alternatives for Brayshaw Trail.
- *Spring Trail:* Use of Spring Trail under any alternatives may result in indirect impacts to the coastal terrace prairie and/or wetlands, two sensitive habitats. The most likely impact could occur from off-trail use, resulting in trampling of prairie habitat and/or wetlands. Potential indirect impacts to wetlands have been reduced by the City's recent fencing of the spring area. However, unauthorized access into the spring area could degrade the wetland habitat (and water quality). No other impacts to sensitive habitats are anticipated from trail alternatives for Spring Trail.
- *Rincon Connector Trail:* No impacts to sensitive habitats are anticipated from trail alternatives for the Rincon Connector Trail.
- *Pogonip Creek Nature Loop:* Use of the Pogonip Creek Nature Loop Trail under proposed alternatives may result in indirect impacts to the coastal terrace prairie and/or wetlands, two sensitive habitats. Impacts could occur from off-trail use that results in trampling of prairie habitat and/or wetlands. Additionally, some creek and spring trail crossings are substandard, such that current trail users impact the wetland resources. Increased use of the trail, as expected with construction of the Lower Meadow parking lot, may exacerbate these impacts, resulting in degradation of the wetland habitat (and water quality).
- *Fern Trail:* For each alternative, Fern Trail is designated as pedestrian only. Re-routing of the trail to the north of Haunted Meadow would be a beneficial impact as it would reduce impacts to the coastal terrace prairie. Indirect impacts to the prairie may occur from off-trail use, resulting in trampling of the prairie habitat.
- *Prairie Trail:* For each alternative, this trail is designated as pedestrian only. Impacts could occur from off-trail use that results in trampling of prairie habitat and/or wetlands.
- *Sycamore Grove Trail:* For each alternative, this trail is designated as pedestrian only. See discussion above for the Sycamore Grove Nature Area.

- *Spring Box Trail:* Use of this trail may result in indirect impacts to wetlands at the spring, a sensitive habitat. Current trail users impact the wetland resources due to the unlimited access to the spring and associated trampling of the edge of the spring/creek. Increased use of the trail may exacerbate these impacts. Construction of a new trail route, as proposed in the *Draft Pogonip Master Plan*, is expected to reduce these impacts. No other impacts to sensitive habitats are anticipated from Spring Box Trail.
- *Lower Main Meadow Trail:* Construction of this new trail would traverse an area of coastal terrace prairie, a sensitive habitat. For each alternative, this trail is designated as pedestrian only. Trail width would be limited to three to four feet in width. However, removal of prairie habitat would occur (approximately 3,600 square feet). No other impacts to sensitive habitats are anticipated from Lower Main Meadow Trail.
- *Limekiln Trail:* For each alternative, this trail is designated as pedestrian only. No impacts to sensitive habitats are anticipated due to the habitat through which this trail passes.
- *Ohlone Trail:* For each alternative, this trail is designated as pedestrian only. The lowermost portion of the Ohlone Trail traverses coastal terrace prairie within Ohlone Meadow. Impacts could occur from off-trail use that results in trampling of prairie habitat. No other impacts to sensitive habitats are anticipated from Ohlone Trail.
- *Lookout Trail:* For each alternative, this trail is designated as pedestrian only. A portion of the trail traverses coastal terrace prairie. Impacts could occur from off-trail use that results in trampling of prairie habitat. No other impacts to sensitive habitats are anticipated from Lookout Trail.
- *Harvey West Trail:* For each alternative, this trail is designated as pedestrian only. No impacts to sensitive habitats are anticipated.

(6) Lower Meadow Parking Area. The development of this parking area would impact an area of coastal terrace prairie (approximately 1.0 acre). As discussed for the Pogonip garden site, the prairie has a high incidence of annual non-native grasses, yet does contain several native species. Widening of Golf Club Drive for vehicular access to the Lower Meadow parking lot would necessitate the removal of several non-native acacia trees. Due to the invasive nature of this species, this is not considered a significant impact to botanical resources. Two willows (approximately 4 inches in diameter) may also be removed. As these are isolated trees within the acacia grove are not associated with the bed or bank of a natural stream course, removal of these two small willows is not considered a significant impact.

(7) Spring Trail Parking Area. No impacts to sensitive habitats are anticipated from the Spring Trail parking area.

(8) Upper Meadow Parking Area. No impacts to sensitive habitats are anticipated.

The following combination of mitigation measures should be implemented to reduce the impact to a less-than-significant level. For some mitigation measures that have alternatives, the alternatives are clearly stated. However, the impact would remain as significant and unavoidable without major redesign of the project.

Mitigation Measure BIO-2a: At the Sycamore Grove Nature Area, invasive, non-native vegetation (especially the non-native ivy and periwinkle which are low growing ground covers) should be removed and revegetation of native plants, such as willows and blackberry, should occur. (LTS)

Mitigation Measure BIO-2b: Drainage from the Lower Meadow parking lot and entrance road should be directed away from the nearby intermittent drainage way and into a grassy drainage swale. The grassy swale would aid in the entrapment and filtering of road/parking lot runoff (including oils and greases) and reduce the potential for such materials to enter the natural watercourse. Design of the grassy drainage swale (including its size and features) should be completed or undertaken by a qualified engineer. (LTS)

Mitigation Measure BIO-2c: The following combination of measures should be implemented for the Lower Main Meadow area. When alternatives are appropriate to specific measures such as relocation, these are specified.

- The Pogonip garden, Lower Meadow parking lot and Outdoor Education Camp should collectively be re-designed to avoid or reduce their combined impact to coastal terrace prairie habitat. Avoidance of impacts may be possible by placing all three facilities within the non-native grassland in the easternmost portion of the Lower Main Meadow, as presented in the Alternatives addressed in Chapter V of the EIR.
- If avoidance of impacts is not deemed feasible for the Pogonip garden, Lower Meadow parking lot or Outdoor Education Camp, re-creation and/or restoration of other grassland on Pogonip would be a feasible mitigation strategy. For the Pogonip garden facility, approximately 14 acres of existing non-native grassland or degraded coastal terrace prairie within Pogonip could be re-created and/or restored. Approximately 2.0 acres would be necessary to mitigate impacts from the Lower Meadow parking lot and the Outdoor Education Camp.

Grasslands that could be considered for this mitigation action are located near Spring Trail, near Fern Trail and the grassland near the ranger office. A more detailed analysis of these potential mitigation sites, in addition to the development and implementation of a detailed prairie mitigation plan, would be necessary to mitigate these impacts to a less-than-significant level if this alternative mitigation measure were selected.

- Prior to implementation of the *Draft Pogonip Master Plan*'s proposed improvements (i.e., parking lot, Outdoor Education Camp or Pogonip garden facility), the prairie management plan(s) should be developed for the preserved prairie areas within Pogonip. The plan(s) should specify measures to preserve and promote the occurrence of the native coastal prairie species, including revegetation actions (i.e., seeding, plantings) and management actions (i.e., selective grazing, prescribed fire and/or seasonal mowing). The plan(s) should identify the current diversity and density of native prairie species within the mitigation areas and specify a performance standard for suitable mitigation (i.e., increase diversity and density of native prairie species by 50 percent within five years). The plan(s) should specify monitoring and reporting methodologies such that the effectiveness of the prairie mitigation techniques can be evaluated.
- Contingency measures to be implemented if techniques fail to meet the stated performance standards should also be specified. Such measures may include changes in management actions, additional seed collection, or other measures as approved by CDFG and USFWS.
- The City should obtain approval of the mitigation plan(s) by USFWS and CDFG prior to implementation of the Lower Main Meadow improvements.
- Selected grassland mitigation techniques should be implemented within one year of implementation of any Lower Main Meadow improvements.
- A program to monitor the status of the prairie mitigation(s) and the effects of the selected prairie management actions should be developed as part of the mitigation plan(s) program. The results of the monitoring should be submitted to regulatory agency personnel for review. (LTS)

Mitigation Measure BIO-2d: The following combination of measures should be implemented as related to the Pogonip garden area if the Pogonip garden is not relocated:

- The location of the wetland should be determined prior to finalization of the Pogonip garden plan and a wetland delineation conducted pursuant to U.S. Army Corps of Engineers criteria.
- Assuming direct impacts to the wetland are avoided, the Pogonip garden facilities should be re-designed to avoid indirect impacts from adjacent Pogonip garden activities.
- Intensive Pogonip garden activities, such as row crop cultivation, should be located 100 feet from the outside edge of the wetland.
- Perennial crops such as herbs or other crops that do not involve annual or seasonal soil cultivation could be allowed in the area 50 to 100 feet from the outside edge of the wetland.
- A buffer zone, comprised of native grasses and forbs should be maintained between one and 50 feet from the outside edge of the wetland. (LTS)

Mitigation Measure BIO-2e: The City should select trail alignments that avoid impacts to coastal terrace prairie. If avoidance is not feasible in some locations, impacts should be reduced by placing trails in areas with the least amount of native grasses and forbs. If impacts to prairie habitat still occur, the City should implement revegetation actions along the trail to compensate for the removal of habitat. Trail cuts should be revegetated with site-obtained grass and forb species. (LTS)

Impact BIO-3: Implementation of the *Draft Pogonip Master Plan* has the potential to impact wildlife utilization of Pogonip and wildlife movement corridors within and adjacent to Pogonip lands. (S)

The following combination of mitigation measures should be implemented to reduce the impact to a less-than-significant level. For some mitigation measures that have alternatives, the alternatives are clearly stated. For example, relocation of the Pogonip garden is suggested. If this cannot be done, alternative mitigation measures are identified.

(1) Clubhouse Rehabilitation. The Clubhouse may support nesting barn owls. Clubhouse construction activities could affect nesting of this species, depending on the timing of construction work.

(2) Pogonip Garden and Related Facilities. The grasslands within the area of the proposed Pogonip garden and related facilities provide excellent wildlife foraging area due to the high small-mammal and insect populations associated with the grasses. The ecotone (or edge habitat) provides protective cover for large

mammals (coyote, bobcat and deer) that hunt or forage in the grasslands as well as perch sites for birds (American kestrels, red-shouldered hawks, flycatchers, red-tailed hawks and swallows [observed foraging in this area]) which hunt in the grasslands. Significant indirect impacts are expected as foraging habitat would be eliminated by buildings, greenhouses, tilling of the soil, loss of grasslands and small mammal trapping.

The proposed Pogonip garden and Pogonip garden facilities include deer-exclusionary fencing. Deer fencing would restrict medium and large mammal movement through the Lower Main Meadow. Significant direct impacts are expected as access to foraging habitat would be restricted to forested pathways and through one small opening in the fencing along the access road. This may be of special concern for animals that move at night, as the forested habitats of Pogonip are now occupied by numerous homeless encampments located in the forested and edge habitats of the Lower Main Meadow. Such encampments may be reduced in number with implementation of the *Draft Pogonip Master Plan* and increased use/patrolling of the site.

(3) Outdoor Education Camp. The ecotone habitat at the proposed Outdoor Education Camp provides protective cover as described for the parking lot area and Pogonip garden above. Indirect impacts are expected as foraging habitat would be degraded by human activity levels and by the loss of grasslands.

(4) Sycamore Grove Nature Area. As overnight camping is not proposed within the nature area and the understory vegetation is expected to be enhanced by the removal of exotic vegetation, no negative impacts to wildlife movement are expected. Current unauthorized overnight use of the Sycamore Grove area by transients has already reduced the wildlife value of the habitat.

(5) Trails. Potential impacts to wildlife utilization of Pogonip may occur from the expected increase in human use of the site. Wildlife species that are particularly sensitive to human activity during all phases of their life (e.g., bobcat, mountain lion, white-tailed kite) may retreat to less-used portions of Pogonip or to adjacent less-used lands, such as remote areas of Henry Cowell Redwoods State Park. Wildlife species that are sensitive to human activity during certain phases of their life, such as during nesting season (e.g., white-tailed kite, Cooper's hawk, sharp-shinned hawk) may have reduced levels of nesting success or move to less-used portions of Pogonip. Populations of these animal may decrease over time. It is not known whether wildlife react differentially to bicycle use and equestrian use. However, fast-moving bicyclists and equestrians are expected to startle wildlife more so than pedestrians.

Coupled with the expected increase in human use of Pogonip, is an expected increase in the presence of dogs, as Pogonip is one of the few open space areas where dogs are allowed on trails (on leash). Other than the expected increase in dog feces, leashed dogs are not expected to result in significant adverse impacts to wildlife. The Trail Survey previously conducted for the City, however, found that most Pogonip users do not have their dogs on leashes. Therefore, it is expected that there would be an increase in the number of unleashed dogs despite the illegality of this behavior. Without more vigorous enforcement of the leash law, significant impacts to wildlife resources are expected.

Bobcats and coyotes are known to den in at least two canyons of Pogonip. The expected increase in trail users (all user types), particularly those with unleashed dogs in the vicinity of the Harvey West, Pogonip Creek, Lookout and Spring trails may result in significant impacts to bobcat denning activities.

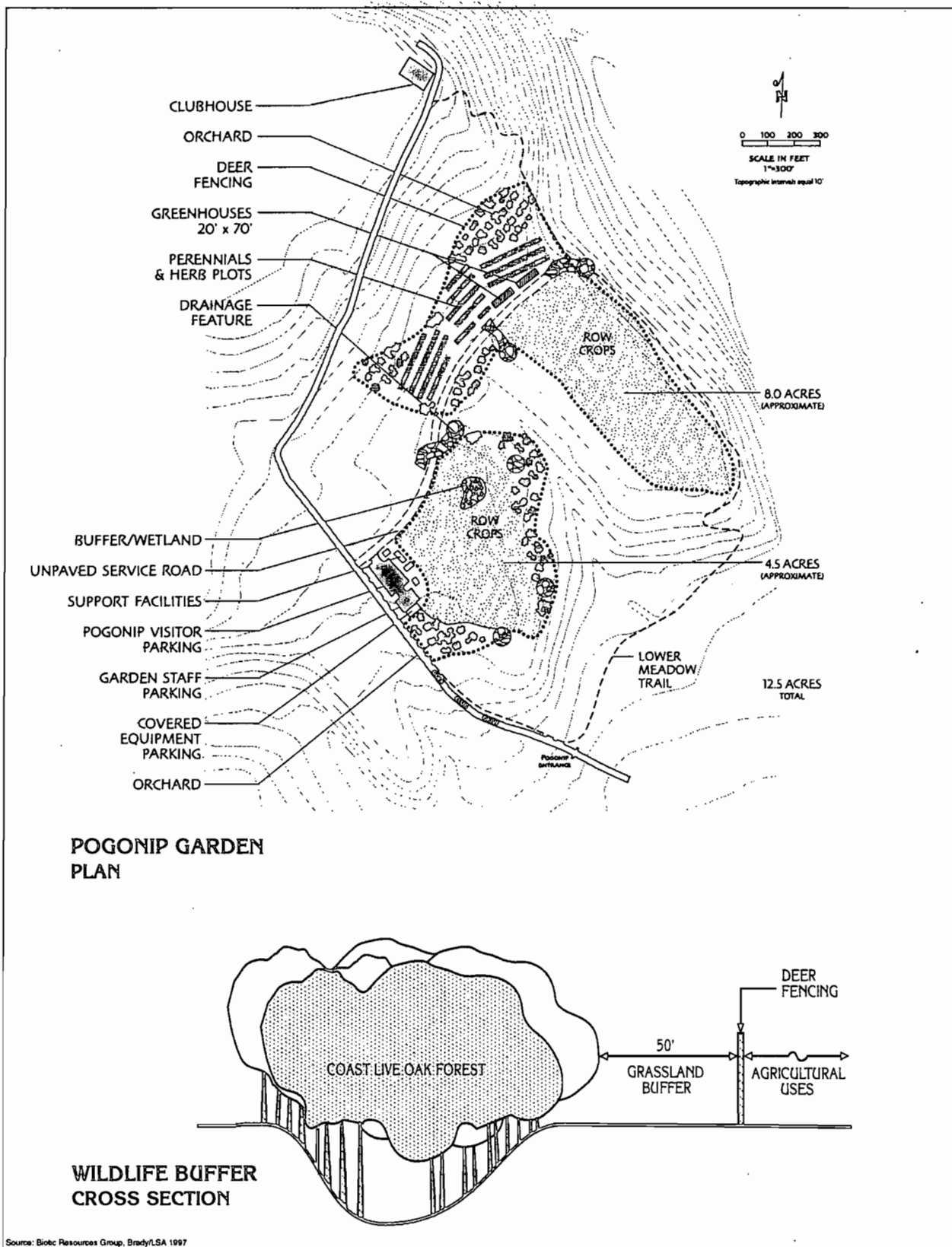
(6) Lower Meadow Parking Area. As discussed for the Pogonip garden area, the grasslands within the proposed Lower Meadow parking lot and the adjacent Pogonip garden facility provide excellent foraging area due to the high small-mammal and insect populations associated with the grasses. The nearby ecotone provides protective cover for large mammals as well as perch sites for birds which hunt in the grasslands. Direct impacts to such resources are expected as foraging habitat would be eliminated by the parking lot. An increase in human activity levels are also expected to degrade the foraging value of grasslands immediately adjacent to the parking lot. Indirect impacts to wildlife movement are expected to occur as human activity levels and noise would increase with the use of the parking lot facilities.

Mitigation Measure BIO-3: The following combination of mitigation measures should be implemented to avoid, reduce or compensate for impacts to wildlife utilization and/or wildlife movement in and through the Pogonip.

- Focused nesting surveys should be conducted for nesting barn owls near the Clubhouse. If nesting is observed, construction activities should be timed to avoid impacting nesting activity (i.e., schedule construction after young have fledged).
- To avoid and/or reduce impacts to denning bobcats, the City should take steps to ensure that the Harvey West, Lookout and Pogonip Creek trails are used for pedestrian use only, as designated in the *Draft Pogonip Master Plan*. Any illegal bicycle or equestrian use of these trails should be monitored and mitigation measures developed and implemented, if necessary, to reduce impacts to bobcats.
- Signs should be installed notifying park visitors that dogs are required on leash at all times. Due to the higher sensitivity of the Pogonip

Creek, Lookout and Harvey West trail areas for wildlife, dogs should be prohibited from these trails.

- More vigorous enforcement of the dog leash law by rangers should occur to avoid and reduce impacts to wildlife from unleashed dogs.
- Monitoring of dog usage should occur for the first two years after Master Plan adoption, and the policy regarding dogs should be amended if necessary. If the presence of unleashed dogs increases, other measures may be necessary such as an outright ban on dogs within Pogonip.
- A buffer zone measuring at least 50 feet outward from the tree dripline should be established between the Pogonip garden facilities and the wooded drainage as shown in Figure IV.B-3. The buffer would allow for a wider corridor for wildlife movement through the site. Additionally, the gap between the deer fencing along the access road should be widened to a minimum of 100 feet in width. Any drainage structure should be located out of this wildlife movement corridor (see Figure IV.B-3). (LTS)



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Figure IV.B-3
Recommended Wildlife Buffer for Garden Area

C. GEOLOGY, SOILS AND SEISMICITY

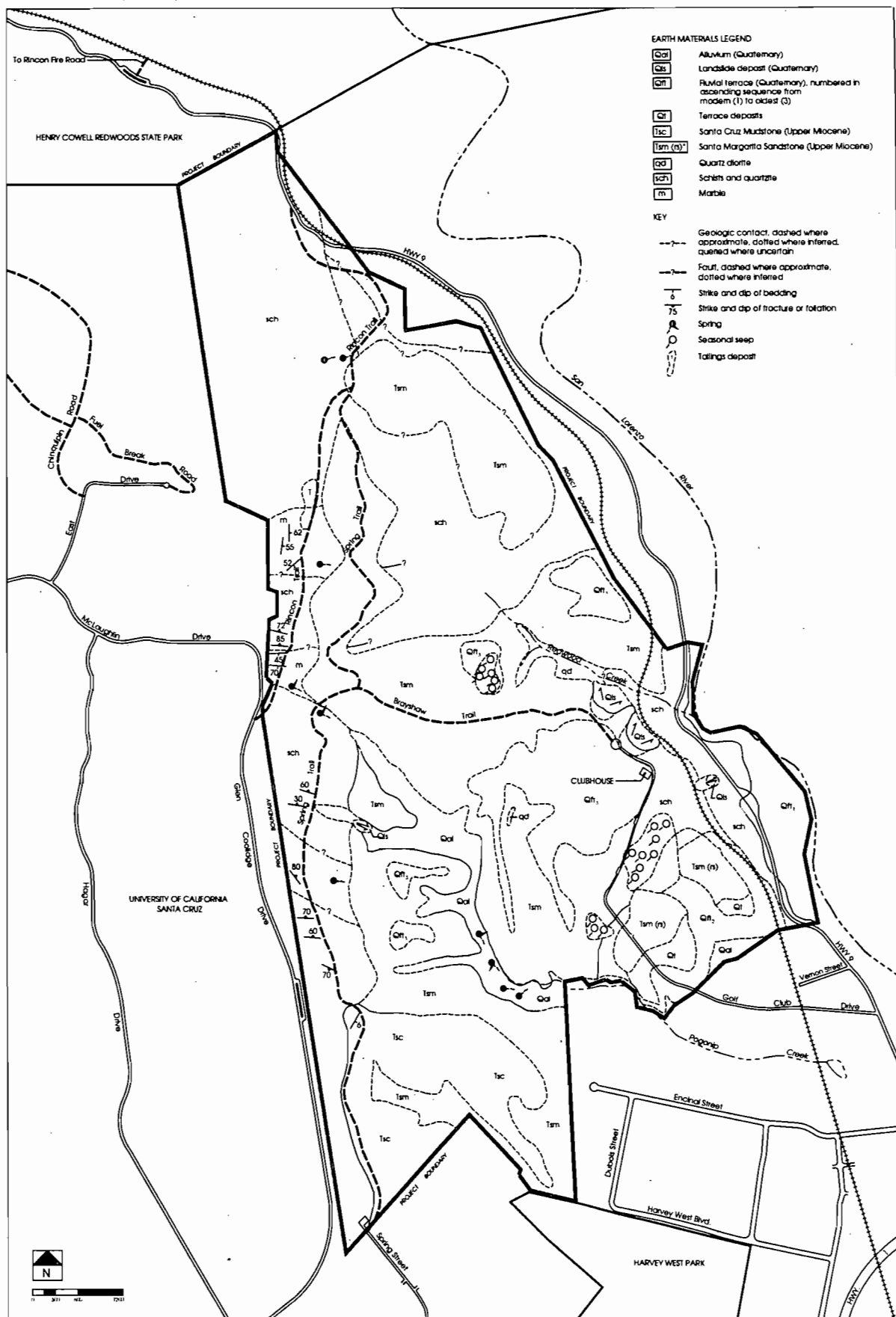
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This section assesses the effects of the proposed project on the geologic and soils resources at Pogonip. The diverse geology and the soils derived from the variable rock types throughout the Pogonip site present a potential range of impacts, both to the proposed changes in Pogonip's infrastructure (roads, parking areas, trail routes, water/sewer line extensions) and the changes or intensification of use (Pogonip garden and greenhouses, multi-use trails, Outdoor Education Camp, etc.). Seismic activity in Santa Cruz County is an historically documented phenomenon and all parts of the Pogonip are likely to undergo shaking during seismic events.

1. Environmental Setting

a. Geology. The variable topography of the Pogonip area reflects several primary forces: (1) regional uplift, (2) seismic activity, (3) the resistant quartz diorite schist, and marble core of Ben Lomond Mountain, and (4) the differences in weathering and erosion of these different geologic formations. The two major faults that bound the region are the San Gregorio Fault, which is offshore west of Santa Cruz, and the San Andreas fault to the north and east of the Pogonip site. Several smaller local faults are expressed in the variable geology, including the Zayante fault to the north and the Ben Lomond fault along the northeastern flanks of Ben Lomond Mountain.

Geologic resources of Pogonip have been previously mapped and are depicted in Figure IV.C-1. Pogonip is part of the Salinian Block of the Central Coast Ranges. This structural block lies on the southwestern side of the San Andreas Fault and extends from San Luis Obispo northwest to Point Reyes in Marin County. The Salinian Block is characterized by a basement complex of geologically old, high grade metamorphic rocks and granite intrusives (Earth Sciences and Associates, 1971). The exposures of these basement rocks consist of well deformed metasedimentary rocks (schists, marbles ("limestone"), quartzites, and gneisses) which have been intruded by large masses of quartz diorite. The quartz diorite becomes granodiorite on the south slope and east of Ben Lomond Mountain (Clark, 1981). In the vicinity of Pogonip, the granitics occur primarily in the northeastern quadrant, covered by mixed evergreen forests and exposed along the stream channel of Redwood Creek (Earth Sciences and Associates, 1971). These local Cretaceous



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Figure IV.C-1
Existing Geology and Surface Hydrology Resources

granitic rocks of the Salinian Block have been estimated to be at least 70 to 90 million years old.

In the vicinity of the UCSC campus and the upper elevations and southwestern boundary of the Pogonip site, the locally significant inclusions of metamorphosed crystalline marble, also known regionally as "limestone", are sandwiched within a discontinuous unit of schist. These two metasedimentary units resulted from metamorphism of dolomite and limestone to marble, and siltstone and sandy mudstones to schist. In the simplest terms, this metamorphism likely occurred as the granitic core of Ben Lomond Mountain was intruded upward into pre-existing sedimentary units.

The mapped occurrence of schist bounds both the northwestern forested highlands towards Highway 9 and Henry Cowell Redwoods State Park and along the eastern perimeter slope from the Big Trees Narrow Gauge Railroad down to Highway 9 at Sycamore Grove. The marble and schist metasedimentary units are the oldest rocks in the Santa Cruz area, possibly up to 250 million years old.

Most of the Pogonip site consists of more recent Tertiary and Quaternary sedimentary formations, which lie as a mantle on the granitic basement. The most visually-prominent rock type in Pogonip is the Santa Margarita Formation, a late-Miocene age sandstone with locally, very high permeabilities and erodibility. The visually prominent grasslands and terraces that make up the southern and eastern portions of the site are thought to be underlain by these finer-grained units and a veneer of material mapped as Quaternary terrace deposits.

There are differing interpretations as to the origin and geology of Pogonip's terraces. At least three primary terraces have been identified in previous geologic studies. The lowest terrace is an alluvial flat alongside the San Lorenzo River in the Sycamore Grove area. This terrace feature is an area that remains subject to winter flooding and sediment deposition.

The two relatively flat terraces that characterize Pogonip's grasslands are underlain by Quaternary terrace deposits and locally-resistant shale and silt beds of the typically erosive Santa Margarita Sandstone formation (Pogonip Advisory Committee Site Analysis Geology Map (based on Earth Sciences and Associates, 1971)). These terraces have supported cattle grazing, and later the Pogonip Country Club and Polo Grounds. The middle terrace (elevation approximately 150 feet) appears to be primarily an older river terrace that was deposited under historically higher sea levels and subjected to cycles of uplift and erosion. The upper portions of the middle terrace also appear to be underlain by Santa Margarita sandstone and its fine-grained siltstone layers. The steep, incised channels through the middle terrace reveal rounded river rocks in the terrace deposits while the recent gullying that has

formed up from the incised channel into the grasslands reveals a mix of alluvium and Santa Margarita formation. This gully formation is notable because it is headcutting uphill into the area proposed for the Pogonip garden and appears to have breached the more resistant siltstone capping layer of the erosion prone Santa Margarita sandstone.

The upper terrace (elevation approximately 250 feet) is defined as the broad flat on which the Clubhouse sits. It is mapped as Santa Margarita formation and is characterized as a "wave-cut bench" in the Earth Sciences Associates 1971 report. This implies that deposition of the Santa Margarita unit and the upper terrace occurred during upper Miocene times and was wave cut as it was uplifted. In general, it is thought that this formation once covered a much greater area in the Pogonip area, and has been subsequently eroded over time.

Typically, the Santa Margarita formation is a medium grained, uncemented, friable sandstone that is prone to extreme erosion when exposed and disturbed. Layers of coarse sand and gravels, as well as finer grained siltstone and claystone, may also be present. Within the immediate Pogonip area, the Santa Margarita Formation is thought to be approximately 50 to 100 feet thick and is interspersed by these less permeable beds of finer grained sediments. The 1970 subsurface investigations in the middle and upper terraces revealed variable beds of the Santa Margarita formation, including tight rainwater-perching siltstone and clay layers, as well as coarse sandy layers capable of transmitting free groundwater.

The numerous seeps that emerge along the slopes below the upper and lower terraces are a result of ground water infiltration through the Santa Margarita Formation and perching on the units more impermeable layers. Seeps emanating on the slopes occur where this locally perched ground water is discharged to the surface (see Figure IV.C-1).

A relatively resistant cap of Santa Cruz Mudstone covers the Santa Margarita Formation and defines the crested knolls above the steep-walled drainages visible above Harvey West Park and the newly acquired Wavecrest property. The Santa Cruz Mudstone is limited in extent to the southwestern portion of the property, and can be seen along the existing trail alignment of Spring Trail, in erosional exposures on Lookout Trail, and the existing informal trails that drop down from Spring Trail to Harvey West Park.

Recent alluvial deposits are limited in extent at the project site to the following areas: (1) the San Lorenzo River floodplain at Sycamore Grove, (2) underlying the stream corridor of Pogonip Creek, and (3) the lowest elevations at the extreme southeastern property line, where the alluvial fans of Pogonip Creek, the unnamed drainage that bisects the middle terrace deposit, and the lower San Lorenzo River

coalesce in the historic agricultural fields along Golf Club Drive, outside of the Pogonip property.

The complex geology of Pogonip has served as both an opportunity and a constraint to the historic use of the property. At the Pogonip site and the neighboring UCSC Campus, limestone quarry operations and lime kilns were founded to take advantage of the mantle of limestone and marble that underlies much of the area. Remnants of this use are visible on the Spring and Rincon Trails, which are located along the steep scarp that descends into Pogonip from UCSC. The existence of commercial marble along the western perimeter of the park precipitated the development of the property's primary service roads, Spring Trail and Rincon Trail. Used both for rock and log haul roads, these routes have served as the major transport corridors for past uses of the site.

Numerous landslides exist on the Pogonip site. These landslides are generally associated with the Santa Margarita Formation. Throughout the Santa Cruz Mountains in general, the surficial geology is dominated by both shallow and deep landslides that have resulted from the regional tectonic uplift of relatively weak, sedimentary geologic formations, faulting and deformation of bedrock and the forces of weathering. Due to the steepness of many slopes within the Pogonip site, shallow landslides, rotational slides, soil slumping and soil creep may be encountered throughout the planning area. Oversteepened slopes associated with historic quarry activities, and drainage-related gully erosion from the development of the UCSC campus also serve as notable areas of existing slope instability. Despite previous geologic characterizations, not all landslides on the site have been mapped. Except for minor trail alignment and construction issues, the site's existing slope instabilities do not present significant constraints to elements of the *Draft Pogonip Master Plan*.

Associated with the quarries and kilns is at least one mapped area of quarry tailings west of Limekiln Trail. Now vegetated with primarily native second growth woodland species, this area is stable geologically and not likely to pose any significant impacts to known or proposed uses.

b. Soils. Soils resources of the site are depicted in Figure IV.C-2. The soils of the Pogonip site reflect the complex geology from which they are derived, as well as the dominant vegetation cover that characterizes each soil unit. Units such as Aptos, Nisene, Ben Lomond and Catelli soils are associated with redwood forests throughout the county and are present at Pogonip on the forested slopes. Loamy soils are present throughout the less steep slopes and terrace grasslands and include Aptos loam, Elkhorn sandy loam, Baywood loamy sand, Danville loam, and small units of Soquel loam. The usefulness and potential productivity of the loams is of particular importance in the assessment of the proposed garden project.

Erosion of the site soils and underlying bedrock mantle is a primary existing condition of concern to land managers both for overall soil conservation and reduction of sediment loads to area streams. At the Pogonip site, erosion has been the fundamental process that has shaped the landforms, particularly the numerous steep ravines and creek channels. The existing service roads and the foot trails all exhibit notable erosion throughout the Pogonip site. Spring Trail below Coolidge Drive, Rincon Trail, and the steep section of Brayshaw Trail, all currently suffer from notable erosion and require frequent maintenance of drainage structures. Fern Trail at Redwood Creek and the Pogonip Creek Nature Loop both travel through and across drainages and suffer from streambank failures related to visitor use.

The informal trail network, which consists of generally steep, unmaintained narrow trails, also is worthy of note as a source of soil loss and potential slope instability. In areas where informal trails, spur trails, and cutoffs interface with the existing trails, trampling of vegetation on steep slopes results in soil loss and trail widening. There currently is no complete inventory of the informal trails that cross Pogonip.

Proposed uses such as trail routing and design; remedial and proposed erosion control treatments; agricultural runoff management; Best Management Practices (BMPs); and the construction of buildings, utility lines and parking areas are all sensitive to limitations in the soil type(s) present at the location of a specific proposed action. In all soil units present at the Pogonip, slope is the primary constraint to the development of facilities, intensification or changes in use, and additions to the trail system. Soil saturation on the terrace soils and the erodibility of steep soils are the two soil conditions that present the greatest limitations to proposed uses and require active management and mitigation for potential impacts.

The degree of limitation of the soils is expressed as slight, moderate or severe. Slight means that the soil properties are generally favorable and that the limitations are minor and easily overcome. Moderate means that the limitations can be overcome or alleviated by planning and design of special maintenance. Severe means that the soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use or by a combination of these measures (USDA Soil Conservation Service, 1980).

The areas of severe soil limitations can be found throughout the Pogonip site, as shown in Figure IV.C-2 and explained in Appendix E.

c. Faulting and Seismicity. Faulting and seismicity pose a potential geologic hazard in the Santa Cruz Mountains. The San Andreas fault parallels the crest of the Santa Cruz Mountains north and east of the project site. The principal seismic feature in the North Coast area is the San Gregorio fault zone, which trends north-northwestward several miles offshore from the mouths of Laguna and Majors

Creeks. In the San Lorenzo Valley, the most notable faults include: the Zayante fault, which runs primarily east-west and crosses Loch Lomond north of the project site; the Butano fault, which crosses the northern, highest portions of the San Lorenzo watershed; and the Ben Lomond fault which runs up the San Lorenzo River from Felton to the Boulder Creek area.

Within the project site, extensive folding and faulting appears to have occurred exclusively in the distant geologic past. The Ben Lomond fault is the closest fault to the project site, and is considered to be an ancient fault, or one that has had no recent activity. A possible branch of this fault trace appears in aerial photographs as a continuation of the topographic features along the steep western slope of the Pogonip site. However, because there is no absolute evidence that this actually represents a fault trace, the Ben Lomond fault has never been mapped. In addition, this possible, inferred fault trace lies well below upper geologic units on the Pogonip site, and would not affect the proposed project or its alternatives.

Upper Miocene, including the Santa Margarita formation and Santa Cruz mudstone, and later geologic units of alluvial and fluvial deposits that overlie the granites and schists onsite are not faulted or folded. It is therefore likely that the only large scale tectonic movement which has affected the area since late Miocene time (about 15 million years ago) has been regional uplift and low angle tilting (Earth Science Associates, 1971), and not activity on the Ben Lomond fault.

Santa Cruz County experiences low level seismic activity on a regular basis. The most significant event in recent memory was the 1989 Loma Prieta Earthquake, which measured 7.1 on the Richter scale. Significant damage to structures, roadways, and utilities occurred, including damage to water systems. Landslides, debris flows, and the reconstruction of residences and infrastructure contributed to persistent turbidity in area streams and surface waters. Future seismic activity should be expected in the project area, potentially affecting existing and proposed structures, trails, and infrastructure. Groundshaking under seismic activity can be expected to affect all parts of the project site, with the greatest hazards associated with landslides in the steeper slopes and liquefaction of saturated alluvium along the San Lorenzo River.

2. Impacts and Mitigation Measures

a. Significance Criteria. Soil properties and proximity to active fault zones are the geotechnical factors of principal concern. Pursuant to *CEQA Guidelines*, Appendix G (r), and for this EIR, the following geotechnical and seismic conditions would constitute significant impacts:

- Alteration of landforms that substantially change the topography or ground relief features.

- Exposure of people or structures to instabilities during earthquakes, landslides, mudslides, ground failure, or similar hazards such as settlement and groundshaking.
- Substantial increase in erosion.

b. Impacts and Mitigation Measures. Most uses proposed in the *Draft Pogonip Master Plan* do not present significant geologic hazards. The overall vision of Pogonip is that of a predominantly undeveloped rural property with the majority of its acreage dedicated to habitat and open space conservation. The continuation of existing uses, the rehabilitation of structures, and the development of additional parking areas would not significantly change the topography or increase the exposure of people to seismic hazards, landslides, mudslides, and ground shaking. Adherence to City of Santa Cruz zoning, design review, public works and erosion control standards should adequately address many potential impacts of proposed structures and infrastructure. However, this EIR suggests additional mitigation measures to minimize potential erosion and slope stability impacts.

Existing erosion problems associated with the trail system may appear significant on the site, yet when viewed against regional erosion conditions, the Pogonip site contributes a minor sediment yield to area streams and wetlands. There are currently no quantified field data regarding erosion rates in the San Lorenzo River watershed, although numerous fisheries and hydrology studies have noted that the majority of the region's historical sediment yield comes from year-round use of dirt roads, naturally-occurring and human-induced landslides, and the area's sand quarry activities. Residential development and timber harvest activities on the area's steep slopes are frequently cited as the dominant causes of contemporary erosion and slope stability problems. Given this watershed-wide perspective, even under multi-use trail alternatives, the trail system, if properly maintained, does not constitute a significant impact to geotechnical factors as defined by CEQA.

The one element with the greatest potential impact to topography, slope stability, and soil conservation is the Pogonip Garden. Due to the fragile nature of geology and soils of the middle terrace, the existing gully formation, and the likelihood of slope instability resulting from continued agricultural activity, it is not anticipated that the impacts of the 10-acre Pogonip garden project, as proposed, can be mitigated to a less-than-significant level.

A reduced garden project, which would disturb less acreage area on the terrace, may be mitigated to a level of less than significant. With any continuous disturbance on the fragile terrace surface, avoidance of the existing, and expanding, gullies is essential to gain greater assurance that rapid gulley advancement will not take place following changes in runoff, soil compaction, and removal of grassland cover. Based on the apparent present rate of gulley advancement into the proposed garden

site, and experience in gulley repair elsewhere at Pogonip (between Coolidge Drive and Spring Trail), it is likely that the incipient gulleying will require vigilance and perpetual management on the part of the garden operators and parks personnel.

The *Draft Pogonip Master Plan* includes a number of design guidelines for proposed uses to minimize impacts to geologic and soils resources. For most of the proposed uses under the *Draft Pogonip Master Plan*, the design guidelines and existing city policies pertinent to issues of erosion, slope stability, settlement and ground shaking reduce adverse impacts to less than significant levels.

Consideration of initial costs and long-term maintenance for activities on units of moderate and severe soil limitations is a primary issue in the screening of *Draft Pogonip Master Plan* trail use alternatives and their impacts. Acknowledged limits on the availability of funds for regular trail maintenance, remedial erosion control, and future soil management require that a conservative approach to soil management be pursued, thereby minimizing soil compaction, overcovering, or soil erosion impacts to the greatest extent possible.

In a regional context, the preservation of the Pogonip as an open space is an act of soil conservation. Besides natural area protection, the primary use of the soils on-site would be recreation-related, including pedestrian trails, multi-use trails (hike/bike/equestrian trails), service roads, and educational areas. Development of the Pogonip garden represents the largest potential active area of soil disturbance, both initially and on an ongoing basis.

As outlined in the *Draft Pogonip Master Plan*, the design criteria for proposed uses serve to reduce impacts. In the case of the Pogonip garden, the proposed conceptual plans and associated design criteria fall short of fully mitigating possible soil erosion and slope stability impacts. Additional plan detail and modification of drainage-related erosion control features would be necessary. Such measures are discussed in the following pages.

Design criteria and proposed management practices addressing soil erosion, slope stability, and topographic impacts associated with the use and expansion of the trail network would likely result in less-than-significant impacts. As the trail network exists in its current state, with current levels of pedestrian-only use, local trail erosion is widely dispersed throughout the property on both formal and informal trails.

Limited field reconnaissance indicates that informal trails represent a notable source of existing erosion and sedimentation. Closure and/or obliteration of these minor, unmaintained trails would likely offset impacts associated with increases in trail use, particularly if such increased trail use is focused on improved, maintained trails.

Impact GEO-1: New developed features that would be added to the Pogonip site have the potential to alter landforms and to create a substantial increase in erosion. Slope instability may also result from such features. (S)

The following proposed developed features would have associated topography or ground relief feature impacts:

(1) **Outdoor Education Camp.** The proposed one-acre Outdoor Education Camp to be located in the Lower Main Meadow may impact local soils by increasing runoff and erosion due to impervious surfaces and removal of vegetation. The greatest impact is likely to result from exposed soil surfaces associated with intensive pedestrian uses and the proposed shade structure, amphitheater and group camp. The local tendency to perch rainfall and shallow ground water above the more impermeable layers of the Santa Margarita sandstone, combined with the low permeability, low strength and high shrink-swell characteristics typical of the Watsonville loam, thick surface soil unit may result in soil erosion and perpetual soil disturbance during wet season use of the Outdoor Education Camp and its associated facilities. Erosional gullies and slope failures may result from exacerbated erosion at this site.

Construction of ancillary facilities may adversely impact soil resources by disturbing and/or overcovering of soils. Construction impacts related to the Outdoor Education Camp may be mitigated by adherence to local erosion control standards established by the City of Santa Cruz. Roof runoff and the use of decomposed granite fines and 10 percent soil cement stabilizer on high pedestrian traffic areas may increase on-site runoff by limiting on-site permeability, increasing runoff volume and velocities, and focusing runoff onto 30-50 percent slopes down to Pogonip Creek. Additional detail on runoff management plans and features (i.e., for proposed Pogonip garden) is necessary to adequately evaluate potential adverse impacts to soil resources. Detailed plans for structures, grading, and drainage plans will be subject to design review by the appropriate City departments.

(2) **Pogonip Garden.** The development of an Pogonip garden and associated infrastructure may significantly impact the soils and geologic resources of the Pogonip by disturbing vegetative cover and exposing soils on the fluvial terrace deposits and highly erodible Santa Margarita sandstone. The proposed Pogonip garden would substantially change the topography and ground relief features. Both row crop production on the gently-sloping terrace deposits and the development of orchards and terraced permaculture/flower beds on the Santa Margarita sandstone slopes south of the Clubhouse have the potential to increase erosion, gulleying, and slope instability.

The Santa Margarita sandstone in the area proposed for terraced permaculture crops exhibits 16 to 30 percent slopes and is prone to severe erosion when subject to disturbance. Terraces and other land contour-sensitive features may minimize erosion potential but footpaths, spaces between rows and other exposed soil surfaces are all likely to generate excessive sediment to adjacent wetlands, and the San Lorenzo River. Hydrologic impacts are discussed in more detail in Section IV.D of this EIR.

Best Management Practices (BMPs) for active cultivation of soils associated with steep Santa Margarita sandstone slopes are not well developed at this time. The extreme erosion hazards associated with this local geologic formation have made it well studied. Nonetheless it remains poorly managed by landowners and farmers throughout the sandy soil areas of Santa Cruz County and Northern Monterey County.

Construction of ancillary Pogonip garden facilities may also adversely impact soil resources by disturbing and/or overcovering of soils. The local tendency to perch rainfall and shallow ground water above the more impermeable layers of the Santa Margarita sandstone, combined with the low permeability, low strength and high shrink-swell characteristics typical of the Watsonville loam, thick surface soil unit may limit the wet season use of the Pogonip garden and its associated roadway.

Tillage and seed bed preparation may cause erosion and generate sediment loads to local wetland and surface water if undertaken during the late fall and rainy season. Impacts of this nature may be further mitigated by conservative use of equipment and the active maintenance of erosion control features and sediment basins during the winter and spring.

Proposed management of agricultural runoff is not sufficiently detailed in the *Draft Pogonip Master Plan* to adequately provide assurance that erosion associated with ongoing agricultural activities or slope instability resulting from rapid advancement of the existing gullies can be mitigated to a less-than-significant level. Mitigation measures for potential impacts, therefore, are presented in a general terms.

As proposed, the crushed rock/gravel based access road serving the Pogonip garden would likely undergo substantial wet season damage under normal use, primarily due to persistent soil moisture and low soil strength. Under current use and conditions, the existing road access from Golf Club Drive, through the proposed Pogonip garden area, is impassable during the wet season due to wet soil conditions, deep rutting of the roadbed, and surface/subsurface flow from the seasonal wetland swale that bisects the proposed Pogonip garden site.

(3) Trails. Both at specific problem areas and throughout the Pogonip site as a whole, trails and trail use present the potential for erosion and potential slope instability. The impacts of increases in overall trail use are potentially significant for both existing and proposed trail alignments. Use of multi-use and single-use (pedestrian use only) trails has the potential to impact soils and landforms by generating erosion, modifying runoff patterns and velocities, and exacerbating inherent geologic instabilities through the loss of vegetation and the saturation of steep soils at points of runoff collection.

Because the proposed trail system is based primarily on the existing trail system and large-scale geologic disturbance is not anticipated under existing or proposed trail uses, specific erosion-related conditions are more fully addressed in the Water Quality section (Section IV.D of this EIR). Readers are directed to that discussion for further details and proposed mitigation measures to minimize adverse water quality impacts associated with erosion.

About eight miles of trails existed within the Pogonip when the City purchased the property. The *Draft Pogonip Master Plan's* proposed trail system is based on the existing system, with several route and wetland crossing improvements for resource protection. The *Draft Pogonip Master Plan* puts forth Trail Design Guidelines and Trail Management Actions to upgrade and maintain the existing trail network, while making provisions for increased trail use.

Trail users considered in the *Draft Pogonip Master Plan* are hikers, mountain bikers, and horseback riders. Each of these users has the potential to increase erosion, reduce vegetative cover, compact soils, and modify runoff patterns under both existing conditions and under all proposed trail alternatives.

In general, all users considered in all alternatives create more trail damage and erosion during wet periods, when trails remain muddy or puddled with standing water. Most users tend to avoid wet areas by going around wet standing water, and, in doing so, expand the width of the trails at wet points. This is apparent under the existing conditions along the Pogonip Creek Trail, in the southern section of Spring Trail, and along Fern Trail. Bare soils, devoid of vegetation and disturbed by use in the rainy season, are the most easily detached by rain and runoff, thus resulting in soil loss during storms.

In addition, trails on slopes tend to channel the overland flow of runoff and serve as both sources of sediment and efficient routes of water and sediment transport to adjacent slopes and down-gradient swales, streams and wetlands. Saturation of steep soils is a primary cause of landslides and slope instability in the Santa Cruz Mountains. Consideration of seasonal trail closures is, therefore, a fundamental

management alternative to minimize adverse impacts to soils, and slope stability under all trail alternatives.

The *Draft Pogonip Master Plan* trail system consists of:

Existing Service Roads

- Rincon Trail
- Spring Trail
- Brayshaw Trail

Existing Trails

- Cowell Trail
- Fern Trail
- Limekiln Trail
- Lookout Trail
- Lower Meadow Trail
- Pogonip Creek Nature Loop
- Prairie Trail
- Sycamore Grove Trail
- Spring Box Trail
- Rincon Connector Trail

Proposed New Trails

- Harvey West Trail
- UCSC Connector Trail
 - Southern Route
 - Northern Route

In all of the trail alternatives (A, B, and C), in addition to the existing trail network, the Harvey West Trail (0.4 miles) is proposed. Most of this trail currently exists as a non-maintained, informal footpath. Formalizing this trail would result in overall trail improvements by upgrading it and providing for maintenance, as per the *Draft Pogonip Master Plan's* Trail Design Guidelines and Trail Management Actions.

Up to approximately 0.6 mile of multi-use trail to the UCSC is proposed in two of the three trail alternatives (A and B). The newly proposed UCSC Connector Trail is presented with two possible routes, a southern and northern route. The upper sections from the UCSC campus are identical. The lower sections differ in alignment, with connections to Rincon Trail at different locations. Both alignments cross steep slopes and would require site-specific trail design and mitigation. The northern route requires a small bridge crossing and traverse of a visible zone of slope failure associated with moist soil conditions and seeps.

Trail Alternative C is limited to hiking use only and does not include the UCSC Connector Trail. Impacts associated with existing levels of use under the present pedestrian-only limitation at Pogonip consist of soil erosion on steep sections of the

existing service roads and trails, as well as numerous informal foot trails and cutoffs used by both day visitors and the illegal transient campers. Continued use of existing service roads and designated trails, as proposed in Trail Alternative C, is considered self-mitigating, due to proposed trail improvements, additional wetland and stream crossings, definition and signage of preferred trail routes, and the retiring and/or obliteration of problematic informal trails.

Ongoing trail maintenance, including appropriate placement and design of waterbars, outsloped drainage, and selection of minimal gradients for existing and new alignments are important criteria to further assure minimization of adverse impacts.

Impacts associated with the two multi-use trail alternatives (A and B) require greater explanation and levels of mitigation. At this time multi-use trails are proposed for the existing service roads, the Rincon Connector Trail, and the UCSC Connector Trail. Existing service roads to be considered for multi-use include: Rincon Trail (0.9 mile); Spring Trail (1.6 miles); and Brayshaw Trail (0.5 mile with "walk your bike" designation for portion steeper than a 12 percent grade).

Multi-use trail impacts are similar to pedestrian-use impacts on the existing service roads. In all uses, wet season use generates the most trail damage, soil erosion, and potential slope instability. Increasing traffic loads by horses and mountain bikes may increase the potential for erosion and sediment transport to local wetlands, if an active trail maintenance program is not rigorously pursued in perpetuity.

Identified trail modifications and new trail construction would result in short-term soil disturbance with potential increases in erosion during and immediately after work is completed. Well located, maintained multi-use trails should result in focusing user impacts on the maintained trails, where impacts would be noted and more easily addressed by staff and volunteers. In addition, focused use on maintained trails would reduce impacts of the existing informal, unmaintained trail network.

Based on the available information on trail routes within the *Draft Pogonip Master Plan* and a survey of regional multi-use trail impact literature, it is not anticipated that significant geologic or erosion hazards would result from the designation of the service roads as multi-use trails. As proposed, the Trail Design Guidelines outlined in the *Draft Pogonip Master Plan* provide adequate mitigation for the potential impacts associated with the proposed multi-use trail designations for the existing service roads under consideration in Trail Alternatives A and B.

Proposed multi-use trail additions/redesignations include: UCSC Connector Trail (0.5-mile new trail) and Rincon Connector Trail (0.2-mile redesignated from

pedestrian to multi-use). The UCSC connector trail traverses the steep slope between the Upper UCSC campus natural area/Firebreak Trail and Rincon Road on the Pogonip site. Two slightly differing alignments are considered in the *Draft Pogonip Master Plan*, although only one of these routes would be constructed.

The UCSC Connector Trail - Southern Route runs up the forested slope from south of the intersection with Rincon Trail and Spring Trail, crosses Limekiln Trail, and a small intermittent drainage. It proceeds in a northern direction until it reaches a steep gully, where it switches back to a southern trending 12 percent grade up to the UCSC boundary. From the Pogonip/UCSC boundary, the UCSC connector is routed through a mixed grassland and woodland habitat to the UCSC Firebreak Trail.

The UCSC Connector Trail - Northern Route starts farther north on Rincon Trail and requires minor realignment of Limekiln Trail to reduce potential user conflicts with hikers. The Northern Route requires two drainage crossings, with one being the relatively deep gully avoided in the Southern Route. This larger gully requires the construction of a bridge to span an area subject to winter-stormwater runoff, and would likely require additional site evaluation of an area of seeps and apparent slope instability immediately north of the gully crossing. The upper portion of the Northern Route is proposed to be identical to the Southern Route.

Both these routes would require additional site inspection and trail design prior to any construction. The proposed trail grade would not exceed 12 percent and proposed trail widths would need to be approximately four to six feet within Pogonip. Due to the steep terrain, trail construction would require excavation of a cut face on slopes in exceedance of 40 percent at some locations. Maintenance of drainage and minimizing trail widening due to traffic passing in different directions would be critical for the long-term viability of either connector route.

Based on limited field assessments, it appears that both UCSC connector routes are feasible, yet require a substantial commitment on the part of the community, the City of Santa Cruz, and volunteers to adequately design, construct, and maintain the trail. As in all trail routing and construction, the initial efforts to pick the best alignment and construction techniques combined with a budgetary commitment to maintenance, would result in the best trail that requires the least remedial action.

(4) Historic Sites and Features. One of the least likely uses to have potentially significant impacts on geology and soils resources of the Pogonip are the Historic Sites and Features. Because these actions are the continuation of existing uses and afford greater resource protection, they are not likely to have any notable effects on soils, geology, seismic safety, and other hazardous conditions. These designated areas and associated uses require no significant land disturbance, overcovering or compaction of soils, or changes in drainage, recharge or runoff.

Intensification of visitor use in the vicinity of historic sites may, however, result in locally increased erosion and soil compaction. Due to the sheer rock faces, historic quarry tailings, and surrounding steep slopes, these features represent landslide, rockfall, and/or seismic instability hazards during rainfall and earthquake events. These same geologic hazards could exist under the *Draft Pogonip Master Plan's* proposed actions in the vicinity of the existing kilns and quarries.

(5) Natural Resource Management Areas. The designation of Natural Resource Management areas would not result in geologic hazards or significant impacts to geologic resources.

(6) Fire Management. Designated Fire Management areas and specific fire management strategies are not anticipated to result in significant impacts to soil or geologic resources at the Pogonip site. Uncontrolled wildland fires, on the other hand, have the potential to substantially alter landforms and result in severe erosion, slope instability, mudslides, and landslides. Strategies to reduce the likelihood of that occurrence would serve as a positive impact to the site's soil resources.

(7) Clubhouse Rehabilitation. The rehabilitation and increased use proposed for the Clubhouse and associated grounds may impact the local soils and geology of the Pogonip site through soil compaction, overcovering of soils, and increases in construction period erosion. However, impacts associated with the rehabilitation and increased use of this facility are not expected to be significant.

(8) Sycamore Grove Nature Area. The development of this area as a passive recreation and educational area may result in impacts to local soils resources due to erosion, flood occurrence or changes in waterways. All features to be constructed in the Sycamore Grove area are located in areas of high liquefaction potential during earthshaking events. However, no permanent structures are proposed.

Development of a formal nature trail system and related riparian restoration efforts are likely to result in a net improvement in local erosion problems. Potential impacts associated with trail construction, vehicle parking and increased foot traffic can be mitigated by selecting appropriate trail routing and sediment management treatments adjacent to the parking facilities. Restricted access to saturated Baywood loamy sands would also minimize damage to trails and near-trail vegetation.

(9) Maintenance and Support Facilities. The maintenance facility improvements proposed in the *Draft Pogonip Master Plan* do not present significant geotechnical concerns or result in significant geologic hazards. All impacts associated with the construction and use of the new maintenance facility, caretaker residence, accessory structures and formal parking structures would be sufficiently

mitigated by adherence to the proposed Maintenance and Support Facilities Design Guidelines and Management Actions of the *Draft Pogonip Master Plan*. In addition, the requirement for a Design Review Permit, subject to approval by the Zoning Administrator, would provide design-specific input at the time of implementation.

(10) Transportation and Circulation. As proposed, improvements and modifications to traffic and circulation would not result in significant geotechnical concerns or result in significant geologic hazards.

(11) Utilities. Proposed improvements and modifications to Pogonip's utility systems would not result in significant geotechnical concerns or result in significant geologic hazards.

The following combination of mitigation measures should be implemented to reduce the impact to a less-than-significant level. However, without relocation of the Pogonip garden, this impact would remain significant and unavoidable.

Mitigation Measure GEO-1a: To reduce the likelihood of excessive erosion, severe gully advancement, and slope instability, the Pogonip garden should be sited at an alternative off-site location, as discussed under the Off-Site Garden and Relocated Parking Alternative in Chapter V. The acreage requirements for the garden and the lack of suitable habitat make an alternative on-site location infeasible. Because the garden is considered a key element of the project, the infeasibility of this mitigation measure would cause this impact to remain significant and unavoidable. The following measures are recommended to further reduce or avoid impacts. (SU)

Mitigation Measure GEO-1b: Use of the Outdoor Education Camp should be conducted during the periods of low rainfall, particularly summer and fall (dry) season. Use should be curtailed during winter and spring, during periods of rain and as the site dries out in the spring to minimize soil impacts. It would be advisable to institute a rain dependent closure policy, akin to wet conditions restrictions on area playing fields, to limit erosion, soil compaction, and disturbance of local vegetation. (LTS)

Mitigation Measure GEO-1c: To reduce impacts from site use of the Outdoor Education Camp, erosion control features such as vegetated buffer strips, gravel walkways, and rock filled ditches should be sited in ways that reduce erosion. Tent platforms or other similar structures should be used for overnight camping to limit vegetation trampling and compaction of soils. The *Draft Pogonip Master Plan* should include guidelines to support runoff management through the use of pervious surfaces, vegetative buffers and other similar features that would reduce potential erosion impacts. (LTS)

Mitigation Measure GEO-1d: In the proposed Pogonip garden site, BMPs such as contour bedding, winter covercropping, and increased widths for vegetated buffers along cultivated fields and adjacent slopes should be implemented to reduce impacts on the terrace formation.

The following language should be added to the Pogonip Garden Operations and Management Plan:

- *Design of the Pogonip garden plots should include a minimum 30-foot vegetated buffer from the cultivated field edge to the break in the adjacent slope and the existing on-site wetlands. This buffer would serve to separate actively-tilled soils and the steeper soil units found on the 30-50 percent slopes downgradient from both primary Pogonip garden plots (north and south row crop areas). The buffer would also protect seasonal wetlands from inputs of agricultural runoff and sediments.*
- *Within orchard lands, efforts should be made to minimize the disturbance of soils and vegetation beneath orchard trees to reduce potential erosion and gully formation.*
- *Terrace gardening, if necessary for permaculture and herb plots, should minimize surface disturbance and retain native vegetation cover to the maximum extent feasible to reduce erosion and potential instability on slopes. Constructed diversion berms should be minimized to reduce soil disturbance on slopes with 16-30 percent grades.*
- *Disturbance to mapped seeps and springs on the slopes above the Pogonip garden access road and below the Pogonip Clubhouse should be avoided to minimize erosion of persistently wet soils.*
- *Future plans for drainage features, gully repair and erosion control should be reviewed by qualified professionals. Drainage plans should also include regularly cleaned sediment basins, to minimize soil loss off the middle terrace and to reduce downstream sedimentation impacts. (LTS)*

Mitigation Measure GEO-1e: Mitigation for the unstable conditions in the existing dirt (and proposed Pogonip garden access) road off Golf Club Drive requires engineering of a more stable roadbed, with provisions for high soil moisture and drainage. Features for surface and subsurface runoff should include adequate culvert capacity or an "at grade" swale crossing at the intersection with the existing wetland swale on-site. Additional measures, such as a compacted gravel roadbed or a paved road surface, may be necessary following site specific investigations of wet season soil conditions. (LTS)

Mitigation Measure GEO-1f: The location and design of the Pogonip Garden's drainage features would determine their effectiveness in controlling runoff and sediment transport off the Pogonip garden site. As proposed, no details or specifications for critical drainage features have been provided. Sediment basins upstream of the proposed drainage features would be necessary to assure that sedimentation impacts to on-site drainage features and downstream wetlands are minimized. As proposed, generalized drainage features are located to release runoff to slopes ranging from 15 to 50 percent directly into or in the vicinity of active gullies. (LTS)

Mitigation Measure GEO-1g: Construction impacts of the garden structures, parking area and ancillary facilities would be mitigated by adherence to local erosion control and drainage standards and monitoring of erosion conditions by a qualified erosion control specialist. (LTS)

Mitigation Measure GEO-1h: Winter season/wet condition soil disturbance should be avoided in the Pogonip garden area. Active maintenance of erosion control features and sediment basins should occur year-round during periods of storms. (LTS)

Mitigation Measure GEO-1i: The most effective mitigation for the potential increase in erosion of the surface of the service roads is annual cleaning and rebuilding of waterbars, dip-swales, and other roadway and trail drainage features. By maintaining runoff control features each year, preferably in the fall, the community gains the assurance that impacts of trail use during the dry season will be addressed prior to the onset of erosion inducing rainfall. (LTS)

Mitigation Measure GEO-1j: Waterbars should be constructed of materials other than locally available crushed rock, which has limited compaction strength and effectiveness under heavy traffic loads. For the historic service roads, native fine grained, compacted roadbed material would serve as a sufficient waterbar material. Shallow excavation of the roadbed on the uphill side of the waterbar to be built would supply material for the bar, direct much of the erosive flow off the trail, and lengthen the lifespan and effectiveness of the waterbar. The use of flexible rubber waterbars, placed in timber or concrete footings across high use or steep trail segments, would provide critical runoff management while withstanding consistent impacts of pedestrian, equestrian, and mountain bike users. (LTS)

Mitigation Measure GEO-1k: Outsloping of existing service roadway surfaces to shed water in a dispersed manner would reduce high-energy runoff from potentially erosive and/or unstable steep slopes and existing

gullies. Where this is not feasible, inside ditches should be rock-filled and maintained to move stormwater while minimizing erosion and minor slope failures in roadcuts. (LTS)

Mitigation Measure GEO-1l: Limitations on multi-use traffic volumes would serve to minimize multi-use trail impacts. This may be realized by individually reviewing trail use permits for special events. (LTS)

Mitigation Measure GEO-1m: Additional detail should be provided during the selection process for the new trail routes and prior to any new trail construction. This detail would include site-specific construction techniques and other mitigation measures to be utilized in particularly steep areas requiring slope cuts and at stream and wetland crossings. (LTS)

Mitigation Measure GEO-1n: In all trail alignments, limits on wet season should be imposed to reduce impacts to local soil resources and slope stability. (LTS)

Mitigation Measure GEO-1o: In the case of the proposed new trail alignments where moist soils, surface ponding, slow drainage, and other problematic trail maintenance conditions occur, additional construction standards may be necessary. Measures such as surfacing problem areas with locally-derived, crushed rock should be established to add structure to the new trail beds, while adding to the trail surface resistance to downslope, mountain bike, brake skidding and steep slope equestrian impacts. Trail surfacing should be evaluated based on post-construction conditions and re-evaluated periodically following actual use. (LTS)

Mitigation Measure GEO-1p: In all multi-use trail alternatives, increased signage and speed control features should be established to reduce the overall impact of trail use by reducing trail widening at points of user interface, and on turns where users may drift off designated trails. (LTS)

Mitigation Measure GEO-1q: Fencing should be constructed as needed to limit trail cutoffs and to limit potential adverse impacts associated with vegetation trampling and excessively steep, unmaintained informal trails. (LTS)

Mitigation Measure GEO-1r: Impacts in the vicinity of the historic sites and features should be mitigated by trail design and site-appropriate erosion control treatments. For example, trails should not be routed where rockfall or other instability hazard during rainfall or earthquake events could harm trail users. (LTS)

Mitigation Measure GEO-1s: Reduction of the continuing potential geologic hazards associated with the steep quarry faces should be accomplished through a combination of exclusionary fencing, signage, and seasonal closures of the potentially hazardous areas. (LTS)

Mitigation Measure GEO-1t: Changes in runoff and potential erosion should be mitigated through the minimization of impervious surfaces and the use of vegetated buffers and swales adjacent to event grounds, roadways and parking areas. The City of Santa Cruz should review specific project plans and require BMPs to minimize increased runoff volumes and velocities, and to reduce the likelihood of erosion. (LTS)

Mitigation Measure GEO-1u: Construction impacts of ancillary Pogonip garden facilities, Upper and Lower Parking areas, caretaker facilities, the Clubhouse rehabilitation, and the Outdoor Education Camp should be mitigated by adherence to City of Santa Cruz erosion control standards and monitoring of construction and erosion control efforts by certified erosion control specialist or registered engineer and/or geologist. (LTS)

D. WATER RESOURCES

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This section assesses the hydrology and water quality impacts associated with *the Draft Pogonip Master Plan*. As proposed, the Pogonip site will be preserved as open space with a primary goal of avoidance of direct impacts to wetlands, waterways, and groundwater resources. The major potential hydrologic and water quality impacts associated with the uses proposed in the *Draft Pogonip Master Plan* are: (1) increases in turbidity and decreases in water quality due to erosion of soils and exposed bedrock associated with trail use, the Pogonip Garden, and the Outdoor Education Camp; (2) agricultural runoff and nutrient loading to surface and groundwater resulting from practices at the proposed Pogonip garden site; (3) construction-related sediment transport related to installation of water and sewer lines; and (4) urban runoff from the proposed Upper Meadow and Lower Meadow parking areas.

Erosion, sedimentation and the resulting persistent turbidity in surface water are the principle water quality issues in the Santa Cruz Mountains for two reasons. First, increases in turbidity affect water treatment processes, limiting the effectiveness of disinfection methods and decreasing drinking water clarity. Second, erosion and the resulting sedimentation of area streambeds adversely affects salmonid spawning gravels, summer rearing habitat, and escape cover in the San Lorenzo River. As sediment is deposited in, and transported through the area's steelhead streams, fish habitat is compromised by smothering and/or scouring of steelhead eggs, loss of depth in critical dry season pools, as well as increases in water temperatures and reductions in aquatic insect production that affect fish metabolism and growth rates.

The relationship between geology and water quality at the Pogonip site is such that mitigation for potential erosion impacts is related to both geologic and hydrologic conditions found on site. Necessarily, there is some redundancy in the hydrology and water quality mitigation measures proposed below. Readers are directed to the Geology, Soils and Seismicity section of the EIR for further definition of proposed impacts and mitigation measures.

1. Environmental Setting

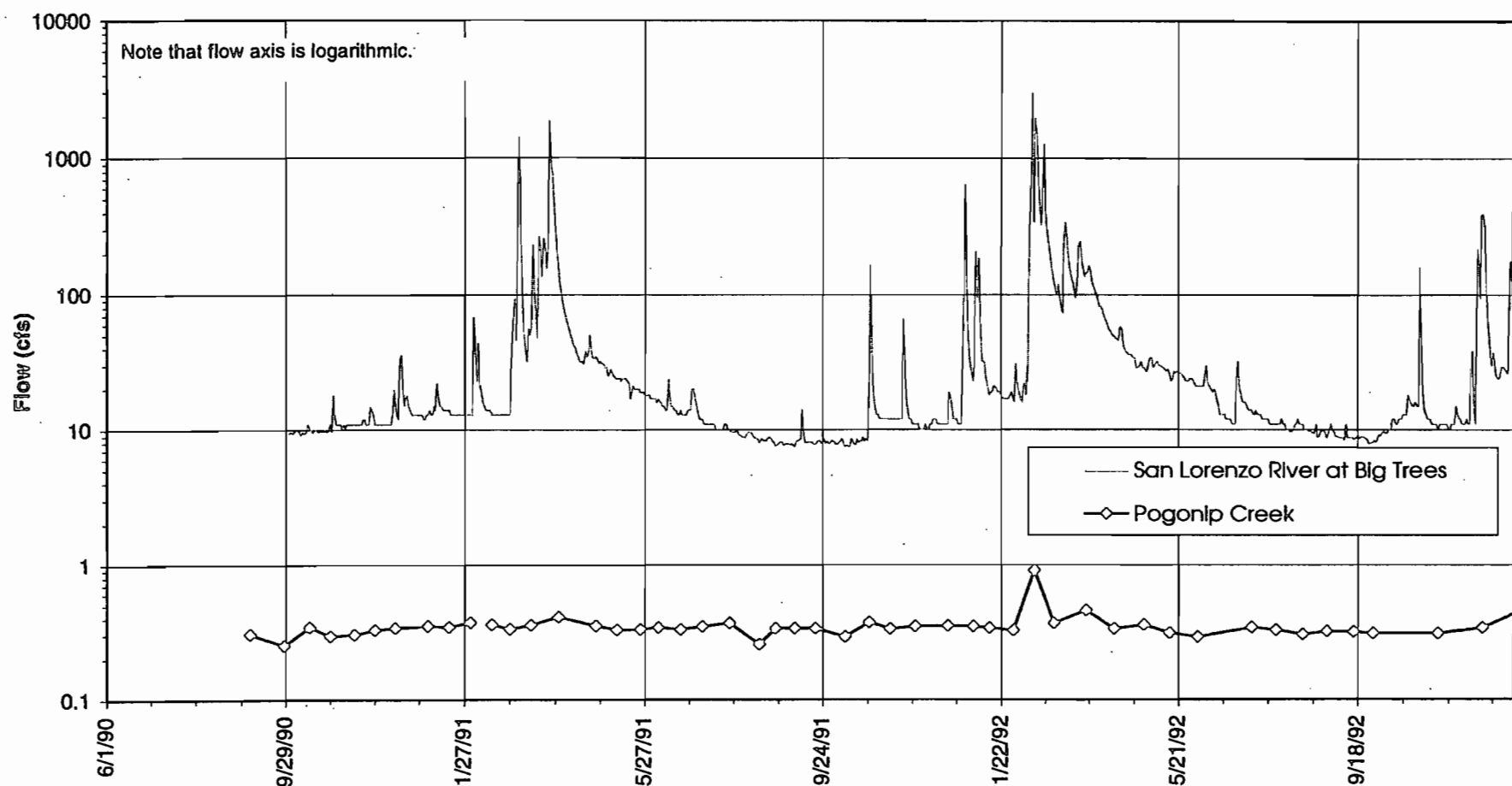
a. Surface Water. There are two named creeks in the project area, Pogonip Creek and Redwood Creek. Both have perennial flow from seeps and springs in the marble and schists along the boundary with the UCSC campus. Summer stream baseflow within Pogonip and Redwood Creeks is sustained by groundwater due to the predominance of locally-porous Santa Margarita Sandstones in the south-central portion of the project site, the weathered mantle of granitic rocks, and the fractured and solution-channeled limestone "karst" formations at the higher elevations of the Pogonip site and underlying the nearby UCSC Campus. The abundant spring flow available onsite has historically served as the water source for the property, although the springbox system currently provides only non-potable water supply.

Streamflow at the project site is supplemented by rainfall during the winter months, which varies from 30 to 35 inches annually based on data from the USGS (Rantz, 1971). The complexities of the relationship between direct winter precipitation, storm runoff, groundwater storage, and groundwater outflow to the numerous seeps and springs in Pogonip's subwatersheds have been partially clarified by detailed hydrogeologic evaluations for water supply and drainage conditions at UCSC (Johnson, N., 1988 and Johnson, Weber and Hayes, 1989). These investigations concluded that fractures and sinkholes on the campus capture storm runoff upstream of the Pogonip, store it as groundwater, and subsequently release it to the numerous streams that emerge at lower elevations below campus, including Pogonip Creek and Redwood Creek.

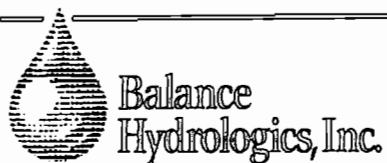
The Pogonip Creek and Redwood Creek drainages are separated by the upper terrace grasslands and the narrow ridge on which Brayshaw Trail runs up to Spring Trail. Each of these drainages has watershed areas of less than 300 acres (Earth Science Associates, 1970). Earth Science Associates estimated the total average seasonal runoff to be on the order of 500 acre-feet for the entire Pogonip property (Earth Science Associates, 1970).

Pogonip Creek is on the south side of the main terrace, and emerges from springs in the Santa Margarita sandstone at an elevation of about 150 feet. It flows down a vegetated alluvial riparian corridor through the active agricultural and residential area below the project site. Pogonip Creek abruptly terminates in a pond west of the railroad tracks in the industrial zone south of Pogonip. Measured flows for Pogonip Creek are shown in Figure IV.D-1.

Redwood Creek flows on the north side of the Upper Main Meadow, from the marble, schist and Santa Margarita sandstone units downslope from the UCSC Upper Campus Reserve area. Unlike Pogonip Creek, the lower channel of Redwood Creek is incised down through the Santa Margarita sandstone to quartz diorite bedrock.



data source: Weber Hayes and Associates, job #H0081; and USGS via EarthInfo CD-ROM



Source: Balance Hydrologics, Inc. 1997

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Figure IV.D-1
Flow in the Pogonip Creek System Compared to Flow in San Lorenzo River at Big Trees

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This resistant granitic channel is steep and the adjacent steep, forested sandstone slopes are subject to landslides and soil movement. At present, the primary trail crossing and several small informal crossings on Redwood Creek along Fern Trail are undergoing locally severe erosion and bank failures, contributing to sediment loads in the San Lorenzo River.

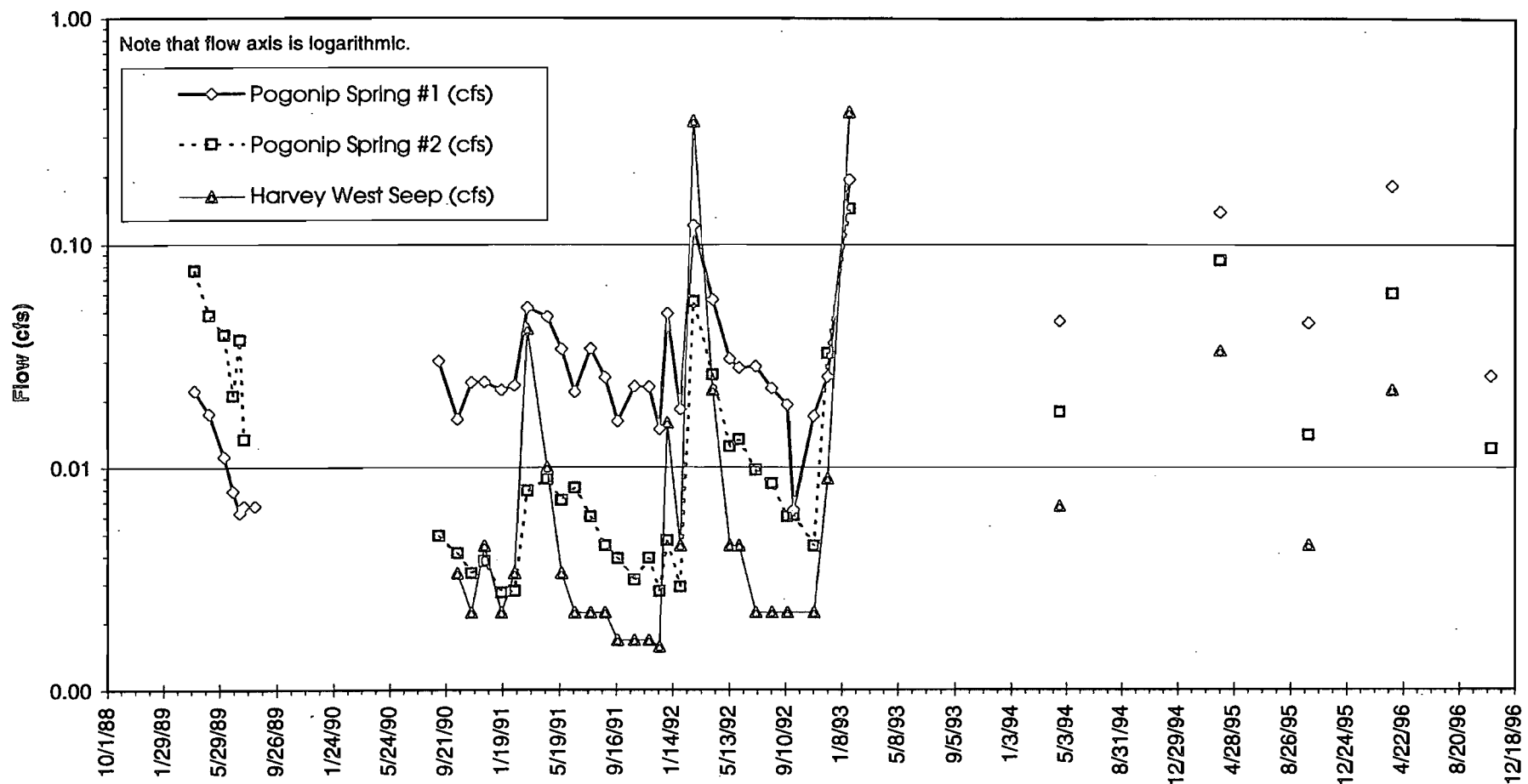
A smaller distinct drainage with perennial flow emerges from seeps in the Santa Margarita formation and passes down into Harvey West Park from the steep, deeply-incised channel east of Spring Street at the southernmost portion of the project site. Several seasonally wet, unnamed arroyos and swales drain the lower terraces and steeper slopes down to the San Lorenzo River and the Golf Club Drive area.

The mainstem of the San Lorenzo River serves as the easternmost boundary of the Pogonip site in the Sycamore Grove Nature Area. The 100-year floodplain of the San Lorenzo River at Sycamore Grove is the only area subject to potentially damaging flooding. The smaller named and unnamed tributaries are not mapped as flood hazard zones. Design of trails, footbridges, and other facilities in the tributary drainages should, however, accommodate periodic winter flooding and debris flows, due to the steepness and general geologic instability associated with the Santa Margarita sandstone and historic quarry activities.

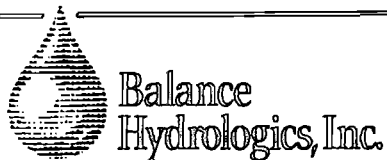
b. Groundwater. Groundwater occurrence is significant in the Santa Margarita Sandstone, weathered and fractured granitic rocks and solution cavities in the marble, or karst formations on Pogonip. Limited site-specific groundwater data are available, primarily due to the relative abundance of seep and spring flow, and the resultant reliance on this water supply for historic uses. Two springs that emanate from the UCSC karst formations along the upper elevations of the Pogonip, as well as Pogonip Creek and the Harvey West seep, have been periodically monitored for flow by Weber, Hayes and Associates since 1989 as part of UCSC's water supply development program. Data from this ongoing study are presented in Figure IV.D-2.

The *Draft Pogonip Master Plan's* proposed use of municipal water supply requires extending the water and sewer lines up Golf Course Drive and eliminates the reliance upon groundwater for either potable or non-potable water supply. Groundwater availability, therefore, would continue to be limited to the historic spring supply system, and would continue to serve as supply to the natural seeps and springs throughout the property.

Within the terrace deposits and the more impermeable layers of the Santa Margarita sandstone, perched shallow groundwater supports seasonal wetlands and seeps. Proposed development of the Pogonip Garden and its ancillary facilities, as well as the Outdoor Education Camp should address this occurrence of shallow



data source: Weber Hayes and Associates, job #H0081



Source: Balance Hydrologics, Inc. 1997

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Figure IV.D-2
Flow From Pogonip Area Springs

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groundwater, both as it seasonally perches during and after rainfall, and as it is transmitted to seeps on downgradient slopes.

2. Impacts and Mitigation Measures

a. Significance Criteria. The following would constitute significant impacts:

- Substantial flooding, pursuant to *CEQA Guidelines*, Appendix G (q).
- Exposure of life and property to increased flood hazards as defined by the Federal Emergency Management Agency (FEMA).
- Substantial degradation of either ground or surface water quality (including siltation from erosion), pursuant to *CEQA Guidelines*, Appendix G (f and q).
- Substantial interference with groundwater recharge, pursuant to *CEQA Guidelines*, Appendix G (l).
- Destruction of natural drainageways.

New uses or intensification of existing uses at the Pogonip site have the potential to impact the hydrologic resources of the site and surrounding area by altering patterns of runoff, recharge, and water quality. Open space conservation serves as an overall benefit to local hydrologic resources by assuring continued occurrence of the relatively unimpaired natural processes of rainfall, runoff and recharge.

Existing uses, such as formal and informal trails, and existing conditions, such as runoff from the UCSC campus and Coolidge Drive, currently have adverse impacts on local water resources. In Pogonip, as in the rest of the Santa Cruz Mountains, erosion, sedimentation, and persistent turbidity are considered the most prevalent cause for degraded water quality. Nitrates from septic systems, equestrian facilities and confined animals are also regionally important causes of water quality degradation, although they pose less of a concern at the project site. With site-appropriate mitigation, most impacts to hydrologic resources associated with uses proposed in the *Draft Pogonip Master Plan* would be less than significant.

Increased trail impacts resulting from multi-use designations and increased visitor use would require ongoing mitigation, maintenance and adaptive management, particularly following episodes of flooding, erosion, landslides, and fire. Other proposed uses, with the exception of the Pogonip garden, are not anticipated to result in significant impacts to hydrologic resources, provided proposed *Draft Pogonip*

Master Plan Design Guidelines, Management Actions, local zoning and building codes, and appropriate erosion control strategies are applied.

The *Draft Pogonip Master Plan* would not result in substantial flooding, nor would it result in the exposure of life and property to increased flood hazards as defined by the Federal Emergency Management Agency (FEMA). The one element that has the potential to be impacted by flooding is the Sycamore Grove Nature Area, which is located within the mapped 100-year floodplain of the San Lorenzo River. The mapped 100-year floodplain occurs on the property between the elevations of 33 to 37 feet above mean sea level. As proposed, no permanent structures, dwellings, or occupied structures are to be developed in the Sycamore Grove area.

Destruction of natural drainageways is not anticipated under any of the use alternatives proposed in the *Draft Pogonip Master Plan*. As proposed, several existing and all newly proposed drainage crossings would be located and designed to minimize drainage problems and trail erosion which could otherwise result in decreased water quality.

Substantial interference with groundwater recharge is not anticipated under any alternative considered in the *Draft Pogonip Master Plan*. Limited changes in recharge and drainage associated with roof and parking areas are addressed below.

Impact WAT-1: New developed features would be added to the Pogonip site that could result in substantial degradation of water quality (including siltation from erosion). (S)

The following proposed developed features would have associated water quality degradation impacts:

(1) **Clubhouse Rehabilitation.** The rehabilitation and increased use proposed for the Clubhouse and associated grounds may impact the local hydrology and water quality, although changes in runoff and groundwater recharge may be mitigated through the minimization of impervious surfaces and the use of vegetated buffers and swales adjacent to event grounds, roadways and parking areas. The use of pervious surfaces on walkways and the proposed multi-use trail/access route would minimize increased runoff volumes and velocities which would reduce the likelihood of erosion and increase groundwater recharge. Surface contaminants from automotive wastes may pose adverse impacts to surface and groundwater, but these could also be mitigated through the use of vegetative buffers and swales.

Abandonment of the historic on-site septic system could affect local recharge rates, which in turn could alter the groundwater availability to seasonal seeps in the Santa Margarita sandstone located on the southern slope below the Clubhouse. This is not anticipated to be a notable impact, particularly due to limited use of the Clubhouse in recent decades and subsequent limited recharge associated with the on-site septic

system. Local water quality is likely to be enhanced by the proposed extension of a sanitary sewer line up Golf Course Drive.

The extension of a municipal water supply for landscape irrigation is not anticipated to substantially contribute to local recharge or degrade water quality. Proposed design guidelines promoting drought tolerant native landscape species would ensure that minimal quantities of irrigation water would be needed. As in other components that rely on new construction, construction impacts could be mitigated by adherence to local erosion control standards.

(2) Pogonip Garden and Related Facilities. The development of the proposed Pogonip garden and associated infrastructure could significantly impact the hydrology and water quality of the Pogonip by disturbing vegetative cover and exposing soils on the fluvial terrace deposits and highly erodible Santa Margarita formation. Both row crop production on the gently-sloping terrace deposits and the development of orchards and terraced permaculture/flower beds on the Santa Margarita sandstone slopes south of the Clubhouse have the potential for persistent erosion. As discussed in Geology, Soils, and Seismicity section of the EIR, Best Management Practices (BMPs) like contour bedding, vegetated buffer strips, winter covercropping, and restrictions on wet season activity could reduce impacts on the coastal terrace formation to a less-than-significant level. Tillage and seed bed preparation could cause erosion and generate sediment loads to local wetlands and surface water if done during the rainy season. Impacts of this nature could be partially mitigated by conservative use of equipment, active maintenance, erosion control features, and use of sediment basins during the winter and spring.

Erosion of the Santa Margarita sandstone and the terrace soils is a potentially significant water quality impact associated with the Pogonip garden. The Santa Margarita sandstone in the area proposed for terraced permaculture crops exhibits 16 to 30 percent slopes and is prone to severe erosion when subject to disturbance. Terraces and other land contour-sensitive features may minimize erosion potential but footpaths, spaces between rows and other exposed soil surfaces are all likely to generate persistent turbidity to adjacent wetlands and the San Lorenzo River. Mitigation measures for erosion are as listed in section C, Geology, Soils, and Seismicity.

Groundwater and surface water quality impacts could result from the use of compost, bone meal, blood meal, fish meal, and horse manure. Despite their organic composition, the addition of these nutrients to the local surface and groundwater could cause significant water quality impacts. Potentially significant impacts could include increased levels of nitrates in local groundwater and wetlands. Elevated levels of nitrates have been found to adversely affect public health and the biologic

functions of freshwater wetlands and aquatic habitats. Impacts to water quality of this nature could be minimized by careful storage and application of fertilizers.

Irrigation of the Pogonip garden project, at 2.0 acre-feet per acre (af/acre) from March through November, as proposed, would result in a net application of approximately 20 acre-feet of municipal water for 10 acres of agricultural production. This estimate is confirmed by agricultural water use estimates from local commercial agricultural operations that produce similar crops showing that typically at least 1.5-3.0 af/acre of applied water is required. This additional water may impact the local groundwater system through increasing local recharge. Irrigation tailwater may also impact local wetland habitat by providing sustained water supply to freshwater emergent marsh habitats and downstream riparian habitats. Chlorine residuals in the treated municipal supplies and runoff of high nutrient irrigation runoff may impact water quality in local wetland and aquatic habitats. Based on the current conditions of the receiving waters, and the lack of known occurrences of sensitive amphibian species downstream, chlorine residuals are not likely to represent significant impacts.

Construction of ancillary facilities may adversely impact water resources and water quality by disturbing and/or overcovering of soils. As noted in section C of Chapter IV of the EIR, Geology, Soils, and Seismicity, construction impacts could be mitigated by adherence to local erosion control standards.

(3) Outdoor Education Camp. The proposed one-acre Outdoor Education Camp could impact local hydrology and water quality by increasing runoff and erosion due to creation of impervious surfaces and removal of vegetation. The greatest impact is likely to result from exposed soil surfaces associated with intensive pedestrian uses and the proposed shade structure, amphitheater and group camp.

(4) Sycamore Grove Nature Area. The development of this area as a passive recreation and educational resource is not likely to result in significant impacts to surface or groundwater quality, erosion, flood occurrence or changes in waterways. Due to its current informal use as a transient camping area, development of a formal nature trail system and related riparian restoration efforts are likely to result in a net improvement in local erosion and water quality conditions. The availability of an on-site trash and sanitary facilities would also protect water quality.

Potential impacts associated with trail construction and increased foot traffic can be mitigated by selecting appropriate trail routing. Construction impacts could be mitigated by adherence to local erosion control standards.

(5) Trails. Trail construction and trail use present the potential for impacts to local hydrologic resources and water quality. Under current conditions and levels of pedestrian-only use, the trail network suffers from localized erosion and serves as a source of sediment and persistent turbidity to surface water resources on the property and downstream. Hydrologic and water quality impacts associated with existing levels of use under the present pedestrian-only limitation at Pogonip consist of soil erosion on steep sections of the existing service roads and trails. Numerous informal foot trails and cutoffs used by both day visitors and illegal transient campers have also created erosion and associated water quality impacts. Continued pedestrian use of existing roads and trails, as proposed in Trail Alternative C, is considered self-mitigating, due to the following: proposed trail improvements; additional wetland and stream crossings; definition of single, preferred trail routes; and the abandonment of problematic informal trails.

The overall level of impact from these existing sources is not considered significant when viewed against the larger sources of water quality degradation, particularly turbidity, in the San Lorenzo River watershed. Because the primary impacts to local hydrologic resources are sedimentation and persistent turbidity derived from on-site trail erosion and use, the discussion of soils and geology also covers this issue. The following discussion is therefore somewhat limited in scope and serves to supplement Section C, the Geology, Soils, and Seismicity section of the EIR.

The impacts of increases in overall trail use are potentially significant both for existing and proposed trail alignments. Multi-use and pedestrian-only trails have the potential to impact hydrologic resources by generating increased erosion, altering runoff patterns, and exacerbating inherent geologic instabilities through the loss of vegetation and the saturation of steep soils at points of runoff collection. Proposed Trail Design Guidelines and Trail Management Actions of the *Draft Pogonip Master Plan* would reduce most impacts to less-than-significant levels. Locally- and temporarily-significant impacts may result in situations of storm-related slope failures or trail washouts.

In general, more trail damage and erosion occurs from any trail use during wet periods, when erosion occurs under rainfall conditions. In the Santa Cruz Mountains, with local precipitation approaching 35 inches annually, this period typically extends from October through April, with the highest average monthly rainfall occurring in February.

Ongoing trail maintenance activities such as redesign and installation of waterbars, outsloped drainage, inside ditch and culvert cleaning, and selection of minimal gradients for new alignments are important design and management solutions to minimize adverse impacts. As proposed, the Trail Design Guidelines outlined in the

Draft Pogonip Master Plan provide adequate mitigation for the potential impacts associated with the proposed pedestrian-only trail designations.

In the case of new trail alignments, route selection is the key determinant for construction techniques and possible adverse impacts. A planned, well-constructed trail, with regular and vigilant maintenance, would likely offset existing impacts caused by the numerous informal foot trails that currently contribute to local site erosion. As proposed, Trail Design standards proposed in the *Draft Pogonip Master Plan* should provide adequate assurance that erosion and sedimentation impacts would be reduced to a less-than-significant level.

Individual trail alignments and potential impacts are discussed below:

- *Rincon Trail:* Rincon Trail currently experiences notable erosion under pedestrian use, service road and unauthorized mountain bike use. Due to its long term use as a connector between the Cowell Ranch/UCSC campus and Highway 9, the road surface and drainage features exhibit numerous areas of local erosion related to drainage management and wet season use. Increased levels of use on Rincon Trail, under both the pedestrian use and multi-use alternatives, would exacerbate existing erosion problems. Under Trail Alternatives A, B, and C, multi-use is proposed for Rincon Trail. Due to its original construction as a quarry service road and its six percent grade, it is not anticipated that multi-use, in particular, would increase water quality problems or drainage patterns.

Increased use resulting from multi-use access would likely increase maintenance requirements on drainage features. Increased trail traffic under all three alternatives has the potential to adversely impact water quality through increased erosion during wet season use.

- *Brayshaw Trail:* Brayshaw Trail is a service road that extends from the Upper Main Meadow area up to a junction with Spring Trail. It runs atop the saddleback ridge that separates the Pogonip and Redwood Creek drainages. At its narrowest point above the concrete reservoir and eucalyptus grove, this trail exhibits active erosion. This stretch of trail is a critical access route, is used year-round, and serves as a source of persistent turbidity to the two on-site streams and ultimately, the San Lorenzo River.

The steepest section of the trail exceeds 25 percent grade just below the connection with Spring Trail. The length of this trail is unpaved, with gravels placed annually in the steep and wet sections to maintain the roadway surface. Under Trail Alternatives A and B, multi-use is proposed on Brayshaw Trail, although the steepest portions would be designated as a "Walk Bicycle" zone. Multi-use activities on slopes between 10 to 25 percent grades would likely

result in increased roadbed erosion due to the braking required of bikes and increased equestrian use.

Under Trail Alternative C, Brayshaw Trail would be designated pedestrian only. Under all trail alternatives, Brayshaw Trail remains a service road with year-round access requirements.

- *Spring Trail:* Spring Trail is a well established and constructed service road that suffers from gully-related erosion and destabilization associated with drainage from UCSC and Coolidge Road. Gully repair and drainage improvements affecting Spring Trail are planned to be cooperatively addressed by the City, Santa Cruz County, and UCSC.

Under Trail Alternative A, Spring Trail is designated for multi-use. Due to its low overall gradient (less than two percent), it is not anticipated that multi-use would greatly increase impacts to local surface water quality, particularly when viewed against the existing drainage and erosion problems associated with active gully formation from Coolidge Drive. Increased maintenance and possible restrictions on wet season use should adequately mitigate for multi-use and increased pedestrian-only impacts likely to occur in Alternatives A, B, and C.

- *Pogonip Creek Nature Loop:* For all trail alternatives, this trail is designated as pedestrian only. Several informal creek and seep crossings exist that are minor sources of erosion and persistent turbidity to Pogonip Creek. As proposed in the Trail Design Guidelines, minor trail re-alignments and construction of small footbridges at the crossings would mitigate for increased trail use anticipated under all three alternatives.
- *Fern Trail:* For each alternative, Fern Trail is designated for pedestrian use only. The existing route suffers from severe erosion and bank instability at the crossing of Redwood Creek. This current alignment is a notable source of persistent turbidity to the creek. Passage through the wet meadow area east of Brayshaw Trail and Ohlone Trail requires minor re-routing and/or elevation of the footpath to reduce damage to the native plant populations.
- *Prairie Trail:* The pedestrian-only designation of Prairie Trail under all alternatives, and the low gradient of the trail alignment, limits the potential of erosion and subsequent water quality degradation. No adverse impacts are anticipated.
- *Sycamore Grove Trail:* For each alternative, this trail is designated pedestrian only. Low gradients in the alluvial bottom land limit potential erosion and related turbidity. Avoidance of wet areas in the trail alignment and use of elevated walkways would further limit potential water quality

impacts. No impacts to flood flows are anticipated in the mapped 100-year flood plain.

- *Spring Box Trail:* For each alternative, the Spring Box Trail is designated as pedestrian only. The *Draft Pogonip Master Plan* proposes to designate one trail and to eliminate the numerous informal trails that climb the slope below the upper springbox. The reduction in the number of trails, combined with the proposed fencing of the lower spring box, would likely result in improved water quality as slope disturbance and bathing use is decreased.
- *Lower Meadow Trail:* The Lower Meadow Trail is proposed for pedestrian-only use under all alternatives. Due to its location, proposed trail improvements, and closure of nearby informal trails, no adverse impacts to water resources are anticipated.
- *Limekiln Trail:* Under all alternatives, Limekiln Trail is designated as pedestrian only. In its current state, minor trail erosion occurs but is not considered a significant source of persistent turbidity to local surface water resources.
- *Ohlone Trail:* For each alternative, Ohlone Trail is designated as pedestrian only. No impacts to hydrologic resources are anticipated.
- *Lookout Trail:* For each alternative, Lookout Trail is designated as pedestrian only. The existing alignment, and the several informal alignments that drop from Coolidge Drive to Spring Trail have the potential to adversely impact water quality by increasing erosion. As proposed in the *Draft Pogonip Master Plan*, formally designating and maintaining a single route from the informal Lookout at UCSC would likely result in reduced erosion and reduced persistent turbidity.
- *Harvey West Trail:* For each alternative, the Harvey West connector trail is designated as pedestrian only. Much of this trail exists informally, and is made up of a pedestrian trail in the Harvey West Property, and a former four-wheel drive (4WD) route up the Wavecrest acquisition to connect with Lookout Trail. In its current state, the mid to upper sections exhibit erosional rills, but do not appear to significantly impact local water resources due to the drainage to the developed area below. Proposed trail re-alignment and maintenance to reduce trail gradients would improve site conditions. It is anticipated that the existing 4WD route would remain for emergency access. It is proposed to be gated and signage would be employed to limit use to emergency access and direct pedestrians to the new, lower gradient pedestrian trail.

- *UCSC Connector Trail:* The most important proposed multi-use trail addition is the proposed UCSC Connector Trail (0.5 mile/new trail) The UCSC connector trail traverses the steep slope between the upper UCSC campus natural area/Firebreak Trail and Rincon Trail on the Pogonip site. Two slightly differing alignments are considered in the *Draft Pogonip Master Plan*, although only one of these routes would be constructed.
 - *The UCSC Connector Trail - Southern Route* runs up the forested slope from south of the intersection with Rincon Trail and Spring Trail, crosses Limekiln Trail, and a small intermittent drainage which requires a small bridge. It proceeds in a northerly direction until it reaches a steep gully, where it switches back to a southerly trending 12 percent grade up to the UCSC boundary. From the Pogonip/UCSC boundary, the UCSC connector is routed through a mixed grassland and woodland habitat to the UCSC Firebreak Trail.
 - *The UCSC Connector Trail - Northern Route* starts farther north on Rincon Trail and requires minor realignment of Limekiln Trail to reduce potential user conflicts with hikers. The northern route requires two drainage crossings, with one being the relatively deep gully crossed by the southern route. The larger gully requires the construction of a bridge to span winter stormwater runoff, and would likely require additional site evaluation of an area of seeps and apparent slope instability immediately north of the gully crossing. The upper portion of the northern route is proposed to be identical to the southern route.

Based on limited field assessments, it appears that both UCSC connector routes are feasible, yet require a substantial commitment on the part of the community, the City of Santa Cruz, and volunteers to adequately design, construct, and maintain the trail. Minor water quality impacts may result from construction period impacts, stormwater runoff, and trail surface erosion.

- *Rincon Connector Trail:* The existing Rincon Connector Trail is proposed as a multi-use connection to Henry Cowell Redwoods State Park for two of the alternatives. Currently, this trail alignment is a two- to four-foot wide single track on gentle to steep slopes. Trail widening along the existing alignment, should it be necessary to reduce potential user conflicts, would require minor slope disturbance.

(6) Historic Sites and Features. Of all the components of the *Draft Master Plan*, Historic Sites and Features are among those least likely to have potentially significant impacts on hydrology and water quality. Because this component includes the continuation of existing uses and affords greater resource protection, it

is not likely to have any notable adverse effects on hydrologic resources, flooding or water quality. These designated areas and associated uses require no significant land disturbance; overcovering or compaction of soils; or changes in drainage, recharge or runoff. Intensification of visitor use in the vicinity of historic sites may, however, result in locally increased erosion and soil compaction. Impacts of this nature may be mitigated by trail design and site-appropriate erosion control treatments.

(7) Natural Resource Management Areas. The designation of Natural Resource Management Areas does not have associated impacts to local hydrologic resources because no physical changes to the environment would occur. Therefore, no mitigation is required.

(8) Fire Management. Designated Fire Management areas and specific fire management strategies outlined in the *Draft Fire Management Element* are not anticipated to adversely impact water resources. Fire suppression and fuel reduction activities such as prescribed burns and mowing impact water quality, but when compared to the erosion and persistent turbidity likely to follow a significant wildland fire, these potential impacts are not significant. The availability of on-site water for fire suppression activities is limited to the proposed extension of water service up Golf Club Drive. As such, water supplies for active fire suppression would most likely be brought in by helicopter from off-site sources.

(9) Maintenance and Support Facilities. The maintenance facility improvements proposed in the *Draft Pogonip Master Plan* do not present significant risk of water resource degradation or flooding. All impacts associated with the construction and use of the new maintenance facility, caretaker residence, accessory structures and formal parking structures would be sufficiently mitigated by adherence to the proposed Maintenance and Support Facilities Design Guidelines and Management Actions. In addition, the requirement for a Design Review Permit, subject to approval by the City's Zoning Administrator, would provide design-specific input at the time of implementation.

(10) Transportation and Circulation. As proposed, improvements and modifications to traffic and circulation would not result in significant degradation to local surface or groundwater. Potential adverse impacts associated with increased automobile access and parking would be mitigated by measures outlined for proposed paved surfaces.

(11) Utilities. Proposed improvements and modifications to Pogonip's utility systems would not result in significant degradation to local surface or groundwater resources. Extension of water and sewer lines for existing and proposed facilities and uses would likely result in overall improvements to on-site

hydrologic resources. Construction period impacts may be mitigated through standard erosion control methods.

The following combination of mitigation measures should be implemented to reduce the impact to a less-than-significant level.

Mitigation Measure WAT-1a: To reduce the water quality impacts, the Pogonip garden should be sited elsewhere at an alternative off-site location, as discussed under the Off-Site Garden and Relocated Parking Alternative in Chapter V. The acreage requirements for the garden and the lack of suitable habitat make an alternative on-site location infeasible. Because the garden is considered a key element of the project, the following measure is recommended to further reduce this impact.

- The actively tilled fields should be reduced in scale such that a vegetated buffer of at least 30 feet separates plowed areas from slopes greater than 10 percent and active gully headcuts at the top of the drainage corridor that bisects proposed Pogonip garden plots. Drainage structures, gully treatments, and Pogonip garden plot layout should be developed in coordination with knowledgeable agricultural planners such as staff of the Natural Resource Conservation Service (NRCS), Santa Cruz County Agricultural Commission, and UC Agricultural Extension Service. (LTS)

Mitigation Measure WAT-1b: To reduce trail-related impacts, voluntary seasonal trail closures should be posted with on-site signage at the Parks and Recreation Department, and through public notices in local media. Wet season trail closures should be implemented to minimize adverse impacts to water quality and reduce trail maintenance requirements. Seasonal closures would likely be more effective than daily closures due to the different trail moisture conditions likely to be encountered in the variable terrain. In all trail alignments and trail use alternatives, existing and proposed, limits on wet season use would reduce impacts to local soil and water resources. (LTS)

Mitigation Measure WAT-1c: In both multi-use trail alternatives, increased signage and speed control features should be implemented to reduce overall impacts of trail use, by reducing trail widening at points of user interface, and on turns where users may drift off designated trails. Unauthorized access by mountain bikes and horses on single track pedestrian routes should be monitored to reduce the potential for trail widening and erosion. (LTS)

Mitigation Measure WAT-1d: Drainage structures such as waterbars, ditches and culverts should be cleared and maintained prior to each rainy season. This measure applies to all trail alternatives, including existing use and proposed multi-use alignments. Leveling the low duff/soil berm that develops on the downslope side of pedestrian trails would also reduce erosion and sedimentation. Drainage features should be maintained to keep trails drier, limit standing water, and disperse erosive stormwater flow over wider areas, thereby reducing the volume and velocity of trail runoff at any given point in the trail network. (LTS)

Mitigation Measure WAT-1e: In the case of the proposed new multi-use trail alignments, construction specifications should be developed by trail designers with practical experience in the region and field fit to site-specific conditions. Trail alignments should be developed to minimize gradients to 12 percent or less. Where feasible, multi-use trails should be designed to have less than 8 percent grade. Steeper gradient informal trails should be obliterated and user traffic should be directed to maintained trails through the use of brush piles, downed trees, and, if necessary, fences. (LTS)

Mitigation Measure WAT-1f: Specifications for creek crossings and grading on steep slopes should be developed in the field by those familiar with the episodic nature of winter storms and slope instability in the Coast Range. Slope cuts should be minimized, to the extent feasible, and slope fills for maintaining trail widths should be avoided, due to the inevitable disturbance of the fill matrix under equestrian and mountain-bike use. Overall trail widths should be minimized on slopes in excess of 30 percent to reduce the potential for slope failure and erosion. (LTS)

Mitigation Measure WAT-1g: On steeper slopes (i.e., those slopes greater than 30 percent), slope cuts should be located with regard to potential slope instability, existing landslides and slope failures, as well as user safety and sight lines. In general, narrower trails reduce slope disturbance and changes in runoff patterns that may substantially impact local surface water quality in the event of trail degradation or slope failures. (LTS)

Mitigation Measure WAT-1h: Fencing should be installed at specific locations as needed, to limit trail cutoffs and redundant routes and to limit the potential adverse impacts associated with excessively steep, unmaintained informal trails. (LTS)

Mitigation Measure WAT-1i: Existing informal and unauthorized trails should be obliterated, to the extent feasible, to focus user traffic on maintained trails. (LTS)

Mitigation Measure WAT-1j: Overhanging limbs, trailside brush, and downed logs should be cleared from multi-use trails to minimize informal trail bypasses, pullouts and cutoffs that promote trail widening, vegetation trampling and soil disturbance. (LTS)

Mitigation Measure WAT-1k: A sustained maintenance program should be established to include the commitment of regular budget allocations and provision for contingency funds to rehabilitate trails following episodes of flooding, landsliding, and other disturbances typically associated with the Santa Cruz Mountains. (LTS)

Mitigation Measure WAT-1l: Re-routing of Fern Trail to minimize trail impacts to wet meadow and native grasslands should be conducted with due consideration to the active gulleying and slope failure occurring immediately downslope in the Santa Margarita formation. (LTS)

Mitigation Measure WAT-1m: Prior to construction of the UCSC Connector Trail, either route requires additional site inspection and trail design. The proposed trail grade should not exceed 12 percent and proposed trail widths should be approximately four to six feet within Pogonip. Due to the steep terrain, trail construction would require excavation of a cut face on slopes in exceedance of 40 percent. Maintaining drainage and minimizing trail widening due to traffic passing in different directions would be critical for the long term viability of either connector route. Well-placed pullouts, or passing areas, should also be provided to minimize user conflicts and informal trail widening. (LTS)

Mitigation Measure WAT-1n: Periodic sweeping of paved surfaces (e.g., parking areas) should be conducted during the summer and fall to reduce contaminated soil particles and animal wastes, thus reducing the first flush of urban runoff pollution in the rainy season from impervious surfaces. (LTS)

Mitigation Measure WAT-1o: Storage of manure, compost and nitrate rich materials to be used in the Pogonip garden should be undertaken to minimize leaching to groundwater by placement on impervious surfaces and covering of stockpiles during the rainy season. (LTS)

Mitigation Measure WAT-1p: Water conservation practices in the Pogonip garden and stormwater runoff BMP techniques should be implemented to mitigate potential adverse impacts associated with use of treated municipal water for irrigation on downstream wetland resources. (LTS)

Mitigation Measure WAT-1q: Local erosion control and design review standards should be met to minimize construction impacts from ancillary facilities associated with the Pogonip garden, Outdoor Education Camp, and maintenance and support facilities. (LTS)

Mitigation Measure WAT-1r: Erosion control features should be constructed to minimize pedestrian use impacts associated with the Outdoor Education Camp. Trails and walkways on steep slopes should be avoided in these same areas. At the Outdoor Education Camp, tent platforms or other stable, well drained designated campsites should be used. Runoff management through the use of pervious surfaces, vegetative buffers and other similar features should be implemented to reduce stormwater impacts. (LTS)

Mitigation Measure WAT-1s: In sections of Brayshaw Trail that exceed 12 percent grade, the road surface should be paved and drainage should be managed to reduce persistent turbidity and maintain the integrity of the saddleback ridge on which the route sits. Brayshaw Trail's use as a critical year-round emergency access route between the Golf Club Drive entrance and the upper Pogonip results in frequent wet season use. Engineering drainage features and a stable roadbed in the steep section of Brayshaw Trail should be constructed to reduce existing and anticipated persistent turbidity in surface runoff, while increasing the lifespan of the route for emergency and operational access. (LTS)

E. ARCHAEOLOGICAL AND HISTORIC RESOURCES

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This section considers the effects of the proposed *Draft Pogonip Master Plan* on known archaeological and historic resources located within the Pogonip site. This analysis: 1) defines the inventory of known archaeological and historic resources; 2) evaluates the significance of each resource with reference to significance criteria defined by *CEQA*; and 3) discusses potential impacts on archaeological and historical resources and mitigation measures that may reduce those impacts to less-than-significant levels.

The information presented in this section is derived from existing data provided by the City of Santa Cruz. No new archaeological or historical field investigations were conducted. Limited historical research was completed to clarify information provided in reports prepared for earlier archaeological and historical investigations at Pogonip.

1. Environmental Setting

a. Native American Cultures. Archaeological evidence suggests that Native Americans may have lived in the Santa Cruz area for nearly 10,000 years. Prehistoric and historic Native American cultures were characterized by gatherer-hunter-fisher economies and organized based on social, political and economic interactions among extended families. The environment of the region provided abundant resources for subsistence and economic purposes under such an arrangement. Gathering of terrestrial plant materials, especially grass and brush seeds, acorn, tubers, forbs and corns, marine vegetation (seaweed), and shellfish and insects; hunting terrestrial and marine animals (e.g., deer, elk, rabbit, bear, seal, sea lion, etc.); and fishing (in streams and inshore marine environments) provided Native Americans with an abundance of resources for food, ornamentation, tools and economic exchange among various groups.

Native Americans living in the San Francisco Bay and Monterey Bay areas and encountered by Spanish explorers of the 18th century were referred to generally as "Costaño" by the Spaniards. Native American groups were recognized to speak a number of closely-related languages. This linguistic group is now referred to as Ohlone. The 18th-century Ohlone tribelet located in the vicinity of Mission Santa

Cruz is believed to have been called Uypi, as recorded in mission records. Establishment of the mission and the introduction of European diseases for which the Ohlone had little natural resistance, resulted in a rapid and dramatic decline in the Native American population. Subsequent persecution and suppression of native cultural expression by Spanish, Mexican and American cultures contributed to the transformation of traditional Ohlone culture. Today, Ohlone descendants are celebrating a revival of Ohlone culture and a growing appreciation of their place in the multi-cultural environment of California (Levey, 1978; King, 1997; Kroeber, 1925; Milliken, 1994).

b. Historic Setting. The Portolá expedition in 1769 was the first significant Spanish exploration in the Santa Cruz area. The founding of Mission Santa Cruz in 1791 established a permanent European colonial presence in the area. With the secularization of the mission system in 1833-1834, the Santa Cruz mission ceased to be the major political and economic force in the area. Under Mexican administration of Alta California numerous land grants were awarded to Mexican and other pioneers. Among these is the Cañada del Rincón en el Rio San Lorenzo de Santa Cruz which encompasses Pogonip. The Cañada del Rincón land grant was made in 1843 to Pierre Sansevain and covered an area of two square leagues. Sansevain, a French lumberman and millwright, may have initiated lime processing in the area. Title to the land (5,827 acres patented in 1858) was conveyed to Albion Jordan and Isaac Davis sometime between 1856 and 1860. In 1849, these men formed a partnership and soon began massive production of lime from the native limestone found in the Santa Cruz area. Whether Jordan and Davis were actually responsible for building the lime kilns in Pogonip or whether these kilns existed prior to 1850 is debatable. Henry Cowell purchased Jordan's interest in the lime business (Davis & Jordan Company) in 1865, creating Davis & Cowell Company. Cowell bought out Davis in 1888, creating Henry Cowell Company which became the Henry Cowell Lime and Cement Company in 1899. With the decline of the lime industry in the early 1900's, operations on the Cowell holdings shifted to focus on lumbering.

Lands within Pogonip were leased by Henry Cowell (d. 1903) and his heirs for a variety of purposes. The Casa del Rey Golf Course was developed in 1912 by Henry Swanton, making it the first such private club in Santa Cruz County. The existing Clubhouse, designed by architect L.D. Esty, was built as part of the golf course development. The Santa Cruz Golf Club maintained the lease for the facilities from 1913 until 1935. The golf club declined due to competition from Pasatiempo and other similar enterprises in the area. In this same period the area was home to the Pogonip Blue Rock and Skeet Club. The Pogonip Social and Polo Club took over the Santa Cruz Golf Club lease, recreating the golf course as a polo field to support the training and competition of the international calibre polo players that belonged to the polo club (e.g., Dorothy Deming Wheeler). The club became an attraction for movie

stars and the international sporting set in the 1930s and 1940s. The club fielded a women's polo team that took the Pacific Coast Championship for seven consecutive years. Following World War II, use of the polo club declined and the facility gradually reduced its functions to family and social affairs centered around the Clubhouse itself. In 1988, the Clubhouse was condemned by the County Building Official as structurally unsafe.

Other parts of Pogonip were leased as well. A house, outbuildings and orchard were established on a lease to Southern Pacific Railroad official E.O. McCormick between 1910 and 1920. McCormick used the property as a vacation retreat. A house and various outbuildings were constructed, landscaping installed and an orchard planted, among other developments. The property was subsequently leased to another family in the 1930s and 1940s. The house burned down, apparently prior to World War II, and was never rebuilt (Cartier et al., 1996; Hoover et al., 1990; Morstein, 1987; Strelow, 1992; Piwarzyk, 1994).

c. Archaeological and Historic Resources in Pogonip. There are no known prehistoric/Native American archaeological resources in Pogonip (Cartier et al., 1996; Goetz, 1997). Known historic period objects, sites, structures and buildings are described below. Historic properties of concern under *CEQA* are those that are eligible for nomination to the *California Register of Historical Resources* or *National Register of Historic Places*. Criteria for listing are described in subsection "ii. Impacts and Mitigation Measures" of this section of the EIR.

(1) Pogonip Clubhouse. The facility consists of the Clubhouse, accessory buildings, swimming pool and tennis courts. A large pond formerly located west of the Clubhouse was filled many years ago. The Clubhouse, constructed circa (ca.) 1912, is an example of a two-story bungalow structure in the Rustic Craftsman style, and is the most conspicuous historic resource in Pogonip. The Clubhouse has been altered somewhat from its original design by enclosure of a portion of the front porch, removal of an exterior stairway to the second story, addition of a deck to the western end of the building, and alteration of the entrance, windows, upper deck railing and porch. The building has been condemned as unsafe for occupancy or use (Strelow, 1992).

Of the numerous improvements and features in the Pogonip, only the Pogonip Clubhouse has previously been evaluated in terms of historic significance. It is listed in the City of Santa Cruz *Historic Building Survey*. It has been determined in consultation with the State Historic Preservation Officer (1991) to be eligible for listing in the *National Register of Historic Places* (NRHP) pursuant to appropriate eligibility criteria (36 CFR 60.4a, b and c). However, it is not yet listed in either the NRHP or the *California Register of Historical Resources* (CRHR).

(2) Pogonip Golf Course/Polo Field. Neither the original golf course nor the polo field have survived in the fifty years since their peak use. Altered landforms in the Pogonip testify to the former existence of these facilities as may isolated artifacts such as water pipes and a golf tee sign.

Neither of these resources were ever formally evaluated for listing in either the NRHP or the CRHR.

(3) Lime Kilns, Limestone Quarries and Associated Features. Remains of three lime kilns, two developed limestone quarries, at least four small quarries or prospect pits, and associated lime production related features (tailings piles, possible workers' facilities, cut redwood stumps, transportation system, etc.) exist in the western portion of Pogonip. The precise history of these lime production resources is not known. Development of limestone extraction and lime processing in Pogonip may have begun prior to 1850. Production involving these facilities was probably underway by 1860. These features would have been closely related, temporally and functionally, to the well-known quarries and lime kilns located near the main entrance to the UCSC.

The historic lime production facilities have not been fully documented and none has been formally evaluated as to eligibility for listing in the CRHR.

(4) McCormick House Site. Remains of a house, cool room, spring box, landscaping, orchard, outbuildings and domestic debris mark the site in the central part of Pogonip that was originally the vacation residence of E.O. McCormick (Morstein, 1987). The house and associated features were apparently built between 1910 and 1920. At some point, the house burned to the ground, leaving only the current remains. A concrete water reservoir is near the home site and apparently served as a swimming pool. The site is considered here as an archaeological property.

The site's eligibility for listing in the CRHR has not been previously determined.

(5) Trails and Roads. All or portions of several trails and roads were constructed early in the history of Pogonip. These include Spring Trail, Rincon Trail and Golf Club Drive. Portions of Spring and Rincon trails were originally developed as part of the transportation system associated with the limestone quarries and lime kilns in Pogonip. Parts of Spring and Rincon trails retain original road fabric, including limestone roadbed and other features. Golf Club Drive would have been constructed originally to provide access to the Clubhouse. It is not clear if any original elements of the roadway have been preserved, other than, perhaps, the actual alignment. Other trails in Pogonip may have historic elements that are not

recognized or documented. None of the historic transportation features has been previously evaluated for listing in the CRHR.

(6) Other Artifacts and Features. A fence line, redwood stumps, spring boxes, pipeline segments, water troughs and miscellaneous artifacts are found across the Pogonip landscape. These have been documented as historic remains but none has been dated nor has their historic context been established. A fence line comprised in part of wooden posts with cut iron nails is presumed to be historic but it has not been established what portions of the fence line are actually made up of historic materials. Some of the redwood stumps in Pogonip probably represent historic logging associated with procuring fuel for the lime kilns. It is not determined, however, which stumps are associated with the lime industry, early lumbering or later tree harvesting. Some of the spring boxes and other water features may be originally associated with the lime kilns but this has not been established. Water features associated with the lime industry resources could be considered significant in the context of the lime manufacturing industry (Cartier *et al.*, 1996; Goetz, 1997). None of the artifacts and features have been previously evaluated to determine their eligibility for nomination to the CRHR.

(7) Archaeologically Sensitive Areas. Three areas in Pogonip have been recommended to be archaeologically sensitive (Cartier *et al.*, 1996). The occurrence of archaeological sites or other cultural remains at these locations has not been established. Based on archaeological surveys, these are areas where surface conditions (e.g., dense vegetation) did not allow for a close and thorough examination of the soil surface in order to determine the presence/absence of archaeological remains. Based on topographic and hydrologic features, these are areas where archaeological resources could occur. Such resources are likely to be prehistoric archaeological sites with the potential to yield information important in history or prehistory. Other cultural values may be associated with such sites, especially if they were to be determined to contain human remains. The three areas of concern are located in the vicinity of the proposed Pogonip Garden, Outdoor Education Camp, Lower Meadow Parking, and Sycamore Grove Nature Area.

2. Impacts and Mitigation Measures

a. Significance Criteria. A basis for defining the significance of historical resources under *CEQA* is found at Public Resources Code (PRC) 5024.1. Historical resources may be listed in the California Register if they meet the eligibility criteria for listing in the *National Register of Historic Places* (NRHP) as defined at 36 CFR 60.4:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and

objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

- (a) That are associated with events that have made a significant contribution to the broad patterns of our history; or*
- (b) That are associated with the lives of persons significant in our past; or*
- (c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
- (d) That have yielded, or may be likely to yield, information important in prehistory or history.*

A California Register of Historical Resources (CRHR) is established *to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change.* The significance of historic sites at Pogonip is evaluated according to the above eligibility criteria and to *California Register of Historical Resources: (Proposed) Guidelines for the Nomination of Properties.*

Pursuant to Section 15065(a) of the *CEQA Guidelines*, significant impacts could occur if *important* examples of major periods of California history or prehistory are eliminated due to project impacts. Identification of historic properties is a prerequisite to determining project impacts. Such documentation is required by the State Historic Preservation Officer (Public Resources Code 5024.0(f)) and the Lead Agency in order to comment on the adequacy of historic properties studies required under *CEQA Guidelines* (15063). *The CEQA Guidelines, Appendix G (j)* state that a project may have a significant effect if it will *disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group...*

Significance criteria for determining if an archaeological site is important are found in *Appendix K, Section II(a-e)* of the *CEQA Guidelines*. An *important* resource is defined under *CEQA* as one that:

- (a) Is associated with an event or person of recognized significance in California or American history, or recognized scientific importance in prehistory;*

- (b) *Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential questions;*
- (c) *Has a special or particular quality such as oldest, best example, largest or last surviving example of its kind;*
- (d) *Is at least 100 years old and possesses substantial stratigraphic integrity; or*
- (e) *Involves important research questions that historical research has shown can be answered only with archaeological methods.*

The significance criteria are applied for the evaluation of potential archaeological and historic resources in the Pogonip. Each major feature of the *Draft Pogonip Master Plan* is evaluated below.

(1) Clubhouse. The Clubhouse has been determined to be eligible for NRHP listing (Strelow, 1992) and is therefore also eligible for CRHR listing. It is considered a significant historic resource.

(2) Pogonip Golf Course/Polo Field. Neither of these historic resources retains integrity and do not appear to meet any of the eligibility criteria for listing in the CRHR. Neither would be considered *important* under *CEQA Guidelines Appendix K*.

(3) Lime Kilns, Limestone Quarries and Associated Features. Remains of the three lime kilns, associated quarries, transportation features, tailings piles, possible workers' facilities and cut redwood stumps appear to meet several of the CRHR eligibility criteria and would also be considered *important* according to *CEQA Guidelines Appendix K*. These diverse features should be considered as comprising a district as opposed to being evaluated as individual sites, objects or artifacts. The kilns, quarries, transportation features and other elements associated with lime production are distributed extensively over the western part of Pogonip and constitute a temporally, geographically and thematically coherent association of historic resources. Criterion "a" under the CRHR *Nomination Guidelines* would be met because of the association of these historic resources with the establishment and development of the lime industry in the Santa Cruz Mountains in the 18th century. Criterion "b" would apply because of the association of these features with Henry Cowell, a famous personage significant in California's history. Criterion "c" could be met in that the lime kilns and associated features "embody a distinctive characteristic of a type, period [and] method of construction..." Although the limekilns themselves have been documented photographically and by measured drawings, the kilns and associated features may have the potential to yield

archaeological information important in history, qualifying the historic resources for consideration under criterion "d". The lime kilns and associated features appear to potentially meet each of the criteria under *CEQA Guidelines Appendix K* to be considered *important*.

(4) McCormick House Site. The remains of the McCormick house and grounds are not eligible for CRHR listing under any of the criteria and are not *important* according to the *CEQA Guidelines Appendix K* criteria. The site is not associated with important events or persons in California history. The lack of significant structural remains precludes consideration under criterion 'c' and the site does not qualify as an important archaeological site because it is unlikely to yield important data and is not more than 100 years old.

(5) Trails and Roads. The significance of Spring Trail and Rincon Trail should be considered in the context of the lime kilns and other related features. In this context, these trails should be regarded as important contributing elements of a historic district as discussed above. Golf Course Drive does not appear to meet any of the eligibility criteria for CRHR listing.

(6) Other Artifacts and Features. None of the other known artifacts and features qualify for CRHR listing under any of the eligibility criteria, nor would they be considered *important* according to *CEQA Guidelines Appendix K*.

(7) Archaeologically Sensitive Areas. If archaeological resources were to be discovered in any of these areas, they would be evaluated according to *CEQA Guidelines Appendix K*. If treated in accord with Appendix K, important resources would retain integrity and have the potential to contribute important information.

(8) Development of Rincon Connector Trail and UCSC Connector Trail. These trail segments will be developed in areas that are near known historic resources related to the lime industry in Pogonip and Henry Cowell Redwoods State Park. Neither archival research nor archaeological surveys have been undertaken specifically for the purpose of determining the archaeological or historical value of the proposed trail alignments. As proposed, neither trail will require excavation or other alteration of the landscape in a manner that is likely to result in direct adverse impacts to archaeological or historic resources. However, facilitating the introduction of additional visitors into areas with archaeological and historic resources could enhance the potential that such resources could be discovered and vandalized or that deterioration of such resources could be inadvertently accelerated by visitor use. Such impacts are discussed below in the context of generalized impacts to archaeological and historic resources in Pogonip.

b. Impacts and Mitigation Measures.

Impact ARCH-1: Clubhouse rehabilitation, if not carried out sensitively, could alter the historic features of the structure that contribute to its significance. (S)

The City of Santa Cruz anticipates the rehabilitation of the Clubhouse for use as a facility for educational programs, a community meeting and retreat center, and a site for indoor/outdoor events. A detailed rehabilitation plan has not yet been prepared. In the absence of a detailed rehabilitation plan, it cannot be determined how the rehabilitation of the Clubhouse would be carried out and what measures would be taken to ensure that the historic characteristics of the Clubhouse would be preserved. The current *Draft Pogonip Master Plan* does, however, stipulate a number of actions that will be taken in the rehabilitation process that are intended to be compatible with historic rehabilitation for adaptive reuse. The proposed use of the Clubhouse is consistent with its historic use. Should rehabilitation not be carried out in a manner consistent with professional preservation standards, the rehabilitation process could result in a significant adverse impact to the Clubhouse.

Mitigation Measure ARCH-1: The rehabilitation plan for the Clubhouse should be developed in consultation with a qualified professional historical architect and be consistent with guidance developed in consultation with the State Historic Preservation Officer. (LTS)

Impact ARCH-2: Deterioration of the lime kilns, quarries and associated historic features could occur with adoption of the *Draft Pogonip Master Plan* and increased use of Pogonip. (S)

Deterioration of the lime kilns, quarries and associated historic features is likely to result from two primary causes: (1) natural processes; (2) visitor impacts. Deterioration of the lime kilns, quarries and associated historic features can be anticipated as the result of natural processes such as weathering and vegetation growth on the structures. Deterioration of these historic resources may be accelerated by park visitors or changes in park use if such use results in direct impacts to the historic resources by, for example, deliberate vandalism or visitors climbing on the remains and breaking down the structural features. Increased visitor use of the park could result in the increased potential for direct visitor impacts.

The lime kilns, quarries and associated historic features are not regularly maintained for their long-term preservation. Recently, however, measures have been taken by the City of Santa Cruz to relieve deterioration caused by redwood trees growing through the kiln structures. Trees growing in the kilns have been removed. However, trees adjacent the kilns which could be toppled onto the kilns by wind remain a hazard. Wooden covers/platforms have been placed over openings in the

kiln roofs to discourage visitors' climbing the walls of the structures and as a safety measure, but these are not compatible with the historic characteristics of the kilns. There is evidence that the kilns have been used as temporary shelters. Vandalism of historic features probably also occurs. Failure of the City to attentively preserve the lime kilns, quarries and associated historic features would constitute a significant adverse impact.

Quarry faces and debris piles are also part of the mosaic of historic remains that contribute to the significance of the lime kilns and associated features. These have become overgrown with vegetation and are subject to natural processes of erosion. Visitors clamber over the talus and tailings piles in the quarry areas dislodging and occasionally removing rock from these features. This activity contributes to the eventual loss of these resources. Failure to keep vegetation off the quarry faces obscures these as historic features and detracts from the public's ability to recognize these as historic resources.

Mitigation Measures ARCH-2a: Three approaches are available to mitigate the deterioration of the lime kilns, quarries and associated historic features and contribute to historic preservation. These involve:

- (1) benign neglect of the physical resources in combination with a program of documentation and archaeological data recovery;
- (2) maintenance of the lime kilns, quarries and associated historic features in a state of "arrested decay," placing the historic preservation emphasis on minimal maintenance (primarily for safety reasons) and conducting additional historical and archaeological studies to better understand the history of these resources; and
- (3) active preservation which would include reconstruction of some or all of the complex of kilns and associated features for public interpretation (informed by additional historical and archaeological studies).

Elements of these approaches could be combined to develop alternative preservation programs. Selection of a mitigation approach must be made realistically, taking into consideration the long-term fiscal commitment to a selected historic preservation program. Short-term preservation actions may have the effect of temporarily delaying or masking obvious deterioration of historic resources but only a comprehensive, long-term historic preservation program would actually result in the preservation of the historic resources. The following combination of measures should be implemented to reduce this impact to a less-than-significant level. If only one mitigation measure is

selected by the City, any of the following (2a, 2b, or 2c) by itself would be adequate to reduce the impact to a less-than-significant level.

Neglect of the complex of kilns and associated features would result in the deterioration and eventual disintegration of the structural elements. Deterioration would result due to natural processes of decay and collapse enhanced by impacts such as visitors climbing over the ruins. Reduction of the historic features could be regarded as a natural process in the formation of the archaeological record.

Mitigation could include the recovery and documentation of important information pertaining to the historic resource. The City of Santa Cruz has sponsored a photographic and architectural documentation of the lime kilns. The City should undertake a thorough documentation of all of the features associated with lime production and the history of lime production in Pogonip to adequately mitigate neglect of the historic structures and features themselves. (LTS)

Mitigation Measure ARCH-2b: The loss of the structures associated with lime production could be arrested, but probably not entirely alleviated, through the design and execution of a plan to curtail the deterioration of the historic resources. Such a plan would necessarily address both the effects of natural processes and the effects of visitor use. A thorough survey of the lime kilns and associated features would have to be made to inventory and describe the resource as a prelude to developing a management plan. Each of the natural processes contributing to the deterioration of the resources would have to be discovered and a means to alleviate each of the adverse processes would have to be considered and implemented. Treatment of the effects of some natural processes (e.g., large magnitude earthquakes, soils wasting, tree fall) may not be possible or feasible. Historic preservation efforts may have to be compromised in consideration of other environmental factors, such as conservation of trees and other vegetation in the immediate vicinity of historic resources. Visitor use of some of the historic properties may have to be constrained by fencing or other means to reduce or eliminate the impact of visitors on the structures. Visitor education and enhanced ranger patrols could be effective in reducing visitor impacts. Implementation and enforcement of a long-term stabilization plan would require that the City of Santa Cruz commit the requisite fiscal resources to such a program for decades. (LTS)

Mitigation Measure ARCH-2c: A third approach to mitigating the adverse on-going impacts on the lime kilns and associated historic features involves a long-term historic resources management program including: (1) comprehensive archaeological and historical documentation of the historic resources; (2) reconstruction of some or all of the lime kilns and associated features; and (3) development and implementation of a long-term plan for the preservation, maintenance and interpretation of the historic resources. This program would entail a substantial cost to the City of Santa Cruz and would require extensive and intensive studies of the historic resources; consultation with historical architects, archaeologists and restoration specialists; reconstruction of some or all of the historical remains by construction teams skilled in historical reconstruction of masonry structures; preparation and implementation of a long-term maintenance program; development and implementation of public education and interpretive programs; and permanent assignment of City staff to the historic preservation effort. At its most comprehensive, such a program would include preservation considerations such as reinforcing appropriate historic structures against earthquake damage. (LTS)

Impact ARCH-3: Construction, maintenance and use of trails as part of the project has the potential to result in adverse impacts to historic attributes of the Rincon Trail and Spring Trail. (S)

The *Draft Pogonip Master Plan* calls for the use of trails in Pogonip as historic/service roads and single-track trails to provide access to the park for vehicles (fire, security, etc.), pedestrians, equestrians and bicyclists (see Chapter III of the EIR for more detailed discussion). Regardless of the alternative use considered in the *Draft Pogonip Master Plan*, construction, maintenance and use of the trails have the potential to have an adverse impact on remnant historic attributes of these trails. Construction-related impacts would result if new trail segments were created or existing trail segments were reconstructed or altered and these construction-related activities affected the historic fabric of Spring Trail or Rincon Trail. Installation of signs, barriers or other trail-related features could have an adverse effect on the historic fabric of the trails if care is not taken to avoid such impacts. Maintenance of the trails could also affect historic elements, for example, shoring or stabilization of embankments, creation of erosion control features (e.g., water bars, drainage ditches, drains, etc.) or resurfacing of trails.

Pedestrian, bicycle or equestrian use of trails should not affect the well-developed Spring and Rincon trails provided that there are no user-specific construction or maintenance actions undertaken that would adversely affect the historic fabric of the trails and provided that users are effectively confined to maintained trail surfaces. Examples of user-specific construction might include construction of barriers to exclude horses or bicycles. Such construction could have an adverse impact as

defined above for any construction action in an area of the trails that has remnant historic fabric.

Mitigation Measure ARCH-3: The following combination of mitigation measures should be implemented to reduce this to a less-than-significant impact:

- Impacts to historic elements of the Spring and Rincon trails can be avoided, to the extent feasible, by developing and implementing procedures for construction, maintenance and use of the historic trail segments. These procedures should be included as an appendix to the *Final Pogonip Master Plan* as part of the appropriate City construction and maintenance manuals which direct the oversight of such projects in the City. Construction and maintenance supervisors and appropriate park personnel should be made familiar with the protocols for carrying out construction and maintenance activities along historic portions of the Spring and Rincon trails. Construction and maintenance operations within trail areas with historic fabric, should only be undertaken in accordance with established historic preservation procedures. For example, trail segments that serve as service roads, which are less than 10 feet in width and which include areas of historic fabric, should not be widened in a manner that adversely affects the historic characteristics of the trail/road.
- When trail users create alternative pathways off established trails, a variety of adverse impacts could arise. Such impacts would include degradation of trail margins, erosion, and creation of pathways to or through sensitive historic resource areas. Every effort should be made to limit trail users to existing trails as defined in the *Trail Management Actions* section of the *Draft Pogonip Master Plan*. (LTS)

Impact ARCH-4: Unanticipated discovery of archaeological remains could occur with implementation of the *Draft Pogonip Master Plan*. (S)

Three areas in Pogonip have been identified as potentially archaeologically sensitive. These areas may include previously unidentified archaeological resources that have not been or cannot be detected by surface examination alone. Proposed developments, including construction of the Pogonip garden, Outdoor Education Camp, Lower Meadow parking area and Sycamore Grove Nature Area, could involve ground disturbing activities with the potential to adversely impact buried cultural remains. Any archaeological resources in these sensitive areas could be of value for the scientific information they contain. If human remains were to be found, cultural values of importance to Native Americans and others could be demonstrated. Adverse impacts would result if significant archaeological remains were to be damaged or destroyed.

Mitigation Measure ARCH-4: The following steps should be implemented to address unanticipated discovery of archaeological remains:

- Important archaeological remains should be avoided and preserved in place. Potential impacts to potentially significant but undocumented archaeological resources could be avoided by conducting archaeological investigations to determine if archaeological remains actually exist in the three areas of concern, and/or
- If archaeological remains are encountered, they should be evaluated by a professional archaeologist to determine their importance.
- Alternatives to in-place preservation involve, for the most part, the recovery of that information which makes an archaeological site important. Some but not all of this information can be recovered by archaeological methods and techniques referred to as "data recovery." The conduct of an adequate data recovery effort at appropriate archaeological sites can render an adverse impact to less than significant.
- The discovery of human remains at an archaeological site or any other location requires that procedures be followed as defined in California *Health and Safety Code* Section 7050.5 and *Public Resources Code* 5097.98 (requiring notification of the Coroner and Native American Heritage Commission, as appropriate), among others. (LTS)

Impact ARCH-5: Deterioration and loss of archaeological and historic resources evaluated as not important could occur. (LTS)

Archaeological and historical resources in Pogonip such as the McCormick house site, remains of the Pogonip golf course/polo field, Golf Course Drive, isolated artifacts, water troughs, water pipes, fences and so forth have been evaluated as not significant or important. The effects of the *Draft Pogonip Master Plan* to these unimportant cultural resources are not significant under CEQA.

Mitigation Measure ARCH-5: No mitigation measure would be necessary.

F. VISUAL QUALITY AND AESTHETICS

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This section assesses the effects of the proposed project on views from specific viewpoints in the vicinity of the site. The analysis considers the existing visual quality of the site and how proposed changes suggested in the *Draft Pogonip Master Plan* may affect such views. Because the entire Pogonip site is open to the public, views from within the site as well as outside the site are addressed. Photographs of the site are included to document existing conditions. Locations of viewpoints are shown in Figure IV.F-1. Relevant guidelines and policies of the *Draft Pogonip Master Plan* are addressed when they would serve to reduce potential visual impacts.

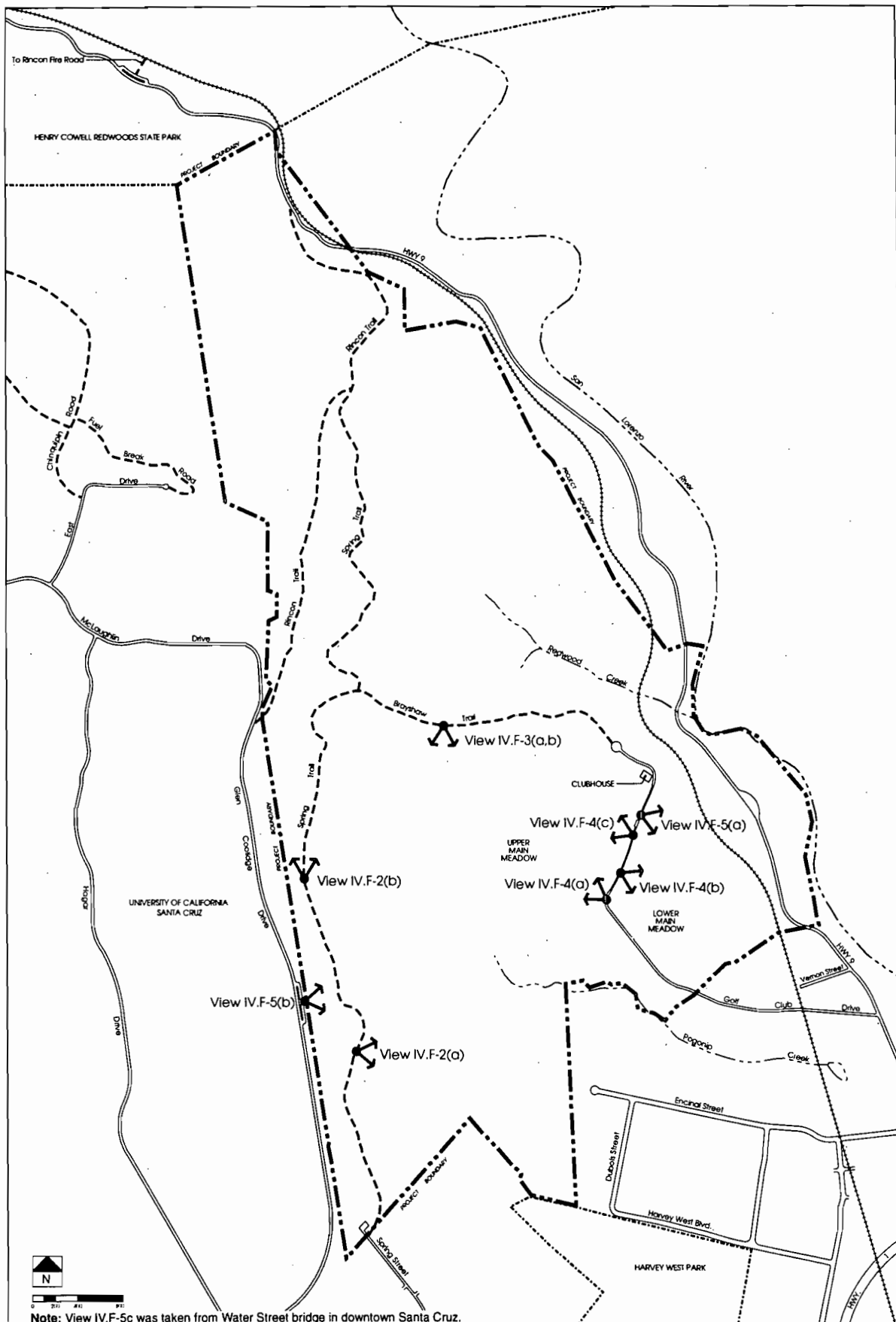
1. Environmental Setting

a. Views of the Site from within Pogonip and from Nearby Locations. The project site is visible from many public trails and specific key points within the site as well as from locations just outside the site. The following text describes some of the more prominent viewpoints.

(1) Trails and Roads within the Site. About eight miles of trails currently cross the Pogonip site. While many of these trails wind through heavily-wooded areas, some trails provide long-distance views across the site and to distant points of the City of Santa Cruz beyond. Spring Trail is one such trail that provides this type of views, as seen in Figure IV-F-2(a). From this one point along Spring Trail that is not visually enclosed by tree cover, one can see across the Upper Main Meadow to the Clubhouse. Along other portions of Spring Trail, views are limited to the immediate foreground, as shown in Figure IV-F-2(b).

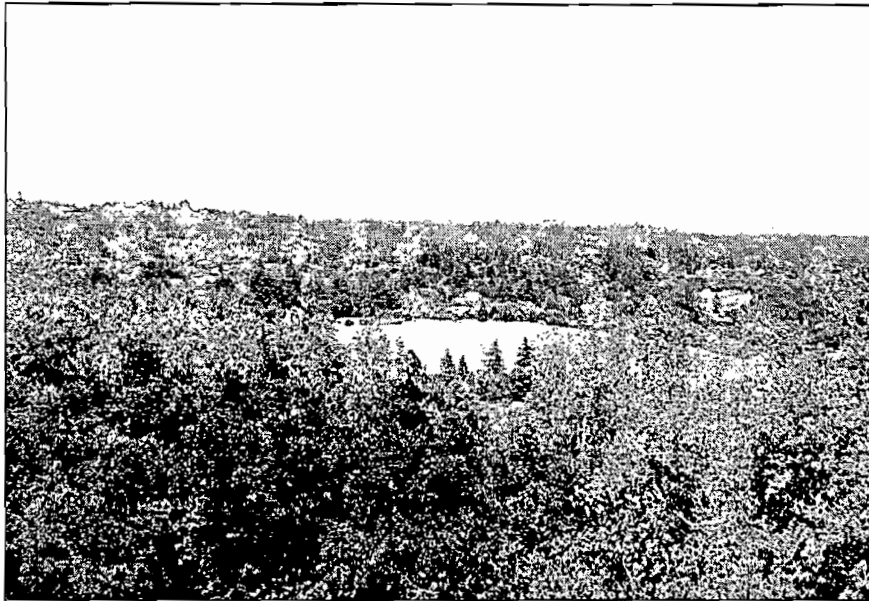
From Brayshaw Trail, one can also see across the Upper Main Meadow, looking east and south as shown in Figure IV.F-3(a) and (b). While much of this trail is enclosed by tree cover, views open up along specific points of the trail.

From Golf Club Drive, one can view large expanses of the project site due to the proximity of meadows to this portion of the site and the gently-sloping terrain. Adjacent to the Lower Main Meadow, one can look north and northeast across the Lower Main Meadow across the grass-covered terrain to wooded areas in the



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Figure IV.F-1
Viewpoint Locations



a.) View northeast across Pogonip from Spring Trail. The Clubhouse is at the center of the photograph at the edge of the Upper Meadow.



b.) View north along Spring Trail within wooded portion of the trail.

Source: Brady/LSA 1997

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Figure IV.F-2
Views from the Site from within Pogonip

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a.) View east from the upper portion of Brayshaw Trail across the Upper Meadow. The Clubhouse roof is visible at the far edge of the meadow (center of photograph).



b.) View south from Brayshaw Trail across the Upper Meadow and towards downtown Santa Cruz.

Source: Brady/LSA 1997

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Figure IV.F-3
Views from the Site from within Pogonip

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background (see Figure IV.F-4(a)). Along higher elevations from Golf Club Drive and for those generally headed downhill, one's views are directed across the southern portion of the Lower Main Meadow (see Figure IV.F-4(a)). The elevation of this viewpoint allows clear views toward downtown Santa Cruz. Westbound views are also afforded from Golf Club Drive due to the open expanse of the Upper Main Meadow (see Figure IV.F-4(c)). From this location, one can see beyond the Upper Main Meadow to the site's boundary with UCSC. Large expanses of woodland form the background to this view corridor. Near the top of Golf Club Drive, one can also look east and southeast across lower portions of Pogonip that include wide expanses of both meadow and woodland (see Figure IV.F-5(a)).

(2) Coolidge Drive. From Coolidge Drive, extensive portions of Pogonip are visible from the "Lookout" that is located at the western edge of Pogonip as shown in Figure IV.F-5(b). The Lookout is an informal, unpaved parking area on the UCSC campus for about 10 cars that has limited parking during weekday, daytime hours. From this location, one has a panoramic view east across the site. Lookout Trail is visible in the foreground, while meadow areas and woodland are visible in the midground and background views. Due to this location's high elevation, this view corridor also takes in urbanized portions of the City and Monterey Bay in the background.

(3) Other Streets and Public Locations in Immediate Vicinity. From Harvey West Park and SR 9, views of the site are more constrained due to heavy vegetative cover. From SR 9, views west into the site are constrained due to both steep terrain and heavy tree cover. Thick woodland also limits views east from SR 9 into Sycamore Grove. From within Sycamore Grove, one can view the San Lorenzo River which is quite shallow during the dry season, as shown in Figure IV.F-5(d).

b. Views of the Site from More Distant Locations. Portions of the project site are visible from a number of distant locations such as the following:

- SR 1 near its intersection with SR 9 (for eastbound motorists);
- Residential neighborhoods east of the San Lorenzo River and east/northeast of the project site;
- Water Street Bridge in downtown Santa Cruz (see Figure IV.F-5(c)).

For northeast bound motorists traveling along SR 1, the highway slopes downward toward its intersection with River Street from its intersection with Water Street. At this point, motorists can look northward toward upper elevations of the site and view large expanses of grassland and woodland set amidst urbanized portions of the City. Due to prevailing travel speeds and the need to pay attention to intersecting traffic, this view is short-term for auto drivers.



a) View towards Upper Meadow and Clubhouse, looking north from Golf Club Drive adjacent to the Lower Meadow where proposed Pogonip garden would be located.



b) View east towards Lower Meadow from Golf Club Drive where the Pogonip garden is proposed.



c) View from Golf Club Drive looking west towards UCSC and western portion of Pogonip area. The ridgeline forms the border between Pogonip and UCSC.

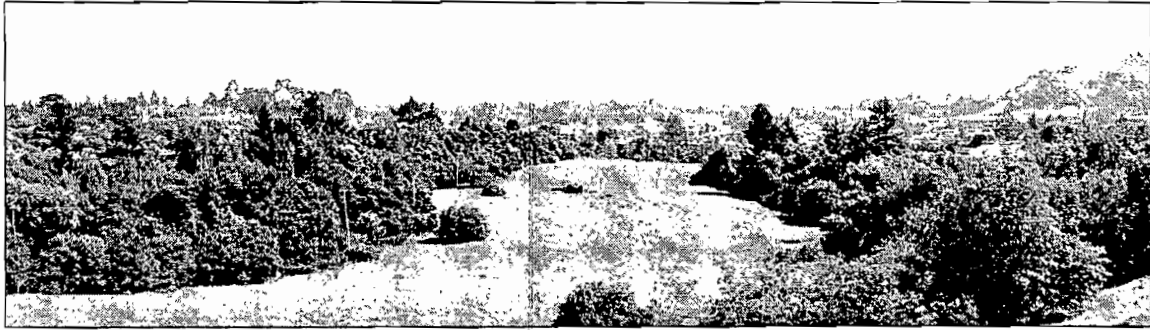
Source: Brady/LSA 1997

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Figure IV.F-4
Views of the Site from within Pogonip

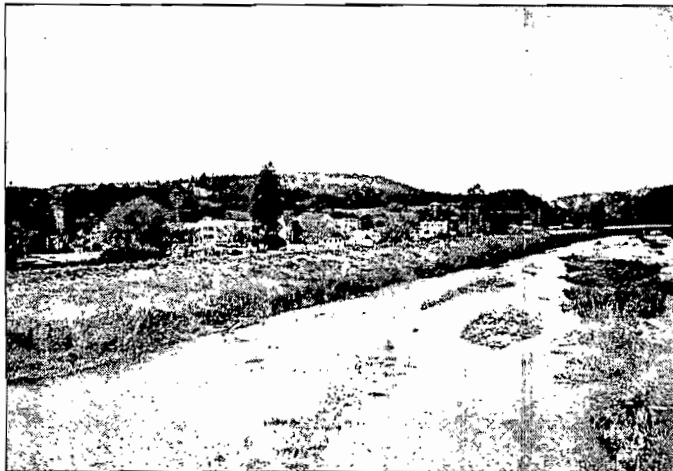
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a) View towards Lower Meadow, looking southeast from Golf Club Drive.



b) Panoramic view of Pogonip in the foreground and the City of Santa Cruz (right) looking east from Glenn Coolidge Drive.



c) View of site from Water Street bridge in downtown Santa Cruz.

Source: Brady/LSA 1997

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Figure IV.F-5
Views of the Site from within and outside of Pogonip

From higher elevation residential neighborhoods east of the San Lorenzo River and east of Graham Hill Road, the project site is seen in the distance, blending into the overall open space provided by both Pogonip and the UCSC campus. From this distance, specific features such as the Clubhouse are very small elements in the overall viewshed.

From downtown Santa Cruz, and the Water Street Bridge in particular, pedestrians can view portions of the site as a backdrop to urban development (see Figure IV.F.5(c)). From this location, tree-covered hills and some grassland can be viewed as the distant background to constructed areas which form the foreground of these views. The site is about one mile from this portion of the City; thus, views of details of the site are limited.

Due to existing vegetation and topography, the project site is not visible from Henry Cowell State Park and interior portions of the UCSC campus, other than those locations discussed above regarding views from nearby locations.

c. Relevant Policies of the City General Plan. The City of Santa Cruz General Plan, Community Design Element, identifies scenic resources within the City such as viewpoints, scenic drives, foothill skylines, and ridge skylines. A large portion of the southern part of Pogonip site is mapped as "Foothill Skyline" in the "Scenic Views" map (Map CD-3) of the Community Design Element. A prominent viewpoint location is mapped in the vicinity of Spring Trail at the west side of the site in this same map. A ridge skyline is also mapped at the southwestern end of the site. Coolidge Drive, just outside the site boundaries, is mapped as a Scenic Drive.

The City of Santa Cruz General Plan Community Design Element (Map CD-2) shows the Pogonip site as "City-Owned Greenbelt Lands". The Wavecrest property, recently acquired and made a part of the project site, was not included in this category. The following text regarding Pogonip is included in the Community Design Element:

Natural areas such as...Pogonip...are important natural features providing scenic and varying levels of recreational amenity, and in many places giving identity to nearby residential neighborhoods...The foothills of Santa Cruz are formed by the rolling hills on the University campus and Pogonip.

Policies from the Community Design Element related to visual resources associated with Pogonip are summarized in Table IV.F-1.

Table IV.F-1
RELATIONSHIP OF PROJECT TO POLICIES
IN THE COMMUNITY DESIGN ELEMENT

Policy	Relationship of Project to Policy	Mitigation Measure
2.1 Preserve natural features providing visual definition to an area within the City.	The project would preserve almost all of the existing natural features at Pogonip with the exception of changes associated with new Pogonip garden and Outdoor Education Camp. Visually-sensitive meadow areas could be impacted by new proposed features such as agricultural uses, fencing, landscaping, and parking.	Design guidelines addressing the Pogonip garden should be included in a future <i>Pogonip Garden Operations and Management Plan</i> .
2.1.2 Minimize the impact of grading and development on important natural features such as bluffs and foothills.	The project site includes foothills that may be impacted by grading associated with construction of the Pogonip garden. This grading would occur in the Lower Main Meadow in a visually prominent location visible from Golf Club Drive and other locations within the project site.	The Pogonip garden should be redesigned to minimize graded areas visible from Golf Club Drive. Refer to the Geology and Soils section of the EIR.
2.1.4 Enhance the prominence of the San Lorenzo River as a natural feature giving structure, orientation and recreational enjoyment to the City.	Proposed vegetation clearance and management at Sycamore Grove, as identified in the <i>Draft Pogonip Master Plan</i> , should improve access to and the visual amenity of the San Lorenzo River as it passes through the site.	No further mitigation measures would be necessary.
2.1.5 Protect and enhance unique natural areas including but not limited to Jessie Street Marsh, Pogonip, Arana Gulch Flood Plain, Neary Lagoon, Antonelli Pond, Arroyo Seco and Moore Creek Canyon.	Some natural areas of Pogonip would be altered by the construction of the Pogonip garden, renovation of the Clubhouse grounds, and the Outdoor Education Camp. Minor visual changes to the natural terrain would occur with proposed trail changes. Many visual features of Pogonip would be enhanced by the proposed vegetation management such as that identified for Sycamore Grove.	Possible relocation of the Pogonip garden is discussed under Alternative C, in Chapter V, Alternatives.
2.2 Preserve important public views and viewsheds by ensuring that the scale, bulk and setback of new development does not impede or disrupt them.	The proposed scale, bulk, and setback of new features associated with the Clubhouse renovation, Pogonip garden, and Outdoor Education Camp could impede or disrupt important public views and viewsheds from locations such as Golf Club Drive and on-site trails such as Pogonip Creek Trail. These routes would be used by park users. From more distant locations, such as the viewpoint on Spring Trail identified in the Community Design Element, viewsheds would not be significantly impacted due to the distance between the viewpoint location and these features.	Refer to Mitigation Measure VIS-1.

Table IV.F-1 *continued*

Policy	Relationship of Project to Policy	Mitigation Measure
2.2.1 Develop siting, scale, landscaping and other design guidelines to protect visually sensitive areas and ensure that development is compatible with the character of the area. Areas to be protected include: open-space land uses, foothills, bluffs, scenic coastal areas, Beach Hill, Pogonip, Far West Side, Mission Hill, Moore Creek, DeLaveaga Park, and San Lorenzo River.	The <i>Draft Pogonip Master Plan</i> includes many design guidelines for specific features of the <i>Plan</i> . These guidelines are recommended to protect visually sensitive areas and to protect the historic features of the site.	No further mitigation measures would be necessary. Refer to Mitigation Measure VIS-1.
6.1.1 Protect existing significant vegetation and landscaping that provides scenic as well as wildlife habitat and forage value.	Removal of vegetation is addressed in the Vegetation and Wildlife section of the EIR, which also addresses mitigation measures.	Refer to the mitigation measures in the Vegetation and Wildlife section of the EIR.
6.1.1 Protect Heritage Trees and Shrubs by reviewing all construction plans to determine their impacts on Heritage Trees or Shrubs and by providing technical information to assist owners in maintaining Heritage Trees and Shrubs on private property.	Heritage Trees and Shrubs would not be removed by the actions recommended in the <i>Draft Pogonip Master Plan</i> . Refer to the Vegetation and Wildlife section of the EIR.	No mitigation measures would be necessary.
6.2.2 Maintain high quality landscaping on City-owned lands, parking lots, schools, and parks.	New landscaping would be added to the Pogonip site in the vicinity of the Clubhouse and the Outdoor Education Camp. Guidelines regarding this landscaping are provided in the <i>Draft Pogonip Master Plan</i> . The use of native and drought-tolerant vegetation is recommended.	No additional mitigation measures would be necessary.

2. Impacts and Mitigation Measures

a. Significance Criteria. The proposed project would have a significant impact on visual quality if it would result in the following:

- A substantial, demonstrable negative aesthetic effect;
- Substantial obstruction of significant public views and view corridors;
- Inconsistency with adopted guidelines or policies;
- Creation of significant light and glare that could impact surrounding residents;
- Substantial terrain modifications.

The *Draft Pogonip Master Plan* includes a number of design guidelines for proposed uses to minimize visual impacts from proposed improvements. In conjunction with the proposed siting of specific uses (see Figure I-2), these guidelines would prevent the project from creating a substantial, demonstrable negative aesthetic effect. While features of the project may be visible from specific key public viewpoints, no substantial obstruction of public views or view corridors would result from implementation of the *Draft Pogonip Master Plan*. New features which may be visible on the site and which may create less-than-significant visual impacts are addressed below.

In terms of inconsistency with adopted guidelines or policies, the project's relationship to General Plan policies is evaluated in Table IV.F-1 and discussed below. In addition, the potential for adverse light and glare impacts and the potential for inappropriate terrain modifications are addressed below.

b. Impacts and Mitigation Measures.

Impact VIS-1: New developed features would be added to the Pogonip site that would be visible from public viewpoints and that would alter the natural features of the project site. (LTS)

The following developed features would be added to the Pogonip site with implementation of the *Draft Pogonip Master Plan*:

- Clubhouse improvements;
- Fencing in the area of the Pogonip garden;
- Parking in the area of the Pogonip garden, Clubhouse, and Spring Street cul-de-sac;
- Greenhouses and accessory buildings for the Pogonip garden

- Clubhouse rehabilitation;
- New structures for the Outdoor Education Camp;
- Rerouted, expanded, and new trails;
- New caretaker residence and ranger facility by the Clubhouse; and
- Expanded roads and turnouts.

The greenhouses proposed for the garden would be some of the most visually-prominent features due to their proposed size and design. These two buildings would be 20 feet wide by 70 feet long, and are expected to include pitched roofs at a 4:12 (4 feet rise in 12 feet). The height of the greenhouses is estimated to be about 11 feet to the ridge (Primack, 1997). Exterior materials would include aluminum or plastic or fiberglass, with about one-half of the structure consisting of shade cloth. All of these elements would contrast visually with the materials and style of the existing Clubhouse and would be light in color and highly visible due to their location in an open meadow area. These greenhouses would be most visible from Golf Club Drive and the Outdoor Education Camp. To some viewers, the greenhouse structures may be considered a "rural" architectural feature, visually compatible with the proposed on-site garden and orchards.

In addition to the built features listed above, the proposed Pogonip garden would introduce a managed agricultural facility into a visually-prominent, natural meadow area. Proposed new terraced gardens and garden plots would be most visible from Golf Club Drive and the Outdoor Education Camp (which would be located near the Pogonip garden on the west side of Golf Club Drive). From more distant locations such as portions of the Upper Main Meadow area and higher elevation trails, this garden would also be visible but would be part of a background visual feature rather than a foreground feature.

The proposed developed features such as fencing and accessory structures would be most visible from Golf Club Drive (which would be used by park visitors and users of nearby trails such as Pogonip Creek Trail). From more distant locations, visibility of these new features would be restricted by distance, intervening terrain, and vegetative cover. Although visual impacts would be less-than-significant, mitigation measures have been suggested to improve specific visual features associated with the *Draft Pogonip Master Plan*. When more than one type of mitigation measure would be possible, alternative suggestions are made.

Mitigation Measure VIS-1a: Vegetative screening of greenhouses would only be possible on the north, east and west sides. Vegetative screening on the south side, which would be most visible from the entry portion of Golf Club

Drive for those heading west and north into the site, would not be possible due to the conflict with the need for solar access.

The following language should be added to the *Pogonip Garden Operations and Management Plan*:

- *Proposed greenhouses shall be designed to be no greater than 11 feet in height, 20 feet in width, and 70 feet in length. North, west, and east walls shall be composed of natural stained, board and batten design. Rigid glazing materials shall be used for the south walls and roof, and shall be framed with wood to be compatible with the historic features of the site. Roof slope shall be 4:12. Vegetative screening shall be added to the north, east, and west walls of the greenhouses. This screening shall include native, drought-tolerant and fire resistant planting approved by the Department of Parks and Recreation. Greenhouse design shall be subject to Design Review approval.*
- *Greenhouses shall be located at the northeast side of the proposed garden area, adjacent to Golf Club Drive but screened from the view of users of the outdoor area of the Clubhouse. (LTS)*

Mitigation Measure VIS-1b: The *Draft Pogonip Master Plan* should be revised to include the following new (see underlining) language regarding Design Guidelines for the Outdoor Education Camp:

- *Provide a wooden shade structure over the picnic table area that is consistent with other visually prominent architectural features on the Pogonip site, to be determined during design review. The shade structure...*
- *Provide a small shed for storage of educational program materials that is consistent with other visually prominent architectural features on the Pogonip site. (LTS)*

Impact VIS-2: The project would result in inconsistencies with policies of the Santa Cruz General Plan Community Design Element as addressed in Table IV.F-1. (S)

The main conflicts with policies addressed in Table IV.F-1 deal with the following: introduction of developed features to a natural setting; potential grading from the Pogonip garden project; impacts to view corridors; compatibility of new features with the character of the area; removal of vegetation; and landscaping. The issue of vegetation is addressed in detail in the Vegetation and Wildlife section of the EIR.

Mitigation Measure VIS-2: To ensure consistency with policies of the City's General Plan Community Design Element, specific design changes recommended under Mitigation Measure VIS-1 (a) should be implemented for the project. (LTS)

Impact VIS-3: Light could be created on the site in association with nighttime lighting of parking areas. Glare could be generated by the proposed on-site greenhouses. Lighting may be visible from distant residences, while glare from the greenhouses may be visible during daytime hours to hikers, bicyclists, and other users of Pogonip. (S)

The proposed Design Guidelines for the Clubhouse address the need for low-level exterior landscape lighting for the building exterior and adjacent pathways, but they do not address parking areas. The *Draft Pogonip Master Plan* also addresses shielding of exterior lighting.

During winter months, lighting of the parking area for the Pogonip garden may occur for both staff and shareholder pick-ups. However, the Garden Management Actions found in the *Draft Pogonip Master Plan* address limitations on hours of operation which may prevent the need for lighting in this area of the site.

Mitigation Measure VIS-3: Mitigation Measure VIS-1a should be implemented to limit the overall size of the greenhouses and to include vegetative screening and appropriate materials to reduce glare. (LTS)

Impact VIS-4: The project has the potential to result in terrain modifications for construction of the proposed Pogonip garden. This issue is addressed in greater detail in Section C, the Geology, Soils, and Seismicity section of the EIR. (S)

Mitigation Measure VIS-4: Refer to Mitigation Measures GEO-1c and GEO-1d, under Geology, Soils, and Seismicity. (LTS)

G. TRANSPORTATION AND CIRCULATION

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This section evaluates the effects of the *Draft Pogonip Master Plan* on the transportation system serving the project site as well as on-site transportation, circulation, and parking issues. The analysis considers existing access, circulation and parking conditions and how the proposed project may impact these conditions.

Vehicular access into the project site is currently provided by Golf Club Drive, a one-lane roadway west of the Big Trees and Pacific Railway Company railroad trestle. Project impacts to this roadway and to the following key intersections in the vicinity of the project site are evaluated:

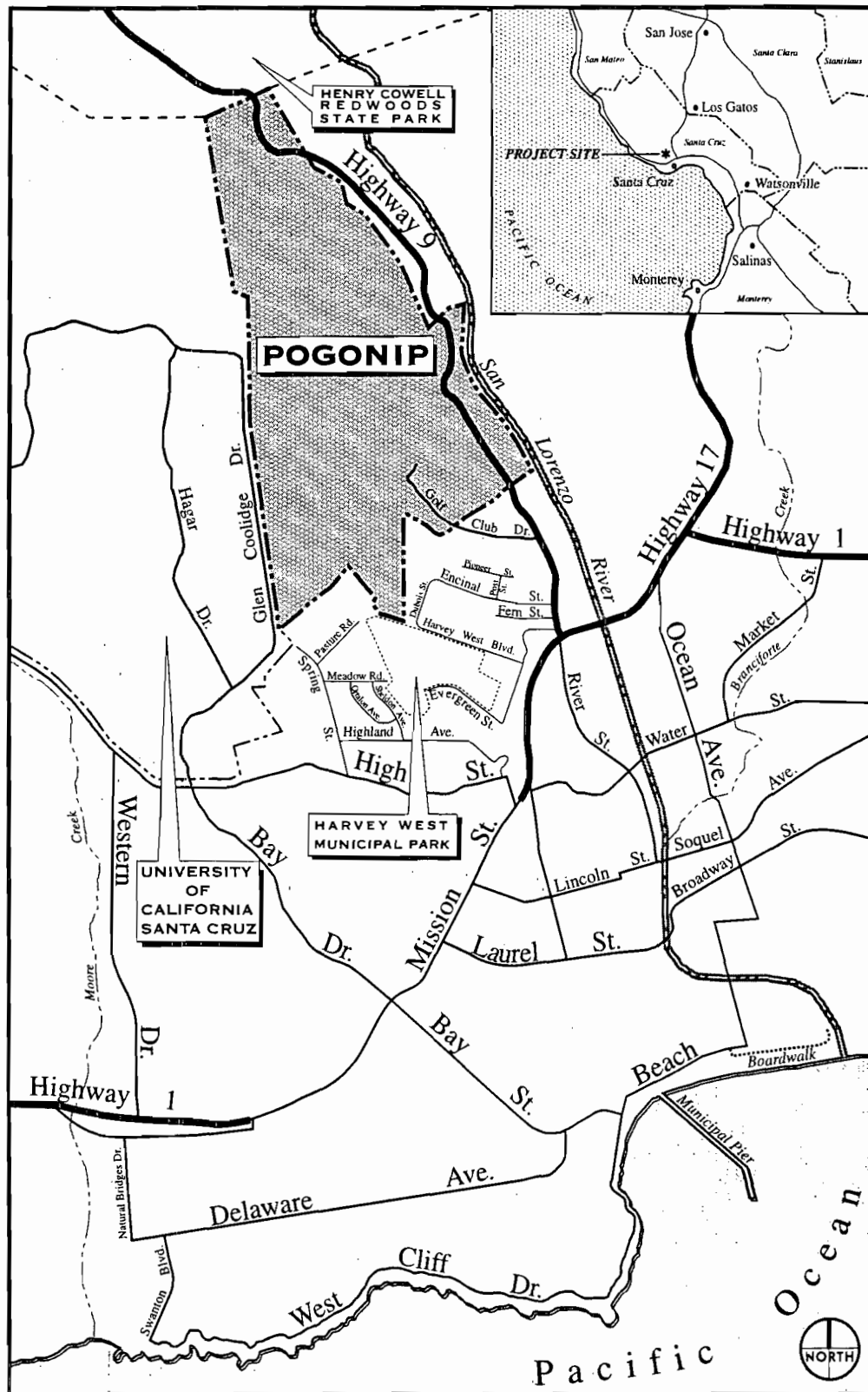
- SR 9/Club Drive
- SR 9/Encinal Street
- SR 9/SR 1

Park trails currently intersect existing streets and highways adjacent to Pogonip. Traffic control measures at these locations are addressed in this section. Parking-related impacts are also evaluated and measures are recommended to reduce potential impacts.

1. Environmental Setting

a. Road Network. Figure IV.G-1 shows the location of the project site with respect to the local road network. Regional access to the site is provided by SR 1 and SR 9 (River Street). Vehicular access onto the project site is currently provided via Golf Club Drive. These facilities are described below.

(1) Golf Club Drive. Golf Club Drive is a two-lane roadway, 36 feet wide between SR 9 and the Big Trees and Pacific Railway Company railroad trestle which is located approximately 620 feet west of SR 9. This section of Golf Club Drive is improved with curbs and gutters on both sides of the roadway. A sidewalk is provided along the south side of the roadway and about 200 feet of sidewalk is provided on the north side of the roadway east of the railroad trestle. On-street parking is allowed on this section of Golf Club Drive. One travel lane is provided on



Source: Brady/LSA 1997

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Figure IV.G-1
Existing Local Road Network

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Golf Club Drive at the railroad trestle. In addition, the trestle is posted with a height limitation of 12 feet, 1 inch.

From the railroad trestle to the park gate, Golf Club Drive is approximately 10 to 12 feet wide with no shoulders and the pavement is in poor condition. Facilities for bicyclists and pedestrians are not provided on this section of Golf Club Drive. This section of roadway provides access to seven residential homes. A gate located at the Pogonip property line, about 1,000 feet west of the railroad trestle, restricts vehicular access onto the Pogonip property to service and emergency vehicles only.

Golf Club Drive is paved from the park gate to the Clubhouse with a width of approximately 10 to 12 feet and no shoulders. This is the only paved roadway on the Pogonip property.

The corner sight distance on the Golf Club Drive approach to SR 9 does not meet the minimum recommended corner sight distance suggested by Caltrans. The minimum corner sight distance standards ensure that vehicles turning from the minor street can safely enter the traffic flow on the major street. The line of sight to the north from the STOP bar on the eastbound Golf Club Drive approach to SR 9 is blocked by the embankment located on the west side of SR 9. The sight distance to the north from eight feet from the southbound SR 9 travel lane (i.e., the closest distance that a vehicle on the eastbound Golf Club Drive approach could stop prior to entering the southbound travel lane) is approximately 190 feet. The Caltrans Highway Design Manual recommends a corner sight distance of 385 feet for a design speed of 35 mph. However, the minimum corner sight distance can be decreased to 250 feet for a 35 mph design speed when extensive excavation and right-of-way costs are required to provide the minimum recommended sight distance. The sight distance at the SR 9/Golf Club Drive intersection is an existing roadway deficiency.

(2) SR 9 (River Street). SR 9 (River Street) is an arterial highway and provides access to Pogonip from Santa Cruz and San Lorenzo Valley. SR 9 is two lanes wide with a posted speed limit of 35 miles per hour (mph) north of Encinal Avenue. The speed limit south of Encinal Avenue is 25 mph. Continuous sidewalks are not provided on SR 9, but are provided in intermittent sections. SR 9 is designated in the Regional Bikeway Plan for Santa Cruz County as a bikeway.

(3) SR 1. SR 1 is an arterial highway and provides regional access to Pogonip from the north and south as well as a connection to SR 17 which is located east of the project site. At the intersection with SR 9, SR 1 is six lanes wide. East and west of the intersection with SR 9, SR 1 is four lanes wide with a speed limit of 45 mph.

The intersections of SR 9 with SR 1 and Encinal Avenue are signalized. The intersection of SR 9 and Golf Club Drive is not signalized, with traffic on the eastbound Golf Club Drive approach stop-controlled.

b. Trail Access. While Golf Club Drive provides the only vehicular access into Pogonip, trails can be accessed from Spring Street, Coolidge Drive and SR 9. These access points are described below. Trail locations are shown in Figure I-2.

Spring Trail is accessible from the northerly terminus of Spring Street, a two-lane residential street. A parking area for park users is not currently provided at this location and park users accessing the park by motor vehicle at this location park on Spring Street. Some residents of Spring Street have complained in the past that UCSC students and staff and Pogonip users park on Spring Street. In the past, there have been inquiries from Spring Street residents regarding the process for implementing a residential parking permit program on Spring Street.

Lookout Trail and Rincon Trail are both accessible from Coolidge Drive. Rincon Trail intersects Coolidge Drive near Stevenson College on the UCSC campus. Lookout Trail intersects Coolidge Drive farther to the south. In both locations, Coolidge Drive is two-lanes wide, with a 4-foot wide striped bikelane and a speed limit of 45 mph. Facilities for pedestrians are not provided along Coolidge Drive in this area of the UCSC campus.

Lookout Trail intersects Coolidge Drive at the Lookout parking area, located on the UCSC campus. Technically, this turnout is not considered a long-term parking or trailhead area for Pogonip. All vehicles parking on the UCSC campus between 7:00 AM and 5:00 PM on weekdays must display a UCSC parking permit or park in a metered parking space. A parking permit is not required after 5:00 PM or any time Saturday or Sunday. Parking in the Lookout turnout requires an "A" permit which is available only to students by medical authorization and staff and faculty.

The stopping sight distances provided at the crossing of project trails with Coolidge Drive and SR 9 were evaluated using the Caltrans stopping sight distance standards documented in the Caltrans Highway Design Manual. Stopping sight distance is the minimum distance required for a vehicle traveling at a given speed to stop after an object in the road becomes visible. Providing the minimum recommended sight distances ensures that vehicles approaching these crossings have adequate distances to slow and stop in the event that a pedestrian, cyclist or equestrian is crossing the road.

The stopping sight distance currently provided in both directions at the intersection of Rincon Trail and Coolidge Drive is below Caltrans standards. The sight distance for a vehicle approaching from the north to the trail is approximately 350 feet and

the sight distance for a vehicle approaching from the south is approximately 300 feet. For a 45-mph design speed, Caltrans recommends a stopping sight distance of 360 feet.

Sycamore Grove is located on the east side of SR 9 across from the Sycamore Grove Trail trailhead. The trail crossing of SR 9 at Sycamore Grove is not marked. The sight distance for a vehicle approaching from the north to the intersection of SR 9 and the trail is 470 feet. The sight distance for a vehicle approaching from the south to the intersection of SR 9 and the trail is approximately 400 feet. Even though the speed limit for SR 9 is posted at 35 mph, a design speed of 45 mph is appropriate for this section of SR 9 based on the observed distribution of vehicle speeds at this location. Caltrans Stopping Distance Standards for a design speed of 45 mph is 360 feet. Thus, the existing sight distance provided to vehicles approaching from the north and south is adequate.

The Rincon Connector Trail crosses SR 9 at milepost 2.58 which is approximately 200 feet south of the Rincon Trail parking lot serving Henry Cowell Redwoods State Park. This trail crosses SR 9 at an angle, with the intersection of the trail on the east side of SR 9 located approximately 80 feet north of the intersection of the trail on the west side of SR 9.

The sight distance for a vehicle approaching from the north on SR 9 to the intersection of the Rincon Connector Trail with SR 9 is approximately 250 feet to the intersection with the east trail leg and 315 feet to the west trail leg. Caltrans' design standards require a minimum stopping sight distance of 300 feet for a design speed of 40 miles per hour. Therefore, sight distance from the north to the west trail leg is currently adequate, but the sight distance from the north to the east trail leg is not adequate.

Approaching from the south on SR 9, sight distances to the intersection with the Rincon Connector Trail are also below Caltrans' minimum standards. The horizontal alignment of SR 9 and the location of large trees on the east side of SR 9 limit sight distance approaching from the south to approximately 235 feet to the west trail leg and 130 feet to the east trail leg.

Besides the Rincon Connector, Sycamore, Lookout and Rincon trails, there are several informal trails along SR 9 and Coolidge Drive. In some cases these trails connect with established trails, but in some cases these trails are informal trails on the Pogonip property.

c. Transit. Transit service to the Pogonip area is provided by Santa Cruz Metropolitan Transit District (SCMTD). SCMTD SR 4 provides the closest regular transit service between downtown Santa Cruz, the Harvey West Industrial Area, Harvey West Park and Paradise Park which is located on SR 9 approximately one mile north of the SR 9/Golf Club Drive intersection. The closest bus stops are located on SR 9 near Golf Club Drive. On weekdays, this route operates with a one-hour headway from 6:45 AM to 5:45 PM. An additional bus at 8:16 AM provides service between Metro Center in downtown Santa Cruz and Harvey West Park and the SR 9/Encinal Avenue intersection.

On weekends, hourly service is provided between 9:15 AM and 5:15 PM between Metro Center in downtown Santa Cruz and Harvey West park, but not to Paradise Park or Golf Club Drive. Harvey West park is accessed from SR 9 via Coral Street, which is 1,500 feet south of the SR 9/Golf Club Drive intersection.

d. Parking. Currently, no parking is allowed on the Pogonip property for park users. Visitors using the Golf Club Drive entrance park in a small unimproved area located near the gated entrance but this is private land and cars can be towed or ticketed. Visitors can utilize on-street parking spaces on Golf Club Drive between the railroad trestle and SR 9 when spaces are available. Generally, these spaces are filled during work hours on weekdays, but are available on weekends.

Existing secondary parking locations include the following:

- Sycamore Grove – An unimproved turnout area about 400 feet in length with a maximum depth of approximately 40 feet from SR 9 provides a parking area for visitors to the Sycamore Grove area and access to the Sycamore Grove Trail.
- Spring Street – On-street parking.
- Dubois Street – On-street parking.
- Encinal Street – On-Street parking.
- Harvey West Boulevard – On-street parking.

e. Existing Pogonip Usage. A trail use survey was conducted by Santa Cruz Circle Trails (a local, non-profit organization) in the summer of 1994. However, the results of this survey are used in this analysis to indicate a trend in use only. The Spring Street and Golf Club Drive park entrances were monitored on weekdays and weekends from 8:00 AM to 8:00 PM. The Lookout Trail, Rincon Trail/Coolidge Drive, Rincon Trail/SR 9 and Sycamore Trail entrances to the park were not surveyed. In addition to counting the volume of people entering Pogonip, a survey was conducted to determine park utilization habits.

The survey determined that an average of about 100 people entered Pogonip on weekdays and an average of about 150 people entered Pogonip on weekends at the Spring Street and Golf Club Drive entrances. The survey found that there is more park-related traffic at the Spring Street entrance than the Golf Club Drive entrance. About 69 percent of the weekday park users and 63 percent of the weekend park users were identified as entering the park via Spring Street. During summer months, daily use was highest between 8:00 AM and noon, and between 4:00 PM and 8:00 PM.

A trip generation survey to determine the number of vehicle trips currently generated by the park on a daily basis was not conducted. However, based on information developed from the trail use survey, it is estimated that the park currently generates approximately 65 vehicle trips on a weekday and 100 trips on a weekend day.¹

f. Existing Traffic Volumes. Existing weekday PM peak hour and weekend mid-day traffic volumes for the three study intersections were developed through field surveys conducted by Higgins Associates supplemented with available traffic data provided by the City of Santa Cruz Public Works Department. These peak hours were analyzed because it is anticipated that transportation related impacts would be greatest during these time periods. The existing weekday PM peak hour and weekend mid-day peak hour traffic volumes are included in Appendix D.

Traffic operations are evaluated using the concept of level of service. Intersections are rated on an "A" to "F" scale with "A" representing excellent or free flow operations and "F" representing forced flow/gridlock conditions.

Intersection operations were evaluated using technical procedures documented in the 1994 Highway Capacity Manual (HCM). At two-way, stop-controlled intersections, the operating efficiency of vehicle movements that must yield to through movements are analyzed. The level of service for vehicle movements on the controlled approaches is based on the distribution of gaps in the major street traffic stream and driver judgement in selecting gaps. The level of service of each approach lane

¹ Based on the trail use survey data, it is estimated that park users currently generate 50 vehicle trips on a weekday and 80 vehicle trips on a weekend day at the Spring Street and Golf Club Drive park entrances. However, vehicle trips are also generated at the other trail head staging areas which were not included in the trail use survey (i.e., Lookout Trail at Coolidge Drive, Rincon Trail at Coolidge Drive, Rincon Trail at SR 9 and Sycamore Trail at SR 9). To account for park related vehicle trips generated at the other trail heads, it was assumed that vehicle trips generated to the Spring Street and Golf Club Drive trail heads account for 80 percent of the total vehicle trips currently generated by the park. Therefore, the estimated total daily vehicle trips generated by the park on a weekday equals $50/.80$ (63 trips) and the estimated total daily vehicle trips generated by the park on a weekend day equals $80/.80$ (100 trips).

which must yield to major street through movements is based on the reserve, or unused, capacity of the approach lane. Additional information describing the relationship between the vehicle delay and level of service for two-way stop controlled intersections is presented in Appendix D. Generally, LOS F operations on the side street approach is the threshold warranting improvements.

For signalized intersections, average stopped delay per vehicle is utilized to define intersection level of service. Delay is dependent on a number of factors including the signal cycle length, the roadway capacity (number of travel lanes) provided on each intersection approach and the traffic demand. The Highway Capacity Software (HCS) program was utilized to calculate levels of service for signalized and unsignalized intersections.

The existing weekday PM peak hour and weekend mid-day peak hour levels of service for the study intersections are summarized in Table IV.G-1. These two periods of time are considered to represent the peak use periods for the Pogonip area street network. Level of service calculation worksheets are included in Appendix D.

The SR 9/Golf Club Drive intersection currently operates at LOS A during the weekday PM peak hour and the weekend mid-day peak hour. The Golf Club Drive approach also operates at LOS A during these two periods.

The SR 9/Encinal Avenue intersection operates at LOS C during the weekday PM peak hour and the weekend mid-day peak hour. The SR 1/SR 9 intersection operates at LOS E during the weekday PM peak hour and LOS D during the weekend mid-day peak hour. The SR 1/SR 9 intersection currently exceeds the City of Santa Cruz level of service policy standard (LOS D) during the weekday PM peak hour.

Golf Club Drive west of the railroad trestle currently carries an estimated 150 vehicles per day during weekdays and 200 vehicles per day on weekends. This estimate accounts for existing Pogonip trail users, park employees and traffic generated by other uses located west of the railroad trestle.

Based on recommendations of the American Association of State Highway and Transportation Officials (AASHTO), Golf Club Drive west of the railroad trestle is currently under-designed as a one-lane road. AASHTO recommends that a local rural road carrying less than 250 vehicles per day or less be designed with a width of 22 feet (traveled way of 18 feet and graded shoulders of 2 feet on each side). In addition, facilities for pedestrians and bicyclists are not provided on this roadway section.

Table IV.G-1
LEVEL OF SERVICE SUMMARY

Intersection		Existing		Existing + Project (Pre-Special Event)		Existing + Project (Post-Special Event)	
		Weekday PM Peak Hour	Weekend Mid-Day Peak Hour	Weekday PM Peak Hour	Weekend Mid-Day Peak Hour	Weekday PM Peak Hour	Weekend Mid-Day Peak Hour
SR 9 (N-S) Golf Club Dr (EB)	Int	A (0.2)	A (0.3)	A (0.6)	A (0.7)	A (0.8)	A (0.9)
	EB L/R	A (3.4)	A (4.7)	A (3.7)	B (5.1)	A (4.3)	B (5.3)
SR 9 (N-S) Encinal Ave (EB)	Int	C (19.7)	C (17.3)	C (20.0)	C (17.4)	C (20.1)	C (17.5)
SR 9 (N-S) SR 1 (E-W)	Int	E (44.3)	D (35.0)	E (47.0)	D (37.4)	E 48.2)	D (37.5)

- Notes:
1. Int: Level of service for intersection.
 2. EB L/R: Level of service for eastbound approach.
 3. EB L/R: Level of service for the eastbound approach.
 4. A (0.2): Level of Service (Average delay per vehicle in seconds).

Source: Higgins Associates, Inc.

g. Relevant Policies of City and Regional Plans. The 1994 City of Santa Cruz General Plan goals for transportation and circulation include the following: development of a multi-modal circulation system; reduction of automobile trips and congestion; improvement of alternative transportation modes; development of effective travel demand management strategies; and road system improvements. A primary policy is to achieve no net gain in daily auto trips by the year 2005. In addition, the City seeks to maintain acceptable levels of service by improving utilization of the existing road network and alternative transportation modes, while minimizing major road widening where possible.

The "Arterial Streets Master Plan Study" (ASMPS) was prepared in conjunction with the City's General Plan and analyzes traffic conditions on key city arterials to year 2005. The ASMPS also identifies future deficient intersections and road segments. The ASMPS identified widening of SR 9 between SR 1 and Golf Club Drive as a future improvement need.

The Santa Cruz County Congestion Management Program (CMP) was adopted by the Santa Cruz County Regional Transportation Commission in November 1992 in accordance with State law. The program identifies regionally significant roadways and intersections. SR 9, between the northerly City limits and SR 1, as well as River Street south of SR 1, are components of the CMP network. The SR 1/SR 9 intersection is a CMP intersection.

The CMP identifies level of service standards for the elements of the CMP network. The level of service standard for the SR 1/SR 9 intersection is "E". CMP guidelines require identification of project-specific mitigation measures if the project results in a deterioration of the SR 1/SR 9 level of service to "F".

2. Impacts and Mitigation Measures

a. Significance Criteria. The proposed project would have a significant impact on the transportation system if it would result in the following:

- Deterioration of existing intersection and highway roadway levels of service to unacceptable levels (below LOS "D");
- Increased traffic at arterials or intersections currently operating at unacceptable levels by 3 percent or more;
- Inadequate parking or circulation capacity to accommodate the increase in traffic;
- Unsafe conditions either through additional traffic or roadway design;

- Inadequate provisions for bicycle, pedestrian or transit access; or
- Unsafe conditions for pedestrians, bicyclists, or equestrians, both on trails and at intersections/crossings with roadways.

Several design and operational measures have been included in the *Draft Pogonip Master Plan* to address potential transportation-related impacts associated with the project. These measures include:

- Limiting attendance at Clubhouse events to 200 people.
- Utilizing a shuttle system to off-site parking for events which exceed on-site parking.
- Limiting use of Golf Club Drive north of the Lower Main Meadow area to special events only.
- Redesign of Golf Club Drive to provide turnouts at regular intervals between the Lower Main Meadow and the Clubhouse.

Implementation of these measures would reduce potential traffic related impacts associated with the project. In particular, limiting attendance at Clubhouse special events and limiting the amount of parking on-site will ensure that the project would not significantly impact traffic operations on the local road network. Even with implementation of these measures, the project would create impacts. Additional measures required to mitigate project impacts are discussed in the section below.

b. Impacts and Mitigation Measures. The *Draft Pogonip Master Plan* is being evaluated in terms of its effects on transportation and circulation. The following discussion outlines impacts that would occur as a result of implementation of the proposed *Draft Pogonip Master Plan* and suggests measures to mitigate these impacts.

Impact TRANS-1: The proposed project would generate new vehicular trips that would contribute to existing road network volumes. (LTS)

The proposed project would introduce new uses on the Pogonip site which would increase the total volume of trips to and from the site. These new uses include the events and functions in the rehabilitated Clubhouse, the Pogonip garden and the Outdoor Education Camp. The volume of trips that would be generated by the proposed project would vary on a daily basis in relation to the number and size of activities or events conducted on any one day.

Trip generation related to trail use is not expected to change significantly. If bicycle and equestrian use of trails were allowed, it is expected that equestrians would not use Pogonip or adjacent streets for parking but rather would enter the site on horseback from nearby off-site locations. Similarly, bicyclists are anticipated to primarily use Pogonip as a through connection rather than as a destination.

(1) Daily Trip Generation. Table IV.G-2 summarizes estimated daily trips for the project, incorporating the design and operational measures included in the *Draft Pogonip Master Plan*. It is estimated that a 200-person Clubhouse event would generate 130 daily trips (65 inbound and 65 outbound), the garden would generate 64 daily trips and the Outdoor Education Camp would generate 12 daily trips. When all three uses are conducted concurrently, the project would generate 206 daily trips.

In addition to new vehicular trips generated by the new uses, increases in trail usage associated with opening the trails to bicyclists and equestrians as well as the dissemination of information associated with development of the *Draft Pogonip Master Plan* may also result in the generation of new vehicle trips to the park. The daily trip generation estimate presented in Table IV.G-2 does not account for new vehicle trips associated with increased trail usage, as these vehicle trips are assumed to be minor in comparison to other proposed uses for Pogonip.

(2) Peak Hour Intersection Impacts. The highest volume of project-generated trips would occur in conjunction with a full attendance special event at the Clubhouse. Therefore, peak hour impacts associated with the project were evaluated for the period immediately prior to the beginning of a special event and the period immediately following a special event.

Table IV.G-3 shows the peak hour trip generation estimate for the project. In addition to the trips associated with a 200-person special event, 30 vehicle trips associated with the Lower Main Meadow area were also assumed during the same peak hour to provide a peak hour trip generation analysis that is conservative (i.e., not likely to underestimate adverse impacts). Of the 200 special event attendees, 90 people are assumed to arrive via passenger vehicle at 2 people per auto. The remaining 110 people are assumed to arrive via shuttle at 20 people per vehicle. As shown in Table IV.G-3, additional trips would be associated with service/miscellaneous trips and the off-peak directions. On this basis, 102 peak hour trips would be generated by the project. Prior to the beginning of the event, 89 inbound trips and 13 outbound trips would be generated. At the end of the special event, 13 inbound and 89 outbound trips would be generated.

Table IV.G-2
ESTIMATED PROJECT DAILY TRIPS

Pogonip Use	Estimated Daily Trips
Clubhouse (200 person event)	130
Pogonip garden (8 trips/employee)	64
Education Camp (30 people at 5 per vehicle)	12
TOTAL	206

Source: Higgins Associates, Inc.

Table IV.G-3
ESTIMATED PROJECT PEAK HOUR TRIPS

	People	Vehicle Occupancy	Vehicles
Special Event (200 people)			
Drive/Park On-Site	90	2/vehicle	45
Shuttle	110	20/vehicle	6
Lower Main Meadow Uses	-	-	30
Subtotal Peak Direction			81
Service/Miscellaneous Trips (10% of subtotal)			8
Off-peak Direction (15% of peak direction)			13
TOTAL			102
Total Peak Direction			89
Total Off-Peak Direction			13

Note: Peak hour trip generation estimate assumes a 200 person special event and full utilization of the Lower Meadow parking hour during the same peak hour.

Source: Higgins Associates, Inc.

Separate project trip assignments were prepared for the pre-special event and post-special event peak hour. The pre-special event condition corresponds with conditions prior to the beginning of the special event when the predominant flow of traffic is inbound. The post-special event condition corresponds with conditions after the special event has ended when the predominant flow of traffic is outbound.

Evaluating both the pre-special event and post-special event conditions ensures that the analysis accounts for various special event scheduling eventualities. The additional peak hour trips generated by the project were assigned to the road network using the following trip distribution pattern:

- North via SR 9: 10 percent
- West via SR 1: 15 percent
- South via River Street: 20 percent
- East via SR 1: 55 percent

These assignments were combined with the existing weekday PM peak hour and weekend mid-day peak hour traffic volumes to obtain "project condition" peak hour traffic forecasts. Appendix D, Exhibit D-2 shows the Existing Plus Project traffic volumes for the pre-special event peak hour condition and Appendix D, Exhibit D-3 shows the Existing-Plus-Project traffic volumes for the post-special event peak hour condition.

With project traffic added to existing traffic volumes, the weekday PM and weekend mid-day peak hour levels of service remain unchanged from existing levels, with the exception of the eastbound SR 9 approach to Golf Club Drive which decreases from LOS A to LOS B for the weekend mid-day peak hour. Based on the peak hour trip generation estimate utilized for this analysis, the project would increase traffic volumes at the SR 9/SR 1 intersection by 1.5 percent during the weekday PM peak hour and 1.7 percent during the weekend mid-day peak hour. This contribution is considered less than significant. Therefore, because the project would not cause intersection levels of service to deteriorate to unacceptable levels, nor would it significantly increase traffic volumes on local arterials, the small increase in trips would be a less-than-significant effect.

Mitigation Measure TRANS-1: No mitigation measures would be necessary.
(LTS)

Impact TRANS-2: The proposed project would generate new vehicular parking demand which would not be provided for on-site. (S)

The proposed project includes the provision of 45 parking spaces in the Upper Main Meadow area and 30 parking spaces in the Lower Meadow area. Some additional spaces in the Upper Main Meadow area would be provided for service vehicles. In addition, five wheelchair accessible parking spaces are proposed at the terminus of Spring Street. As part of the *Draft Pogonip Master Plan*, use of off-site parking opportunities will be encouraged, including use of on-street parking spaces located on Dubois Street and Golf Club Drive east of the railroad trestle. These spaces are plentiful on weekends when local industries and businesses are closed and peak usage of Pogonip is expected.

High attendance events at the Clubhouse would create an on-site parking demand for about 45 private vehicles plus service-related vehicles and shuttle vehicles. Overall parking demand would be reduced by utilization of a shuttle system to shuttle participants from off-site parking locations to the event. The "Community Clubhouse and Grounds Management Actions" included in the text of the *Draft Pogonip Master Plan* include a requirement that a shuttle to an off-site parking area would be required for any event in which the parking demand would exceed on-site parking supply. A potential shuttle parking location is on-street parking on Encinal Street. As part of the special event permit process, the specific shuttle parking locations would be evaluated by the City. It is expected that these locations would vary depending on the type of event.

A parking pass system would be implemented to limit the volume of vehicles that seek parking in the Upper Meadow parking area for events conducted at the Clubhouse. This system would ensure that the Upper Meadow parking area would not be over-parked during special events.

The Outdoor Education Camp would be used by groups of up to 30 people for day-use and overnight use. The use of carpools, buses or alternative access modes to transport users of this facility to the Pogonip site would minimize parking demand associated with this facility. The following combination of mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-2: The *Draft Pogonip Master Plan* should identify potential off-site parking areas to be utilized for the shuttle system. The availability of parking at these locations during the periods when high-attendance special events would be conducted should be guaranteed through a contract between the City and the applicable landowner. Adequate parking for service and shuttle vehicles should be provided at the Clubhouse. (LTS)

Impact TRANS-3: The proposed project would contribute additional traffic to the currently deficient sections of Golf Club Drive, creating or contributing to unsafe conditions. (S)

The project would add traffic to Golf Club Drive, currently a one-lane roadway from the railroad trestle to the Clubhouse. During peak periods of park utilization, the project would add approximately 200 daily trips to Golf Club Drive west of the railroad trestle, a 133 percent increase over the estimated existing weekday daily traffic volumes and a 100 percent increase over the estimated existing weekend daily traffic volumes on this roadway segment.

The proposed project would include widening of Golf Club Drive to a width of 28 feet, including 4-foot bicycle lanes, from the park entrance gate to the Lower Main Meadow. From the Lower Main Meadow to the Clubhouse, Golf Club Drive would be improved to a 12-foot wide driveway with turnouts every 400 feet. A gate located at the Lower Main Meadow would restrict access to the upper section of Golf Club Drive except for service vehicles, emergency access and special events. These improvements would reduce project impacts to Golf Club Drive. However, the project would significantly impact the currently deficient section of Golf Club Drive from the railroad trestle to the park gate.

Upper Section Golf Club Drive. The proposed design of Golf Club Drive from the Lower Main Meadow to the Upper Main Meadow as a one-lane road would be adequate for the intended use of the road. This section of road would only be utilized by service vehicles except during special events when event attendees would be allowed to travel this segment of the road. During special events, the flow of traffic would be predominantly one-directional before and after the event, limiting potential conflicts between traffic approaching in opposite directions. Traffic volumes on this stretch of the road would be constrained because the number of parking spaces provided in the Upper Meadow area would be limited.

Middle Section Golf Club Drive. The proposed 28-foot width of Golf Club Drive between the entrance gate and the Lower Main Meadow would be adequate for vehicular traffic based on standards published by the AASHTO. AASHTO recommends that Area Roads within recreational areas be developed to a roadway width of between 18 and 22 feet. The roadway design should include shoulders 4 feet in width on both sides of the roadway for bicycle traffic as proposed in the *Draft Pogonip Master Plan*.

Lower Section Golf Club Drive. The section of Golf Club Drive between the railroad trestle and the Pogonip property boundary is currently deficient and is not

adequate to serve the projected volume of traffic that would utilize this roadway. During peak periods of activity on the project site, the daily volume of traffic on this section of Golf Club Drive would double. Therefore, the project's contribution of additional traffic to this currently deficient roadway would be significant.

Railroad Trestle. The one-lane operation of Golf Club Drive at the railroad trestle limits the capacity of Golf Club Drive. The one-lane operation is a safety concern that would increase in significance as the traffic volumes using Golf Club Drive increase.

The following combination of mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure TRANS-3a: The lower section of Golf Club Drive should be widened to provide two travel lanes. Shoulders should also be provided on both sides of the roadway. (LTS)

Mitigation Measure TRANS-3b: Given the relatively low volume of traffic currently utilizing Golf Club Drive west of the railroad trestle and the low volume of traffic anticipated with development of the project, it is recommended that Golf Club Drive at the railroad trestle be operated as a one-lane roadway. Allocation of right-of-way between traffic approaching in opposite directions can be self-regulated given the low volume of traffic on this road link. "One Lane Roadway" warning signs should be installed on Golf Club Drive on both approaches to the railroad trestle with appropriate pavement markings per the Caltrans Traffic Manual. This section of Golf Club Drive should be monitored for possible implementation of additional traffic control should operational problems occur.

Impact TRANS-4: The proposed project would not provide adequate facilities for pedestrians and bicyclists on Golf Club Drive west of the railroad trestle. (S)

Improvements to Golf Club Drive between the railroad trestle and the park entrance are not included in the proposed project. The proposed project includes widening Golf Club Drive west of the park gate to the Lower Main Meadow gate. However, facilities for pedestrians and bicyclists are not provided on this section. To mitigate this impact, the following mitigation measure should be implemented:

Mitigation Measure TRANS-4: Facilities for pedestrians and bicyclists should be provided on Golf Club Drive between the railroad trestle and the

Lower Main Meadow gate, which covers both the lower and middle sections of Golf Club Drive. (LTS)

Impact TRANS-5: The proposed project may increase pedestrian, bicycle and equestrian traffic at the crossing of Pogonip trails with key arterials and roadways adjacent to the Park. (S)

At the current time, no advance warning signs are provided on SR 9 or Coolidge Drive at the intersections with existing trails (e.g., Rincon, Rincon Connector, and Sycamore trails). Installation of advance warning signs at these locations is recommended to reduce potential impacts to less-than-significant levels. Installation of cross walk markings is not recommended at the trail crossings or intersections with public roadways to avoid providing trail users with a false sense of security while crossing.

Control measures directed at trail users are warranted for the Rincon Connector crossing of SR 9. To minimize the distance required to cross SR 9 and to improve the sight distance for vehicles approaching from the north and south on SR 9, trail users should be directed to cross SR 9 at the location where the west leg of the Rincon Connector Trail intersects SR 9.

The existing Rincon Trail intersection with Coolidge Drive has insufficient sight distance for a pedestrian/bicycle crossing given the existing speed limit on this section of Coolidge Drive. There are also existing problems with excessive vehicle speeds on Coolidge Drive. Bike lanes are provided along this section of Coolidge Drive, but there are no pedestrian facilities. This intersection is not feasible for equestrian use.

It is not feasible to relocate Rincon Trail given the steep slopes. A new trail connection between Rincon Trail and Coolidge Drive is also not recommended due to the steep terrain. It is also likely that bicyclists would continue to use the Rincon Trail intersection. Therefore, it is preferable to improve the sight distance at the existing Rincon Trail intersection with Coolidge Drive.

The following combination of mitigation measures would reduce this impact to a less-than-significant level:

Mitigation Measure TRANS-5a: Advance warning signs should be provided per Caltrans standards on SR 9 and Coolidge Drive at the Rincon Trail, Rincon Connector Trail and Sycamore Trail crossings/intersections. These

signs should include "Pedestrian Crossing" and "Equestrian Crossing" signs where appropriate. (LTS)

Mitigation Measure TRANS-5b: Rincon Connector users should be directed to cross SR 9 at the location where the west leg of Rincon Connector intersects SR 9. Appropriate signs should be installed on the eastbound and westbound trail approaches to SR 9 to direct trail users to the proper location to cross SR 9. Installation of a crosswalk is not recommended at this location. (LTS)

Mitigation Measure TRANS-5c: Bicycle and equestrian trail users accessing the trail system from UCSC should be encouraged to gain access from the UCSC Connector located in the northerly area of Pogonip. (LTS)

Mitigation Measure TRANS-5d: Given the lack of facilities for equestrians on Coolidge Drive, equestrians should be prohibited between Rincon Trail and Coolidge Drive. Appropriate signs should be placed at the intersection of Rincon Trail and Spring Trail guiding equestrian traffic destined to or through the UCSC campus to the UCSC Connector Trail. (LTS)

Mitigation Measure TRANS-5e: The City should work with the County of Santa Cruz, which owns and maintains Coolidge Drive, to improve the sight distance at the existing Rincon Trail intersection through tree thinning and limbing along the road corridor. It may also be necessary to cut the toe of the slope on the west side of the road, just below the curve, to provide adequate sight distance for the existing speed limit. Any cut slope would likely require slope stabilization, such as a cribwall. (LTS)

In addition, the City should coordinate with the County of Santa Cruz and UCSC to reduce traffic speeds on Coolidge Drive, with 20-foot-wide speed humps or another appropriate measure. (LTS)

Impact TRANS-6: The proposed project includes alternatives that may allow bicycle and equestrian use of the Pogonip trails which could result in potential conflicts between pedestrian, bicycle and equestrian users. (LTS)

The *Draft Pogonip Master Plan* provides three alternative trail use plans. Two plans would allow equestrian and bicyclists to share selected trails with pedestrians. The third plan would restrict use of Pogonip trails to pedestrians only. Table IV.G-4 summarizes the alternative trail plans.

**Table IV.G-4
 TRAIL USE ALTERNATIVES**

	A	B	C
Service Roads			
Rincon Trail	E ^a /B ^b /P ^c	E/B/P	P
Spring Trail	E/B/P	P	P
Brayshaw Trail	E/B/P	P	P
Existing Trails			
Rincon Connector Trail	E/B/P	E/B/P	P
Fern Trail	P	P	P
Limekiln Trail	P	P	P
Lookout Trail	P	P	P
Ohlone Trail	P	P	P
Pogonip Creek Trail	P	P	P
Prairie Trail	P	P	P
Sycamore Grove Trail	P	P	P
Spring Box Trail	P	P	P
Lower Meadow Trail	P	P	P
New Trails			
UCSC Connector Trail	E/B/P	E/B/P	N/A
Harvey West Park Trail	P	P	P

^aE = Equestrians permitted

^bB = Bicycles permitted

^cP = Pedestrians permitted

Source: Santa Cruz Parks and Recreation Department, 1997.

Allowing bicycle and equestrian users to join pedestrians on the Pogonip trails create the potential for conflicts between trail users. The *Draft Pogonip Master Plan* includes several design guidelines and trail management actions to minimize potential conflicts created by multi-use. These include the following:

- Post trail names and use designations at the intersections of all trails.

- Provide interpretive kiosks at trail entrances and the Clubhouse. Information included in these kiosks would include trail system maps and safety information including trail speed limit information.
- Post trail etiquette signs.
- Post speed limit signs where appropriate.
- Establish a Joint Volunteer Patrol to assist with trail patrolling.
- Distribute trail etiquette brochures.
- Identify and post "Walk Bicycles" zones on trails with extreme grades (i.e. Brayshaw Trail).
- Provide educational outreach on trail courtesy and appropriate trail use at bicycle shops and schools.
- Identify trail segments that are inadequately designed which would require special speed or operational controls (i.e., blind curves, limited visibility, steep areas).
- Establish a Bicycle Ordinance that would establish appropriate trail use and speed limits and attach fines to violations.
- Establish a trail monitoring system to allow trail users a process to report trail problem areas.

Implementation of the above measures would reduce potential conflicts created by shared-use.

As part of the environmental review process for the *Draft Pogonip Master Plan*, recreation areas around Santa Cruz and the greater San Francisco Bay Area were queried regarding their standard trail widths for multi-use trails. The results of this survey can be found in Table IV.G-5.

As shown in Table IV.G-5, requirements for trail widths on multi-use trails vary from district to district. For example, the East Bay Regional Park District (EBRPD) allows multi-use trails only on those trails designated for vehicular access, which are ten to twelve feet in width. On the other hand, Mid-Peninsula Regional Open Space District (MROSD) allows multiple uses on two classes of trails, with widths varying from four to ten feet. Additionally, the MROSD Class B multi-use trails of four to six feet in width account for only ten percent of total District trails (MROSD, 1993).

**Table IV.G-5
MULTI-USE TRAIL WIDTH STANDARDS**

Jurisdiction	Allow non-paved, multi-use trails in jurisdiction?	Which trails allowed for multi-use?	Standard trail width	Grade	Notes
EBRPD ^a	Yes	Fire service roads only	10-12 feet	Varies	Widths dependent on Fire Department requirements for adequate vehicular access.
MROSD ^b	Yes	Varies-see notes	Class A: 6-10 ft. Class B: 4-6 feet	Class A: Varies Class B: Less than 15%	Suitable trail uses for each trail class designation based on physical characteristics and trail use on adjacent parklands.
California State Parks: Santa Cruz District	Yes	Paved and unpaved park roads, including fire roads, dirt roads, and service roads; see notes for exceptions	Width over 5 feet	Varies	District Superintendent can close roads or open trails to bicycle use at his/her discretion; parks may implement <i>Draft Pogonip Master Plans</i> with policies that may act to supersede these restrictions (see parks listed below).
California State Parks: Henry Cowell Redwoods	Yes	Fire roads only	10- to 20-foot widths	Less than 15%	
California State Parks: Forest of Nisene Marks	Yes	Fire roads only	10- to 20- foot widths	Varies	Would recommend any multi-use trail to be 5 to 6-foot minimum width (Waggoner, 1997)
Soquel Demonstration State Forest ^c	Yes	All trails multi-use	Single-track trails: 5 foot width max.; Fire roads 10 to 15 feet	Varies	Trails are engineered to control erosion and bicycle speed and to ensure user safety.
MMWD ^d	Yes	Bicycle use allowed on fire roads only	12 to 15 feet	Varies	Restrictions on equestrian use on narrow trails.

^a East Bay Regional Park District

^b Midpeninsula Regional Open Space District

^c Statistics taken from Draft Education and Recreation Master Plan; Final Plan not yet adopted.

^d Marin Municipal Water District.

Source: EBRPD, MROSD, State Parks, and MMWD, 1997.

Although most of these agencies have jurisdiction-wide policies, within some agencies, there is room for trail decisions to be made on a site-by-site basis. For example, within the State Park System, although there is an agency policy of allowing for multiple uses on fire roads only, each park has the option to designate their own trail design and use policies within a park-specific *Master Plan*.

AASHTO recommends that bicycle paths utilized for two-way operation be ten feet in width. A minimum width of eight feet can be adequate when bicycle and pedestrian volumes are low. Rincon, Brayshaw and Spring Trails are ten feet in width which meets AASHTO's minimum width for bike paths with two-way operation.

The trail design guidelines indicate that multi-use trail connectors (UCSC Connector, Rincon Connector and Upper Brayshaw) should be six to ten feet in width with sections as narrow as four feet in width to minimize impacts to sensitive environmental resources. Multi-use trails less than eight feet in width would not meet AASHTO's minimum width standards for a paved bike path operation.

However, given the variation in trail widths for multi-use trails in other parks (paved and unpaved), it appears that the trail design guidelines of the *Draft Pogonip Master Plan* would be adequate. In addition, the flexibility allowed in widths accounts for topographical, geologic, and vegetative constraints and would result in less environmental damage. To further reduce potential impacts associated with the design of the multi-use connector trails, the following mitigation measure is recommended:

Mitigation Measure TRANS-6: If one of the multi-use trail alternatives is selected, all multi-use trails should be monitored for safety problems and the need for implementing additional mitigation measures. Additional mitigation measures may include closing the trail to multi-use, providing a separate parallel trail for bicycle/equestrian use, or widening the trail. (LTS)

H. SERVICE SYSTEMS AND UTILITIES

□ □ □

This section describes and evaluates the public services setting, impacts, and mitigation measures for the proposed project, including public safety, water supply, wastewater, solid waste, and gas, electric, and telecommunications services. As part of this analysis, individual service providers were contacted, provided with a written description and maps of the proposed project and queried in regard to potential adverse impacts.

1. Public Safety

a. Setting.

(1) Police and Ranger Services. A staff ranger, based at the Pogonip Ranger Station, currently patrols the project site on horseback. One ranger is assigned to work a 40-hour week at Pogonip. This person is assisted by other staff who are generally temporary employees. The ranger also provides maintenance support at Pogonip and Arana Gulch, another City owned greenbelt property (Levy, 1997).

The Pogonip Ranger Station is located in the central eastern area of the site, as shown in Figure III-3. First emergency response to the site is from this location. Response time is approximately five to ten minutes to areas within Pogonip that are accessible by service roads. Emergency response to sites located in areas not accessible by motorized vehicles requires additional time, depending upon the specific location of the incident. Non-emergency response time is within 15 minutes.

The rangers enforce infractions and misdemeanors within Pogonip. While the ranger program provides the patrol services for Pogonip, the City of Santa Cruz Police Department responds to specific calls from the rangers or the public. If a situation occurs which requires police assistance, the rangers can escort the person to a police patrol vehicle access point or meet an officer and guide the officer(s) to the location of the incident (Levy, 1997). Felony crimes on site are investigated by the Santa Cruz Police Department. City police investigate felony crimes approximately twelve times per year (Franks, 1997). The City police station closest to the project site is

located at 809 Center Street in Santa Cruz, less than 1.5 miles from the project site. However, response for assistance generally comes from officers on patrol throughout the City (Levy, 1997).

Under existing conditions, illegal camping and related debris and environmental damage near the railroad tracks and in Sycamore Grove have been the most persistent recurrent illegal activities on the site (Levy, 1997).

(2) Fire Safety. The following discussion on the existing setting for fire safety is broken down into the following four categories: fire and emergency services, response time, fire flow, and existing fire hazards on site.

(a) *Fire and Emergency Services.* The project site is currently served by the Santa Cruz City Fire Department. Part of the property is considered a Mutual Threat Zone (MTZ) with the State Responsibility Area (SRA). A MTZ is an area within which fire protection is provided both by the local provider, which in this case is the Santa Cruz City Fire Department, as well as the State Provider, the California Department of Forestry and Fire Protection (CDF). The Pogonip property is not an automatic aid area. The fire department does participate in a mutual aid system that would employ additional resources if necessary (Latham, 1997). The fire department responds to structural and wildland fires and medical emergencies in this area. The closest fire station to the project site is located at 711 Center Street, between Church Street and Walnut Street, in Central Santa Cruz, also less than 1.5 miles from the project site.

The current staffing level at the nearest fire station is one three-person engine company and one two-person ladder truck company. The ambulance that serves the Santa Cruz Fire Department is privately owned and operated under a County-wide contract. Calls for medical emergencies are dispatched simultaneously to both fire and ambulance services.

Emergency access for Pogonip requires fire apparatus with four-wheel drive capability except for on Golf Club Drive. The Fire Department engine company is two-wheel drive and requires an all-weather road capable of supporting 40,000 pounds. A roadway used by the ladder truck must support 60,000 pounds. In addition, the minimum required width of a fire apparatus roadway is 20 feet with an unobstructed height of 13 feet, 6 inches, consistent with the City *General Plan Safety Element*. In light of these constraints, the extent of City fire engine access to Pogonip would be the lower portion of Brayshaw Trail, the Spring Street end of Spring Trail, the Coolidge Drive end of Rincon Trail, and the Highway 9 end of Rincon Trail. Parts of these trails are eroded and traverse very steep slopes, and should be examined for continued vehicle use (Latham, 1997).

Fire Department engines can deploy a small hoseline to within 150 feet of each side of the roadway. However, in terms of access to the Pogonip site, an additional 300 feet of hose can be attached and extended over the open space area adjacent to Golf Club Drive. Firefighting efforts in other areas of Pogonip have been successful by using aircraft, firefighting crews, and four-wheel drive apparatus. These have been mutual aid requested resources from outside the Fire Department and are subject to Statewide priority needs (Latham, 1997).

(b) *Response Time.* The last two wildland fires in Pogonip had a response time of six and seven minutes, respectively, which is the average response time for wildland fires in the City of Santa Cruz. Additional time would be required in order to locate a person needing assistance or to take effective action on a fire. The *General Plan Safety Element* of the City of Santa Cruz recommends that the Fire Department establish a fire response time goal of three minutes to commercial land use (City of Santa Cruz, 1994). A recommended response time for public land uses was not included in the City's *General Plan*.

(c) *Fireflow.* Standard minimum fireflow within the City of Santa Cruz is 1,500 gallons per minute, at 20 pounds per square inch (psi) residual pressure, for a duration of 120 minutes. Hydrant spacing is typically 500 feet (Latham, 1997). Fire hydrants do not exist on the Pogonip site.

(d) *Existing Fire Hazards on Site.* Vegetation on the Pogonip site is typical of those portions of the central California coastal range that have not been influenced by periodic fire episodes. Tall grasses and northern coastal scrub have moderately high to high ignition potential (Wildland Resource Management, 1997). The activities that occur on site are typically daytime activities; however, the previously mentioned history of illegal overnight camping has resulted in escaped campfires and arson in the past.

High voltage transmission lines are present on the property. High winds and inadequate clearance of combustible material can start a fire anywhere along the transmission line route.

The *Draft Fire Management Element* identifies several hazards related to current fire conditions at Pogonip. These hazards include:

- Access limitations resulting from the existence of only three service roads;
- Little water availability for fire suppression;
- Topography conducive to fire spread;
- North winds; and
- High fuel loads (Wildland Resource Management, 1997).

b. Impacts and Mitigation Measures.

(1) Significance Criteria. In accordance with Appendix G of the *CEQA Guidelines*, criteria for measuring the significance of effects on emergency services relate primarily to interference with emergency response plans or emergency evacuation plans. For this EIR, significant ranger and fire service impacts would occur if the proposed project's demand could not be met by existing ranger and fire protection services.

(2) Impacts and Mitigation Measures. The *Draft Pogonip Master Plan* is being evaluated in terms of its effects on public safety. These evaluations include effects on emergency response time, including potential impacts from increased camping and day use.

Impact SER-1: Anticipated increased levels of use in Pogonip and the types of use would increase the demand for ranger services beyond what is currently available. (S)

Preliminary staffing estimates for the proposed *Draft Pogonip Master Plan* include adding new maintenance staff, thereby transferring some current maintenance responsibilities and allowing rangers to spend more time on patrol (Harris, 1997).

Intensified levels of use in the park may act to reduce some current illegal activities, such as unauthorized overnight camping. However, increases in use could also result in an increase in other illegal activities or activities that require ranger or police oversight.

Illegal camping occurs at various locations throughout Pogonip. This condition results in demand for Ranger Services, including cleanup of debris and campsites, as well as response to illegal activities which sometimes occur at these campsites (Harris, 1998).

The *Draft Pogonip Master Plan* includes three trail use alternatives. (Refer to Chapter III, Project Description, for descriptions of all existing trail alignments.) This section of the EIR evaluates all three trail alternatives in terms of their impacts upon public safety. Although the trail alignments are basically the same in all three alternatives, the allowed use for specific trails varies. Two of the alternatives include opportunities for equestrians and bicyclists, and the third alternative maintains the current permitted use of trails which is for pedestrians only, with the exception of Rincon Trail and Rincon Trail Connector, which would allow for equestrian and bicycle use.

Opening trails to multiple uses creates the potential for trail use conflicts. Statistically, in similar recreation areas, there have been minimal recorded conflicts between trail users. For example, in 1991, in two parks in the East Bay Regional Park District, 18 percent of reported accidents were due to user conflicts, and in 1992, the number dropped to 7 percent. Most serious accidents were found to be the result of solo bicycle or bicycle/bicycle accidents (Iverson and King, 1993).

The Mid-Peninsula Regional Open Space District (MROSD) keeps records of recorded conflicts between trail users. MROSD data show one to five reported conflicts per year between bicyclists and all other user groups in the entire open space district. In 1995, the MROSD recorded minimal conflicts between bicyclists and other users. Recorded conflicts for 1995 of the entire MROSD included only one bicycle/equestrian accident out of a total of 68 recorded accidents that year. In 1996, the MROSD reported one bicycle/equestrian, one bicycle/runner and three bicycle/hiker conflicts out of a total of 74 recorded accidents that year. (MROSD, 1997).

As trail use increases, so does the potential for conflict. If the trails were open to pedestrians only, such inter-use conflicts would not occur. However, education, volunteer patrols, and written warnings have proven to be effective in reducing bicycle and trail conflict problems in the East Bay Regional Park District.

The following combination of mitigation measures would reduce public safety impacts, including trail use conflicts, to a less-than-significant level:

Mitigation Measure SER-1a: To address additional ranger needs, conflicts requiring ranger assistance should be monitored. If necessary, additional ranger patrol services should be added. This dedicated time may be achieved initially by adding one additional staff member for maintenance duties to free up ranger's time for conflict resolution. (LTS)

Mitigation Measure SER-1b: Signage and informational handouts notifying park users of park regulations and educating trail users on appropriate and safe trail use should be available at Pogonip. Signs and handouts should be placed at all park entrances and at key locations throughout Pogonip. Signage locations within Pogonip should include parking and staging areas, the Outdoor Education Camp, the Clubhouse, Sycamore Grove, the garden, and major trail intersections. (LTS)

Mitigation Measure SER-1c: On-site rangers should work with user groups to provide volunteer patrols to ensure that trail restrictions are followed and to convey trail etiquette and safety information. (LTS)

Mitigation Measure SER-1d: Speed limits for bicyclists should be posted as needed along the trails to ensure safe conditions when multi-use is permitted. (LTS)

Mitigation Measure SER-1e: A volunteer trails committee should be established to include representatives of trail user groups (including hikers, equestrians, and bicyclists) in problem identification, prevention, and solutions. This committee should be coordinated by staff of the City's Parks and Recreation Department. (LTS)

Impact SER-2: The proposed project would increase demand for firefighting services but not beyond that level provided by existing staff and equipment. (LTS)

Water supply lines are proposed to be extended to serve the project site. In addition, a water system booster pump is proposed for fire protection needs, as well as retention of the existing spring-fed water supply for backup. Six-inch steamer fire hydrants with standard minimum fireflow are proposed to be installed at 1,000-foot intervals along Golf Club Drive and within 250 feet of all structures, as required by City Code. The *Draft Pogonip Master Plan* also proposes installation of a 20,000-gallon steel tank to provide a backup water supply system. These water supply and storage devices would be adequate for firefighting services.

The proposed project would result in increased use of Pogonip, resulting in increased risk of wildland fires. However, this increased risk is expected to be mitigated by following the prescriptions for fire safety laid out in the *Fire Management Element* of the *Draft Pogonip Master Plan*. As part of the *Draft Pogonip Master Plan*, a *Fire Management Element* for the entire 640-acre property has been prepared. This plan characterizes fire hazards, fire risks, and values at risk, and prescribes methods to decrease these risks. (This plan is available at the City of Santa Cruz Parks and Recreation Department.)

Some of the prescriptions of the *Fire Management Element* include the following:

- Implement actions to reduce the ignition potential of the park such as the following: posting of educational signs at kiosks; provision of training to staff members; contract specifications for mowing operations; and modification of fuels to make them less conducive to illegal uses such as camping.
- Mow grass in areas of planned increased use.
- Whenever possible, use plants that are less flammable than grass in natural areas and near structures.

- Make areas where illegal campfires occur less conducive to that use.
- Implement prescriptions for fuel management.

In addition, Appendix E of the *Draft Pogonip Master Plan* outlines standards for fire hazard reduction treatments. In light of the *Fire Management Element* and fire management actions incorporated in the *Draft Pogonip Master Plan*, the proposed project would not result in a significant impact on firefighting services and is not expected to interfere with emergency response plans. The fire service provider does not currently experience problems in providing fire protection and emergency services to the project area. If all minimum requirements of the Fire Department are met as part of the project, no significant impacts on fire and emergency services would occur as a result of the proposed project. Response time to Pogonip would improve with smaller-sized fire apparatus that could more easily negotiate park access roads (Latham and Harris, 1997). The following are recommended mitigation measures to ensure that fire-related impacts remain less than significant.

Mitigation Measure SER-2a: Management actions to minimize fire hazards, as identified in the *Draft Pogonip Master Plan*, must be undertaken as the various improvements and new uses are implemented throughout Pogonip. These management actions include using appropriate building materials, vegetation management, and ensuring availability of fire suppression equipment. (LTS)

Mitigation Measure SER-2b: The Parks and Recreation Department should coordinate with the Fire Department to ensure that adequate fire safety prescriptions are included in the *Clubhouse Rehabilitation Plan*. The Parks and Recreation Department should also coordinate with the Fire Department regarding design of all other new facilities proposed for Pogonip, as well as to ensure that the water supply and delivery system and roadways are adequate for fire protection needs. (LTS)

Mitigation Measure SER-2c: The Parks and Recreation Department should establish an on-going vegetation management program to ensure that fire management actions are implemented. This program would include regular mowing, conducting prescribed burns when feasible, grazing, and other vegetation management strategies, as described in the *Draft Pogonip Master Plan*. (LTS)

2. Water Supply

- a. Setting. The City of Santa Cruz Water Department supplies water service to the entire City of Santa Cruz, including the project site. Current water demand is

approximately 4,200 million gallons per year (mgy) for the City of Santa Cruz. Current demand exceeds the existing safe yield of the system for shortfall drought years and is approaching the estimated year 2005 future water demands. The shortfall is about 590 mgy for an extended drought similar to 1987-1991 conditions. During non-drought periods, the City has adequate supplies to serve future demand. Currently, alternative projects to supply water during dry years are being investigated (Chang, 1997).

The existing City water supply system is comprised of four main production elements: the North Coast, the San Lorenzo River, Loch Lomond, and the Beltz wells. The system relies entirely on rainfall, surface runoff, and groundwater infiltration occurring within a watershed located in Santa Cruz County. No water is imported into the region from outside the Santa Cruz area.

The closest municipal water line terminates just below the southeastern boundary of Pogonip. This six-inch line extends from Highway 9 along the Golf Club Drive alignment.

Historically, a gravity-fed water system consisting of 3-inch diameter galvanized pipe, approximately 2,000 feet in length, carried spring water to the Clubhouse site on the Pogonip property. The pipe route parallels the south side of Brayshaw Trail. This water system continues to be utilized as a source of non-potable water for irrigation, equipment, and livestock maintenance at Pogonip. In 1993, the private Pogonip Club drilled a well with the intent to serve the Clubhouse. The well produces approximately 11 gallons per minute; however, it was never actually utilized to provide for potable water needs.

Thousands of feet of irrigation piping were also installed within Pogonip as part of the golf course and other operations in the early part of this century. In some places, it appears to be redwood piping. Also, a concrete reservoir was constructed several decades ago to the south of the Brayshaw Trail. Currently, this reservoir is empty and fenced to prevent trespassing.

The City of Santa Cruz requires water conservation measures as a standard feature in the design and construction of proposed projects. The City has a water conservation ordinance which lays out specifications for conserving landscape water. As a condition of new water service for new properties and any re-landscaping projects, an independent irrigation design review is required by the Water Department per this ordinance (Municipal Code 16.16). This landscape water conservation ordinance would come into effect when remodeling of the Clubhouse building occurs. A second City water conservation ordinance (Municipal Code 16.02) which prohibits water waste would only be applicable to this project if Pogonip was found to be using water wastefully over time. This ordinance does not affect new development

which will be using water for beneficial purposes, such as the Pogonip project. This ordinance was designed to address projects with proposed non-essential water uses such as fountains and water displays (Goddard, 1997).

b. Impacts and Mitigation Measures.

(1) Significance Criteria. Appendix G of the *CEQA Guidelines* indicates that a project would normally have a significant adverse impact on water supply if it would (1) substantially degrade water quality or contaminate a public water supply; (2) use water in a wasteful manner; or (3) encourage activities which result in the use of large amounts of water. For this EIR, a significant impact would occur if:

- The project would result in encouragement of the use of significant amounts of water, or
- The City could not meet the projected maximum daily water requirements of permitted development or if development is proposed in areas outside the planned water service boundary.

The project would not contaminate a public water supply or use water in a wasteful manner. Water quality is addressed in the "Water Resources" section of Chapter IV.

(2) Impacts and Mitigation Measures.

Impacts SER-3: The proposed project would result in a significantly increased demand for City water. (S)

Using a multiplier of 2.0 acre-feet/acre/year (Harris, 1998), the Pogonip garden is expected to use approximately 20 acre-feet of water per year for the approximately 10-acre site. The existing gardens elsewhere in the City of Santa Cruz currently comprise a total of approximately 4 acres. Based on these acreages, the Pogonip garden would result in a net increase of approximately 12 acre-feet per year an amount, which would constitute a "significant amount of water" as set forth in the first significance threshold. To address this increase, the *Draft Pogonip Master Plan* includes a Design Guideline stating the following: "The irrigation system will utilize low-volume irrigation to the maximum extent feasible." Drip irrigation is planned for the garden project to reduce the demand for water.

Existing springs would continue to be used as a backup supply for non-potable water needs. If they were utilized for non-potable uses, approved backflow devices would be required on all water services. However, the project proposes to extend municipal water lines to serve all primary water needs on the Pogonip site.

In addition to the Pogonip garden, the Clubhouse and proposed facilities expansion would increase demand for water. This demand would increase the City's shortfall during drought conditions. Currently, alternative projects and sources to optimize supply during dry years are being investigated by the City (Chang, 1997). Because of the small increase in demand from the few new ranger facilities, Clubhouse events, and Outdoor Education Camp proposed in this project, impacts from these facility expansions are not expected to be significant.

Mitigation Measure SER-3a: The following combination of mitigation measures should be implemented to reduce this impact to a less-than-significant level:

- The Parks and Recreation Department should submit irrigation plans to the City Water Department for design review and review of compliance with water conservation ordinances prior to project approval. Implementation of water conservation techniques would reduce this impact to a less-than-significant level during non-drought periods.
- The additional demand for water created by the Pogonip garden could impact city water supplies during drought conditions. The City should consider scaling back garden irrigation practices during times of drought. (LTS)

Impact SER-4: The proposed project would require a six-inch water line extension from the municipal water line on Golf Club Drive and other water-related facilities. (LTS)

In addition to the water line extension, the Parks and Recreation Department must provide a tank, pump station, and fire hydrants. A 20,000-gallon steel tank for water storage has been identified in the *Draft Pogonip Master Plan*. A specific site for the proposed 20,000-gallon tank has not yet been selected. The size and location of water services on site (fire, domestic, and irrigation) will be determined based upon review of the future building plans submitted to the City for review. At that time, the evaluation of the main line, easements, fire hydrants, and backflow devices would be determined (Chang, 1997).

As part of the *Draft Pogonip Master Plan* planning process, the Parks and Recreation Department consulted with the City of Santa Cruz Public Works and Fire Departments to ensure adequate water line capacity and components. If the project receives final approval, these departments will continue to coordinate regarding final water supply engineering.

During construction of the water line, cultural resources may be uncovered.

Mitigation Measure SER-4: If cultural resources are uncovered during the excavation process for the water line, construction should stop and instructions prescribed in Chapter IV, Cultural Resources, should be followed. (LTS)

3. Wastewater Treatment, Storage, and Disposal

a. Setting. The City of Santa Cruz Public Works Department provides wastewater services for properties within the City limits, including the Pogonip site. The City wastewater treatment plant is located approximately two miles from Pogonip. Average dry weather capacity of the plant is 17 million gallons per day (MGD). The plant is currently at 60 percent of capacity, and there are no plans for future expansion (Wolfman, 1997).

A six-inch wastewater line extends along Golf Club Drive from the intersection with Route 9 to approximately 230 feet beyond the center line of the railroad trestle. No existing hookups exist west of the railroad trestle.

The Clubhouse and nearby on-site buildings are presently on septic systems. The leachfield for the Clubhouse is located in the low-lying area to the north of the structure. This system is in need of improvements and could not be utilized to serve the Clubhouse in its present condition. The existing ranger facility utilizes portable toilet facilities.

The project proposes to connect to the city sanitary system. Connecting to the sewer system is preferable and generally required within the City limits. In order to continue using an existing septic tank instead of connecting to the existing sewer system, the site would have to meet County Health Department requirements and obtain City Council approval (Wolfman, 1997).

b. Impacts and Mitigation Measures.

(1) Significance Criteria. A significant impact to wastewater treatment, storage and disposed facilities would occur if:

- Development resulted in dry weather wastewater flows that exceeded wastewater treatment, storage, and disposal capacity;
- A sewer trunk line was required to be extended with capacity to serve proposed uses such as the renovated Clubhouse; or
- Extension of the sewer trunk line resulted in growth inducement.

No sewer trunk line would be required to serve the project. Because of the minimal nature of facilities on the Pogonip site, when completed and operational, the proposed project would not impede the City's ability to provide sewer collection or treatment services or exceed the existing sewage collection or treatment capacity (Wolfman, 1997).

(2) Impacts and Mitigation Measures.

Impact SER-5: Wastewater generated as a result of increased use of the park would require a six-inch wastewater line extension along Golf Club Drive to serve the Clubhouse and nearby buildings. (LTS)

The *Draft Pogonip Master Plan* recommends extension of the six-inch wastewater line along Golf Club Drive to serve the facilities within the Lower and Upper Main Meadow areas. Once constructed, no further impacts on wastewater-related services would occur.

Because this extension would run along the pre-existing Golf Club Drive alignment, it is not expected to have a significant impact on biological resources. However, cultural resources may be encountered during construction of the wastewater line and are addressed in Chapter IV, Cultural Resources.

Mitigation Measure SER-5: If cultural resources are uncovered during the excavation process for the wastewater line, construction should stop and instructions prescribed in Chapter IV.E, Cultural Resources, should be followed. (LTS)

4. Solid Waste

a. Setting. The Sanitation Division of the City of Santa Cruz Department of Public Works provides all solid waste disposal services for the City and the project site. The Sanitation Division also provides curbside recycling services. Local refuse is taken to the City's landfill, located approximately six miles from downtown Santa Cruz. The landfill facility is expected to operate until at least the year 2035 (Gamboa, 1997).

The City of Santa Cruz is responsible for implementing the *California Integrated Waste Management Act of 1989* as well as waste diversion programs that have been developed in response to this act. Additionally, the *California Solid Waste Reuse and Recycling Access Act of 1991* mandates that cities and counties divert 50 percent of all solid waste by January 1, 2000, through source reduction, recycling, and composting activities. The City of Santa Cruz offers a full range of recycling services to encourage waste stream diversion, including glass, paper, metal, and

plastic recyclables collection. The City does not offer green waste collection (Gamboa, 1997).

Solid waste disposal services are currently provided on the Pogonip site with a combination of service from the City of Santa Cruz Sanitation Division and Parks Maintenance Division of the Parks and Recreation Department. The City provides one 20-cubic yard waste container to the Clubhouse which is emptied on an as-needed basis. A two-cubic yard container provided by Parks Maintenance at the ranger facility is emptied weekly. Parks Maintenance provides services to the following Pogonip sites on an as-needed basis: two trash cans at the Clubhouse; one trash can at Sycamore Grove; one trash can at the Golf Club Drive entrance; and one trash can at the Spring Street entrance (Gamboa, 1997).

b. Impacts and Mitigation Measures.

(1) Significance Criteria. For this EIR, a significant impact would occur if the proposed project would:

- Breach published state or local standards relating to solid waste, litter control, or recycling (specifically, not conform with the *California Integrated Waste Management Act of 1989* or the *California Solid Waste Reuse and Recycling Access Act of 1991*); or
- Increase the generation of solid waste.

Conformance with the *California Integrated Waste Management Act of 1989* or the *California Solid Waste Reuse and Recycling Access Act of 1991* would occur under the City's existing collection programs.

(2) Impacts and Mitigation Measures.

Impact SER-6: With increased usage of Pogonip, the proposed project would result in the generation of additional solid waste that would reduce the useful life of the City's landfill facility. (S)

Table IV.H-1 outlines the proposed services to be provided by both the City and Parks Maintenance. As shown in Table IV.H-1, both waste and recycling facilities would be provided in the proposed project (City of Santa Cruz Public Works Department, 1997). As shown in Table IV.H-1, solid waste service and facilities would vary in different areas of Pogonip. The combination of the following mitigation measures would reduce this impact to a less-than-significant level.

Additionally, the *Draft Pogonip Master Plan* should address special events, which would require special arrangements for solid waste and recycling.

Mitigation Measures SER-6: Recycling facilities should be provided in all areas where solid waste generating activities may occur. As shown in Table IV.H-1, no recycling bins are proposed in Sycamore Grove. Since this area is proposed for picnic tables, recycling bins should be provided to reduce the waste generated by these activities. (LTS)

Impact SER-7: Rehabilitation of the Clubhouse and expansion of maintenance and support facilities would result in the generation of solid waste during construction. (S)

There are currently no local requirements for diversion of construction waste. However, construction waste recycling practices are recommended to divert materials from the City landfill.

Mitigation Measures SER-7: The *Clubhouse Rehabilitation Plan* should include a construction-phase recycling plan, created in consultation with the Santa Cruz Public Works Department. The plan should address major materials generated by the construction project, including brush and other vegetative growth, dimensional lumber, metal scraps, cardboard packaging, and plastic wrap, and opportunities to recycle such materials or divert them away from the City landfill. (LTS)

5. Gas, Electric and Telecommunications Services

a. **Setting.** Electric services are provided to the City of Santa Cruz and the site by Pacific Gas and Electric (PG&E). A Pacific Gas and Electric utility line extends through the site to the Clubhouse, from west of the railroad alignment.

PG&E also supplies municipal gas service to the City of Santa Cruz. There are currently no municipal gas lines that extend onto the project site. A two-inch line extends along Golf Club Drive and terminates at the project site.

The project site is currently served by telecommunications lines, with service provided by Pacific Bell. The areas of the site currently served by telecommunication facilities include the Clubhouse and ranger facility.

b. **Impacts and Mitigation Measures.**

(1) **Significance Criteria.** For this EIR, a significant impact would occur if the proposed project would:

TABLE IV.H-1
PROPOSED SOLID WASTE SERVICES

Location	Container	Collection Frequency
<i>Services to be provided by the Public Works Department</i>		
Clubhouse Area	2 six-yard garbage containers	Minimum of once weekly
	1 six-yard cardboard/paper bin	Minimum of once weekly
	10 recycling bins	Minimum of once weekly
Maintenance Facility	2 six-yard garbage containers	Minimum of once weekly
	1 twenty-yard waste container	On call as needed
Garden	Will furnish own service	As needed
Lower Meadow Parking	3 recycling bins	Once weekly
<i>Services to be provided by rangers/Parks Maintenance</i>		
Upper Meadow Parking	4 trash cans	Minimum of once weekly
Lower Meadow Parking	2 trash cans	Minimum of once weekly
Outdoor Education Camp	2 trash cans	Minimum of once weekly
Sycamore Grove	2 trash cans	Once weekly
Spring Street entrance	1 trash can	Once weekly
Golf Club Drive entrance	1 trash can	Once weekly

Source: City of Santa Cruz Public Works Department, 1997.

- Substantially increase reliance on natural gas and oil, or substantially decrease reliance on renewable energy sources, thereby resulting in wasteful, inefficient, and unnecessary consumption of energy;
- Have an adverse effect on local and regional energy supplies and/or on requirements for additional capacity;
- Increase the demand for telecommunication services beyond current capacity;
- Result in undergrounding of utility lines that could have biological or cultural resource impacts; or
- Potentially interfere with electrical service due to construction activities.

Due to the limited levels of new development proposed as part of the project, wasteful and inefficient energy consumption would not occur. Local and regional energy supplies would not be adversely impacted. The proposed project would require extension of electrical service to the following areas on the Pogonip site: the Clubhouse and surrounding grounds, new caretaker residence, and expanded maintenance and support facilities.

Because of the limited number of new telephones required for the proposed project, (i.e., for caretaker residence and maintenance facility), the demand for telecommunication services would not be beyond current capacity.

(2) Impacts and Mitigation Measures.

Impact SER-8: Undergrounding of electrical and telecommunications lines would require excavation and could disturb biological and cultural resources. (S)

The *Draft Pogonip Master Plan* proposes undergrounding extensions of electrical and telephone utilities in the Upper Main Meadow area to serve the Clubhouse and surrounding facilities. The project proposes using propane tanks to serve the kitchen of the Clubhouse, so no extension of gas mains would be required.

Mitigation Measure SER-8: The undergrounded electrical and telecommunications transmission lines should follow the existing Golf Club Drive alignment to the maximum extent feasible to minimize biological and cultural impacts resulting from excavation. If cultural resources are uncovered during excavation, construction should stop and prescriptions given in Chapter IV, Cultural Resources, should be implemented. (LTS)

Impact SER-9: Proposed parking facilities could interfere with PG&E access to the utility box located at the Spring Street cul-de-sac, or could require relocation of the box. (S)

Currently, a PG&E utility box is located near the Spring Street cul-de-sac. In the proposed *Draft Pogonip Master Plan*, this location is proposed to be a handicapped accessible parking area.

Mitigation Measure SER-9: The Parks and Recreation Department should obtain written verification from PG&E that the proposed parking facilities would not interfere with PG&E operations at this location. If the proposed parking would significantly interfere with PG&E access to this site, alternative handicapped accessible parking locations should be considered. (LTS)

Chapter V

ALTERNATIVES TO THE PROPOSED PROJECT

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The *Draft Pogonip Master Plan*, as proposed by the City Parks and Recreation Department, has been described and analyzed in the previous chapters with an emphasis on potentially significant impacts and recommended mitigation measures to avoid these impacts. This chapter compares the proposed project with several feasible alternatives for development of the project site.

Because of the sensitivity of species and habitats in the Lower Main Meadow, the alternatives analyzed in this chapter focus on minimizing impacts in the Lower Main Meadow. (Refer to Chapter IV-B of this EIR for additional details on this issue.) In addition, significant impacts to geological resources in the Lower Main Meadow were identified in Chapter IV of this EIR.

This chapter analyzes the following three alternatives:

- The CEQA-Required No Project Alternative, that would keep the site in its current state as primarily a "natural area" with pedestrian trail use only and no new uses or vehicle access/parking improvements.
- The Reduced Lower Meadow Use Alternative, that would locate greenhouses and support facilities for the garden off the site, limit agricultural use to slopes less than 10 percent and outside wetland areas, and restrict use of the Outdoor Education Camp to day use only.
- The Off-Site Garden and Relocated Parking Alternative, that would reduce the level of use at the Lower Main Meadow by locating the Pogonip garden off-site, reduce and relocate parking facilities, and limit the Outdoor Education camp to day-use only.

For the second and third alternative, trail use would be the same as that of the proposed project. Each alternative is compared to the proposed project, and discussed in terms of whether it would have a mitigating or adverse effect on the environment. Unless a specific change is identified in the description of each alternative, it can be assumed that the alternative *Draft Pogonip Master Plan* is unchanged from the proposed project.

A. No Project Alternative

1. Principal Characteristics

Under the No Project Alternative, uses would remain unchanged at Pogonip from what they are today. Thus, trails would be limited to pedestrian use only, and parking for Pogonip users would not be increased. The Clubhouse would remain unused and would continue to deteriorate due to lack of repairs. No new facilities such as the Outdoor Education Camp, garden, or improved trails would be developed.

Golf Club Drive would not be widened and no new utilities would be extended to the site. Vegetation and resource management, as identified in the *Draft Pogonip Master Plan*, would not occur. The "Setting" subsections of Chapter IV of this EIR provide a detailed description of this alternative.

2. Mitigating Factors

By not implementing the project, the site would remain in its existing state and would not be expected to have a significant increase in use due to limited facilities provided on the site. No impacts related to Biotic Resources, Geology and Soils, Water Resources, Aesthetics, Traffic, or other topical areas would be associated with this alternative other than existing conditions identified in the "Setting" section of Chapter IV of this EIR.

The No Project Alternative would not preclude adoption of the *Draft Pogonip Master Plan* and associated General Plan amendment and rezoning at a later date, at which time many of the identified impacts would be subject to the recommended mitigation measures.

3. Adverse Factors

This alternative would fail to meet objectives such as the following, which are described in Chapter III of the EIR: rehabilitation of the Clubhouse for public use; creation of an outdoor Education Camp; provision of a site for the Pogonip garden; and enhanced trail use. Specifically, the No Project Alternative would fail to achieve the beneficial effects of the project described below:

- The Clubhouse would not be rehabilitated and would continue to deteriorate due to lack of repairs;
- Events at the Clubhouse would not occur and no improvements would be made to the grounds surrounding the Clubhouse;

- An Pogonip garden would not be developed on the site and the Homeless Garden Project would be required to find an alternative location for their project;
- An Outdoor Education Camp for youths would not be developed;
- Trails would remain limited to pedestrian use only and would not be improved;
- Off-trail use is expected to occur with the No Project Alternative, which could result in trampling of sensitive habitats and rare species;
- The No Project Alternative would maintain trails in their current location, such that current impacts to sensitive resources would continue to occur;
- Sensitive habitat areas would not be managed any differently than they are currently managed;
- A Fire Management Plan would not be developed for the site which may increase the potential for fire hazards at the site;
- Preservation and interpretation for on-site, historic features would not occur;
- No new maintenance and support facilities would be developed to improve security and management functions at Pogonip; and
- No new parking for Pogonip users (including wheelchair accessible parking) would be provided and access by Golf Club Drive would not be improved.

B. Reduced Lower Meadow Use

1. Principal Characteristics

This alternative would reduce the overall level of use at the Lower Meadow primarily due to changes to the proposed garden site. The Outdoor Education Camp would be limited to day-use only and no overnight facilities would be provided (i.e., tent area).

Changes to the garden would include relocation of support facilities and greenhouses off the site. This relocation would include storage sheds and the building proposed for storage of tractors and large trucks. The actual garden area would be limited to agricultural fields within areas less than 10 percent slope and within areas that do not impact wetlands. A small tool shed would be allowed to be constructed in the vicinity of the parking lot.

The Lower Meadow parking lot would be unchanged and would provide a maximum of 30 spaces for park visitors and Pogonip garden Project staff. Parking and other

uses in the Upper Meadow in the vicinity of the Clubhouse would remain unchanged.

All trail uses identified for the proposed project would be the same with this alternative as for the proposed project.

2. Mitigating Factors

By implementing the Reduced Lower Meadow Use Alternative instead of the proposed project, specific impacts to Land Use, Vegetation and Wildlife, Soils and Geology, Water Resources, and Visual Quality would be avoided. Impacts to transportation would be modified by this alternative, but these changes are not expected to be significant. Impacts in these areas that would be avoided or reduced include:

- **Impact VEG-1** identifies impacts during white-tailed kite breeding season resulting from overnight camping. This alternative does not allow for overnight camping and would avoid this impact.
- **Impact VEG-2** identifies possible impacts to wetlands resulting from the proposed Pogonip garden area. This alternative would locate the garden to areas on-site that would not impact wetlands.
- **Impact GEO-1 and Impact WAT-1** identify extreme erosion hazards associated with cultivation of soils associated with steep Santa Margarita sandstone slopes. This alternative would locate the garden on sites with slopes no greater than 10 percent, and would thus avoid this impact.
- **Impact VIS-1** identifies visual impacts resulting from new developed features on the Pogonip site. This alternative would remove the visual impact associated with the greenhouses and accessory buildings for the Pogonip garden on-site by relocating these structures off-site.
- **Impact VIS-3** identifies visual impacts associated with glare created by greenhouse lighting. This alternative would avoid this impact by locating the greenhouse structure off site.
- **Impact TRANS-1** identifies impacts resulting from new vehicular trips associated with the project. Location of the greenhouses and support facilities for the garden off the site and restricting use of the Outdoor Education Camp to day use only should minimally impact the volume of trips generated by the project. However, these limits would not significantly impact project trip generation estimates. Locating the garden facilities off-site could result in an increase in vehicular trips associated with employees traveling between the Lower Meadow area and the off-site support facilities, but this increase would also not be significant.

- Impact SER-3 identifies impacts related to increased water demand from the Pogonip garden. This alternative would reduce this impact by decreasing the overall size of the Pogonip garden, thereby reducing its water demand.

3. Adverse Factors

The Reduced Lower Meadow Use alternative would have the following associated adverse social effects as described below, but would not have adverse environmental effects:

- Total acreage for the Pogonip garden would be reduced, thereby reducing the production capability of this project. Maintenance activities for the Pogonip garden project would be more difficult with facilities located off site;
- No overnight uses would be allowed for youth groups and community organizations at the Outdoor Education Camp;

All other impacts as addressed for the proposed project would be the same with this alternative.

C. Off-Site Garden and Relocated Parking

1. Principal Characteristics

This alternative would significantly reduce the level of use at the Lower Main Meadow by locating the Pogonip garden off-site, reducing and relocating parking facilities, and limiting the Outdoor Education Camp to day-use only.

No other sites within Pogonip are feasible for garden relocation. The Upper Main Meadow is not a viable garden location because of the presence of Ohlone tiger beetle habitat, mima-mounds, coastal terrace prairie, as well as historic preservation and visual issues.

The City of Santa Cruz has conducted a preliminary review of possible alternative sites on public property, concluding that there appears to be no viable alternate location for the garden. Therefore, the off-site location for the garden is not identified as part of this alternative. This alternative would require the Homeless Garden Project to either lease or purchase private land to accommodate the garden site.

The Lower Meadow parking area would be reduced to no more than 15 spaces and would be located along the Golf Club Drive corridor to minimize impacts to coastal terrace prairie habitat and the white tailed kite.

The portion of the Lower Main Meadow east of Golf Club Drive would be managed as a Natural Resource Management Area. The existing mowing service would continue, but there would be no additional improvements to this site.

2. Mitigating Factors

This alternative would avoid many of the impacts that would be associated with implementation of the proposed project. Impacts that would be avoided include the following:

- **Impact BIO-1** identifies impacts to rare, threatened, or endangered species. Impacts to white tailed kites during breeding season resulting from night lighting at the Outdoor Education Camp would be avoided with this alternative. Indirect impacts to white tailed kites resulting from the loss of foraging areas with implementation of the Pogonip Garden in the Lower Main Meadow would also be avoided. Similar impacts resulting from installation of the Lower Meadow Parking area would be reduced with this alternative.
- **Impact BIO-2** identifies impacts to sensitive habitats. Impacts to seasonal wetlands and coastal terrace prairie that would occur with implementation of the garden in the Lower Main Meadow site would be avoided with this alternative. Impacts to coastal terrace prairie in the Lower Meadow Parking Area would be reduced.
- **Impact BIO-3** identifies impacts to wildlife utilization of Pogonip and movement corridors. Impacts to wildlife movement resulting from garden-related fencing would be avoided with this alternative. Impacts to ecotone foraging habitat at the Outdoor Education Camp site and the Lower Meadow Parking area would be reduced.
- **Impact GEO-1** identifies impacts related to increased erosion and altered landforms. Such impacts resulting from disturbing vegetative cover and exposing soils at the garden site would be avoided with this alternative.
- **Impact WAT-1** identifies impacts related to degradation of water quality, including siltation from erosion. Such impacts associated with the garden site would be avoided with this alternative.
- **Impact TRANS-1** identifies impacts resulting from new vehicular trips associated with the project. Location of the garden off the site would decrease the volume of traffic generated by the project by an estimated 64 trips per day and 17 trips during the peak hour. With the garden located at an off-site location, the project would generate 142 daily trips and 85 trips during the peak hour.
- **Impact TRANS-3** identifies impacts to currently deficient sections of Golf Club Drive resulting from new vehicular trips associated with the project.

While the alternative project would decrease the volume of trips added to Golf Club Drive, impacts to the section of Golf Club Drive between the railroad trestle and the Pogonip property boundary would still be considered significant. During peak periods of park utilization, the alternative project would add approximately 142 trips to Golf Club Drive west of the railroad trestle, a 95 percent increase over the estimated existing weekday daily traffic volumes and a 71 percent increase over the estimated existing weekend daily traffic volumes on this roadway segment.

- Impact VIS-1 identifies impacts related to new developed features on the Pogonip site. This alternative would avoid visual impacts associated with the greenhouses and fencing for the garden.
- Impact VIS-3 identifies impacts related to light and glare. This alternative would avoid impacts resulting from glare associated with the garden greenhouse.
- Impact VIS-4 identifies an impact resulting from terrain modifications at the garden site. This alternative would avoid this impact.
- Impact SER-1 identifies an impact resulting from increased water demand associated with the garden. This alternative would avoid this impact.

3. Adverse Factors

As stated above under principal characteristics, implementation of this alternative would require the Homeless Garden Project to either lease or purchase private land to accommodate the garden site. This would constitute a serious impact to the goals and objectives of the Homeless Garden Project, as well as goals of the *Pogonip Master Plan*.

Impact TRANS-2 identifies impacts related to increased parking demand. Implementation of this alternative would exacerbate this impact by reducing the amount of parking provided on the site.

D. Environmental Superior Alternative

The Off-Site Garden and Relocated Parking Alternative would be the Environmentally Superior Alternative because it would eliminate or reduce many of the significant impacts identified for the proposed project.

Chapter VI CEQA REQUIRED ASSESSMENT CONCLUSIONS

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As required by the California Environmental Quality Act (CEQA), this chapter provides an overview of the impacts of the proposed project on several technical topics. The topics covered in this chapter include five effects which span the specific environmental topics considered throughout Chapter IV: growth-inducing impacts; significant irreversible changes; issues found not to be significant; and cumulative impacts.

A. Growth-Inducing Impacts

Growth-inducing impacts from the project could occur if major utility lines were extended across undeveloped lands to serve the site. The proposed extension of water and sewer lines to serve the Clubhouse would entail an extension along the upper portion of Golf Club Drive (outside the site) for the sewer line only. The water line extension would occur entirely on the Pogonip site. This area of the City currently includes low-density residential development and is zoned Single-Family Residential, 7,000 square foot minimum lots (R-1-7). While some homeowners who currently have their homes on septic systems could request sewer service due to the proximity of the extended line to their homes, the proposed extension is not expected to induce more intense development than allowed by existing zoning.

No other growth-inducing effects would result from the proposed plan.

B. Significant Irreversible Impacts

CEQA requires that EIRs assess whether the project will result in significant irreversible changes to the physical environment. The CEQA guidelines describe three distinct categories of significant irreversible changes that should be considered, as further detailed below.

1. Changes in Land Use Which Commit Future Generations

The *Draft Pogonip Master Plan* would commit a 640-acre natural area to public-serving uses, including camping, gardening, social functions at the Clubhouse and picnicking, as well as preserving the majority of the site in a natural state.

2. Irreversible Damage from Environmental Accidents

No significant environmental damage, such as the accidental spill or explosion of a hazardous material, is anticipated with implementation of the proposed *Draft Pogonip Master Plan*. Since all fertilizers used in the garden would be organic, the use of hazardous materials (beyond standard construction supplies for Clubhouse renovation) is not proposed, nor are any hazardous materials currently known to be present on the project site.

3. Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes increased energy consumption, conversion of agricultural lands, and lost access to mining reserves. The proposed project would require additional electric service. However, it is anticipated that this additional demand for service should fall within the capabilities of PG&E and it is not anticipated that any major upgrades would be required as a result of the project. Additionally, there are no known mineral resources on the site that would be used as a result of this project. No lands would be taken out of agricultural use.

C. Issues Found Not to be Significant

Issues found not to have significant impacts, and which were not addressed in Chapter IV, include the following:

- Energy and Mineral Resources
- Noise
- Hazards
- Recreation
- Air Quality
- Population and Housing

Each of these issues is discussed briefly below.

1. Energy and Mineral Resources

The project would include limited development that would require non-renewable energy resources, and would not conflict with an adopted energy conservation plan. Energy use associated with the project would be limited primarily to heating and lighting of the Clubhouse, lighting of paths and parking areas, and equipment use associated with the proposed garden. The garden would require minimal security lighting. Vehicular use by park rangers would also result in fuel consumption, but would not be significantly greater than that currently used. Non-renewable resources would not be used in a wasteful and inefficient manner.

2. Noise

Some increase in noise may occur on the site due to proposed garden operations, the Outdoor Education Camp, increased visitor use, and events at the Clubhouse. However, due primarily to restrictions in the hours of use as well as Design Guidelines and Management Actions contained in the *Draft Pogonip Master Plan* (i.e., no allowance for outdoor music in the garden area or amplified music outside the Clubhouse), significant noise impacts would not result from the project. As stated in the Community Clubhouse and Grounds Management Actions, "Limited amplified sound may be allowed in the Clubhouse". The distance between the Clubhouse and the nearest residential unit (about 0.7 miles) would reduce the potential for on-site noise to annoy adjoining residents.

3. Hazards

No significant environmental damage, such as the accidental spill or explosion of a hazardous material, is anticipated with implementation of the proposed *Draft Pogonip Master Plan*. Since all fertilizers used in the garden would be organic, the use of hazardous materials (beyond standard construction supplies for Clubhouse renovation) is not proposed, nor are any hazardous materials currently present on the project site. Issues related to emergency access and response, and fire hazards, are addressed in Chapter IV under "Transportation and Circulation" and "Service Systems and Utilities".

4. Recreation

The proposed project would not increase the demand for neighborhood or regional parks or other recreational facilities. Conversely, the project would be providing a greater range of recreational opportunities for residents of the City of Santa Cruz and other park users. Existing recreational opportunities may be affected by increased usage and the possible introduction of multi-use trails for the Pogonip area. However, these impacts would not be significantly adverse, especially with

implementation of the recommended mitigation measures such as safety and other controls for trails subject to multi-use.

5. Air Quality

Because the proposed project will involve only minimal construction activities associated with renovation of the clubhouse and caretaker facilities, there would be no associated air quality impacts. Increased vehicle trips associated with the project would be minimal and would not result in violations of air quality standards. Composting activities associated with the garden may result in some odor-related impacts. However, due to the distance between the garden and existing residential areas, as well as existing agricultural operations in the immediate vicinity, this potential impact would not be significant. Visitors to the Outdoor Education Camp on the project site may be subject to odors from composting activities. However, their visits would be short-term and the impact would not be significant.

6. Population and Housing

The *Draft Pogonip Master Plan* would not have an effect on population and housing. No new housing would be built in conjunction with implementation of the *Draft Pogonip Master Plan* (except for a new caretaker residence); therefore, the project would not exceed official regional or local population projections. No housing would be displaced by the proposed project. The project would not induce substantial growth, as discussed in section A, above.

D. Cumulative Impacts

CEQA defines cumulative impacts as *"two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts."* Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited but cumulatively significant. These impacts can result from the proposed project alone or together with other projects. *"The cumulative impact from several projects is the change in the environment which results from the incremental impacts of the project when added to other closely-related past, present, and reasonably foreseeable probably future projects."*

When evaluating cumulative impacts, CEQA allows the use of either a list of reasonably anticipated relevant projects, including projects outside the control of the lead agency, or a summary of projections in an adopted planning document. This cumulative impacts analysis uses information provided by UCSC, the City of Santa

Cruz, and the County of Santa Cruz related to a list of reasonably anticipated relevant projects that are either *under construction, approved or proposed*.

While UCSC relies on a cumulative impact analysis that addresses only those projects for which a Draft EIR has been prepared, campus staff did identify two projects that are currently under CEQA review. These included a new Fitness Center and a new Bookstore on the UCSC campus. Both of these projects are to be generally located near the center of the UCSC campus and would not result in cumulative impacts that would affect the Pogonip site. Specifically, drainage from these new developments would be directed into Jordan Gulch and as such, would pose problems for the Pogonip area (Aldecoa, 1997).

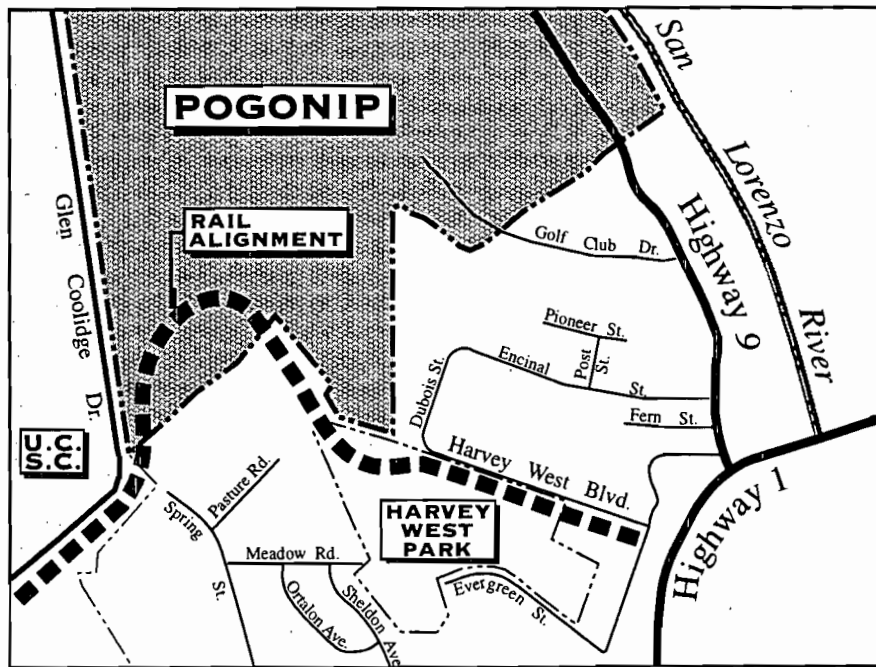
According to staff of the City Planning Department, no cumulative projects are currently under construction, approved, or pending within the City limits and in the vicinity of Pogonip that would lead to cumulative impacts related to traffic or other issues (Hazen, 1997).

County lands are located immediately north and east of the project site. According to staff of the County Planning Department, the most relevant project for cumulative impacts is the "Cowell/Showground Subdivision" located on the site of the old horse showgrounds along Graham Hill Road. This recently-approved Subdivision includes 60 single-family lots. A final Subdivision map has not yet been filed for the project.

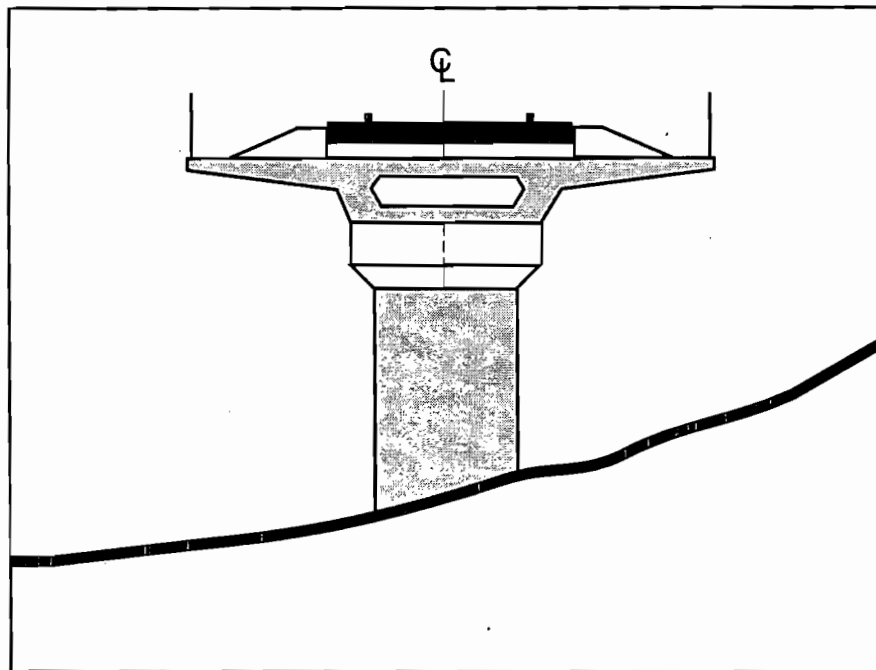
The Santa Cruz County Regional Transportation Commission (SCCRTC) completed the "Major Transportation Investment Study" and transmitted a summary of this study to the City's Parks and Recreation Department in 1997. A total of eight transportation alternatives to promote public transit use were developed for the area between Watsonville Junction, downtown Santa Cruz, and the UCSC corridor.

One of the alternatives, Alternative 4, proposes a rail alignment that would pass through Pogonip between UCSC and Harvey West Park, as shown in Figure VI-1. Travel would be via the Southern Pacific rail line along Chestnut Street, and then by a new line to Harvey West Park across Harvey West Canyon to UCSC. The line would end at the campus bookstore or other UCSC location. Cog rail technology would be used to traverse the steep, one-half mile section through Harvey West Park. A typical section of the rail alignment is shown in Figure VI-1. The Study completed by SCCRTC identified preliminary environmental issues for the selected

alternatives. In the vicinity of Pogonip, impacts to open space lands would have to be evaluated. Noise, traffic, and air quality impacts were summarized as temporary for the area of the rail line that would pass through Pogonip.



a.) Proposed Rail Alignment along Harvey West Boulevard, through Pogonip and the UCSC Campus.



b.) Typical Rail Alignment Cross-Section Between Harvey West Boulevard and the UCSC Campus.

Source: Brady/LSA 1997

DRAFT POGONIP MASTER PLAN

DRAFT ENVIRONMENTAL IMPACT REPORT

Figure VI-1
Light Rail Alignment and Cross Section

The analysis presented throughout Chapter IV of this EIR (where the primary analysis of project impacts is presented) does not disclose any adverse impacts of the project that could not be mitigated. Nevertheless, the project could be judged to adversely affect the environment if its effects, combined with those of other projects, would collectively be adverse. Each of the environmental topic areas analyzed in Chapter IV is considered below for potential cumulative impacts.

1. Land Use

- a. Cumulative Impacts. Due to the project's distance from any identified cumulative projects and the low intensity of new uses proposed, no cumulative land use impacts are expected to occur. The area considered for the cumulative impacts analysis extends to within one-fourth mile of the project site boundaries.
- b. Mitigation Measures. No cumulative mitigation measures would be necessary.

2. Vegetation and Wildlife

- a. Cumulative Impacts. Coastal terrace prairie habitat is limited in distribution within both the City and County of Santa Cruz. Additionally, several special status wildlife and plant species are restricted to coastal terrace prairie habitats within this region (i.e., San Francisco popcorn flower, Ohlone tiger beetle). The direct removal of coastal terrace prairie habitat by the proposed *Draft Pogonip Master Plan* activities, combined with similar actions elsewhere in the region (e.g., residential developments proposed in Soquel hills, City of Scotts Valley) would result in significant cumulative impacts to this habitat type and associated special status species. The City does, however, propose to actively manage the prairie habitats within Pogonip for natural resource attributes. Management actions that promote native prairie species, including special status species, is expected to minimize cumulative indirect impacts to this habitat.

Construction of the proposed light rail system through the southern portion of Pogonip would result in significant cumulative impacts to wildlife utilization in this part of Pogonip, depending upon the exact siting and design of the rail line. Wildlife species that are particularly sensitive to human-induced activities during all or some of their life phases (e.g., bobcat, coyote, nesting hawks) are known to occur in this portion of Pogonip. The operation of a light rail system (i.e., noise, potential night-lighting) may cause displacement of these species to less-used portions of Pogonip or other adjacent less-used lands. As the rail system is proposed to be elevated, it is assumed that most wildlife species will move beneath the rail line, therefore overall wildlife movement to and from this portion of Pogonip is not expected to be significantly impacted.

The proposed rail system would also result in significant impacts to both forested and grassland habitats within the southern portion of Pogonip. Rail line construction would significantly impact the native forest ecosystem through tree removal and clearing of the understory. Opportunities for revegetation of land beneath the light rail line may be limited, thereby affecting forest ecology. The rail line would also impact a portion of coastal terrace prairie (a state-designated sensitive habitat) in the Spring Trail area. The presence of the rail line through the grassland areas may preclude some resource management activities in these areas (e.g., prescribed fire). This removal of the coastal terrace prairie, combined with that proposed by the garden and parking facilities in the *Draft Pogonip Master Plan*, would result in significant cumulative impacts to this resource.

b. Mitigation Measures. No mitigation for the indirect cumulative impacts associated with elements not related to the proposed light rail line would be necessary.

Development of the light rail system should include incorporation of mitigation measures that would avoid and/or reduce impacts to wildlife utilization of the southern portion of Pogonip. The siting of the proposed rail line should be done in a manner that avoids impacts to denning bobcats and coyotes in the Harvey West and Lookout Trail areas. Tree removal should be timed to avoid impacting nesting activity by red-tailed hawks or other raptors. In order to implement these mitigations, surveys should be performed to determine the location of sensitive species relative to the proposed rail line. Night lighting of the rail line should be prohibited.

Development of the light rail system should avoid impacts to native forest and coastal terrace prairie habitats through site design and alignment. Avoidance may be feasible within the prairie habitat; however, due to the topography of Pogonip and the extensive forested areas, impacts to forest habitat may be unavoidable. As recommended in mitigations in the biology section of the *Draft Pogonip Master Plan EIR*, suitable replacement habitat for coastal terrace prairie should be established if impacts cannot be avoided. Opportunities for replacement of such resources may, however, be limited on the project site and the project vicinity. If so, impacts to such resources may be significant and unavoidable.

3. **Geology, Soils and Seismicity**

a. Cumulative Impacts. Due to the project's distance from any identified cumulative projects, the dedication of the overall project as primarily an open space preserve, and the low intensity of new uses proposed, no significant cumulative geologic or soil impacts are expected to occur.

The formal designation of multi-use trails through the Pogonip site may be viewed in the larger regional trail system as potentially resulting in increased trail use on the existing and proposed trail network on adjacent properties. These potentially impacted properties include Henry Cowell Redwoods State Park, UCSC campus lands, the recently acquired California Department of Parks and Recreation Greywhale Ranch, and Wilder Ranch State Park.

Increased regional trail use by equestrians and mountain bikers may result in increased levels of erosion and slope instability elsewhere in the regional trail system. Large scale geologic disturbance is not expected to occur.

The proposed light rail alignment has the potential to result in cumulative impacts to geology and soil resources, as well as water quality. Impacts would likely be related to increased erosion and slope instability due to construction disturbance, displacement of vegetation on slopes due to shading, and maintenance of an access easement under the elevated rails. The steepest portion of the proposed rail line appears to cross the Harvey West Creek corridor and runs up the drainage to the grassland knoll on the Pogonip, above the Wavecrest acquisition. Impacts to geologic, soil and water resources would, therefore, be most likely to occur in the natural areas within Harvey West Park, and on the slopes around the Spring Trail trailhead and Coolidge Drive. Similar impacts would likely occur elsewhere in the proposed rail corridor where slope and vegetation would be altered by construction and operations.

b. Mitigation Measures. The regional impacts associated with increased use of the regional, multi-use trail network and mitigation for these potential impacts are beyond the scope of this analysis. Likely mitigation measures to be pursued in the regional context, however, may include user-specific volunteer trail maintenance activities, voluntary seasonal trail closure agreements to minimize winter erosion and trail damage, and public support for trail maintenance budgets at the local and state level.

The City proposes trail design and trail management guidelines for the Pogonip site that call for active maintenance and drainage activities. When seen in the regional context, these standards may serve as guidelines for trail users and volunteers, and may assist future regional efforts in the areas of trail maintenance and trail use-related erosion control.

Potential impacts would most effectively be mitigated by re-aligning the rail corridor to avoid the Harvey West Creek drainage and associated steep Santa Margarita sandstone and Santa Cruz mudstone slopes. Should the alignment remain as currently described reducing the disturbance on slopes to include only the footprint of the structural supports for the elevated rail, thereby leaving as much natural

vegetation as possible under the lines, would minimize future erosion and drainage problems. If an access road or maintained easement is planned underneath the proposed alignment, cut and fill slopes should be minimized and the easement should be surfaced with drain rock, asphalt, or other load bearing roadbed material.

4. Hydrology and Water Resources

a. Cumulative Impacts. The conservation of the Pogonip site for natural habitat protection, limited recreation, and education serves to maintain the local hydrologic functions of groundwater recharge, water quality protection, and unimpaired surface water flow.

The cumulative impacts of erosion and sedimentation on the area's surface water sources have been noted in numerous water supply documents and in fisheries assessments in the last two decades. Persistent turbidity associated with year-round use of unpaved roads is cited as the primary adverse impact to local water quality. Cumulative projects proposed in the Pogonip area do not appear to exacerbate this problem.

Local small farms within the cumulative project area include the UCSC Farm and Garden Project, the Dirty Girls Farm on Golf Club Drive and additional agricultural acreage across the San Lorenzo River on Ocean Street Extension. These operations are small scale, largely organic in practice, and have limited potential for growth due to urban encroachment. Cumulative impacts associated with this level of agricultural production on existing parcels are not significant.

b. Mitigation Measures. No cumulative mitigation measures would be necessary.

5. Archaeological and Historic Resources

a. Cumulative Impacts. The area considered for cumulative impacts on archaeological and historic resources includes the Pogonip area inclusive of historic Spring and Rincon trails and incorporating the Pogonip lime kilns and associated historic features. The area for consideration also includes the lime kilns, quarries and associated archaeological and historic features near the main entrance to the University of California at Santa Cruz. The archaeological and historic resources at the University are intimately associated historically with the lime kilns, limestone quarries and other associated features in Pogonip. Cumulative impacts could result with any future development at the University that could adversely impact archaeological and historic resources there. Development in the University area would enhance the significance of the Pogonip historic resources because they would retain greater integrity of setting, feeling and association.

Unchecked deterioration of the historic Pogonip lime kilns and associated features combined with increased visitor use of the park is considered a cumulative impact. In their present state or let to deteriorate and without some form of protection or public education, increased visitor use in the park, facilitated by park development, would enhance the likelihood that historic resources would sustain impacts due to vandalism or unrestricted visitor access to the historic features.

b. Mitigation Measures. No additional mitigation measures would be needed to address cumulative impacts.

6. Visual Quality and Aesthetics

Cumulative Impacts. The area considered for the cumulative visual impacts analysis extends to the viewshed for those users within Pogonip, and to the immediate vicinity of Pogonip as seen from key viewpoints such as the Lookout on Coolidge Drive. Visual impacts identified for the project would be limited to specific areas of the site. Other identified cumulative projects would be outside of the viewshed of the project and thus would not result in cumulative visual impacts.

Mitigation Measures. No cumulative mitigation measures would be necessary.

7. Transportation and Circulation

a. Cumulative Impacts. The only cumulative project identified by City and County planning staff is the 60-unit Cowell/Showground Subdivision, located on Graham Hill road at the intersection with Sims Road. This planned subdivision would generate an estimated 61 vehicle trips during the weekday PM peak hour and 58 trips during the Saturday peak hour. Most of the trips generated by this project would be oriented towards Highway 17 and Graham Hill Road. The contribution of trips from this residential project to the Highway 1/Highway 9 intersection and Highway 9 would not be significant. The combination of Pogonip and this project would therefore not result in cumulative traffic impacts. The rail alignment that would be established with Alternative 4 of Santa Cruz County's "Major Transportation Investment Study" would cross the Spring Trail and the proposed Harvey West trail. Unless provisions are made for these trails to cross the rail line, these trails would have to be closed or realigned.

b. Mitigation Measures. City staff should work with the Santa Cruz County Regional Transportation Commission regarding the alignment and design of the potential rail line through Pogonip. Impacts of the rail line to trail access and on-site circulation should be minimized.

8. Utilities and Service Systems

a. Cumulative Impacts. Because the areas proposed for utilities extensions are located within Park boundaries, extension of water and sewer mains into Pogonip is not expected to induce additional growth in nearby areas. There would be no cumulative impacts from service system extension to the site.

None of the public services or utilities analyzed would experience significant impacts due to the proposed project that could not be mitigated. However, as stated in Chapter IV, current demand for City water supplies exceeds the existing safe yield of the system for shortfall drought years and is approaching the estimated year 2005 future water demands. Because of the additional water proposed for use in the garden, the Pogonip project could increase cumulative impacts on water supply when taken into account with proposed neighboring residential and University development projects.

Several historic structures exist within Pogonip Park, including the caretaker's residence, the Clubhouse, the historic railroad trestle, and historic lime kilns. Pogonip is also in close proximity to urbanized areas of Santa Cruz and the UCSC campus. Because of these factors, a fire in Pogonip would pose a severe threat to life and property. Implementation of the proposed Master Plan would increase this fire danger because of increased use of the Park. This increased use would result in a cumulative impact to fire safety in the Pogonip area.

b. Mitigation Measures. Chapter IV specifies mitigation for increased water demand which states that the City should consider scaling back garden irrigation practices during times of drought. Because of the potential cumulative impacts on water demand resulting from implementation of this and other local projects, this mitigation measure should be implemented. The City Parks and Recreation department should adopt a contingency plan for reducing water use in the garden project during times of drought. This plan should be approved by the City Water Department prior to final Master Plan approval.

All tenets of the *Draft Fire Management Element* should be followed to reduce this impact. Implementation of the *Draft Fire Management Element* would mitigate the cumulative impacts on fire safety that would result from increased use of the park.

Chapter VII REPORT PREPARATION

□ □ □

A. Report Preparation

Brady/LSA, Prime Consultant: *Project Management and report production, land use, visual quality and aesthetics, utilities and service systems and CEQA assessment and conclusions.*

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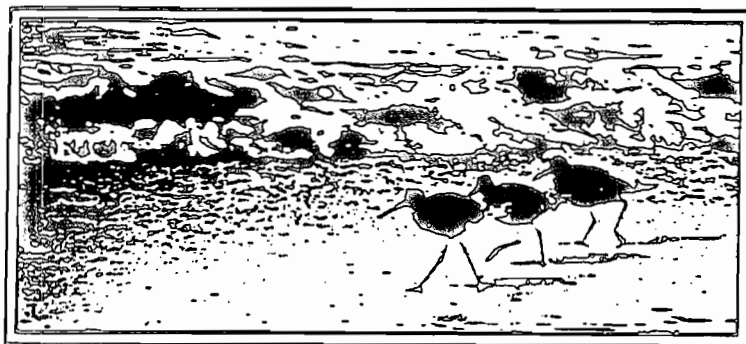
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Appendix A
NOTICE OF PREPARATION
AND COMMENT LETTERS

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City of Santa Cruz

PARKS AND RECREATION DEPARTMENT

323 CHURCH STREET
SANTA CRUZ, CALIFORNIA 95060
TELEPHONE (408) 429 - 3777

June 18, 1997

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

RE: POGONIP MASTER PLAN

To Interested Agencies and Persons:

The City of Santa Cruz, as the lead agency, is preparing an Environmental Impact Report on the project described herein. Please respond with written comments regarding the scope and content of the EIR as it may relate to your agency's area of statutory responsibility or your areas of concern or expertise. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project, if any is required. Responses are due within 30 days of the receipt of this Notice, as provided by State law. The contact person's name and address are listed below. Please include the name and phone number of a contact person at your agency in your response.

1. Project Description

Pogonip is a 640-acre, City-owned natural area/parkland. The project includes:

- 1) A "Park" Master Plan; and
- 2) General Plan amendment and Rezoning for a 25-acre portion of the property currently designated for residential use.

The City is preparing a Master Plan for the property (including the recent 25-acre Wavecrest property acquisition) in accordance with the City of Santa Cruz General Plan and Zoning Ordinance.

The property is presently open to the public, limited to pedestrian day use only. Existing facilities include one paved access road, unpaved service roads, trails, a small ranger station and a clubhouse, presently not open to public use. The existing resources are briefly described in Attachment 1.

The Pogonip Master Plan will include some or all of the following uses:

- Rehabilitation of the clubhouse (constructed in 1911)
- Overnight retreat cabins
- Organic garden and support facilities (approx. 5 to 10 acres)
- Outdoor Education Area/Group Campsite
- Trails (pedestrian, equestrian and bicycle use)
- Natural Resource Management Areas

Historic sites (Clubhouse, limekilns, quarry)
Parking areas and improved vehicle access
Park Ranger station/maintenance facility and caretaker residence
These proposed uses are described in more detail in Attachment 1.

2. Project Location

Pogonip is located in the City of Santa Cruz, Santa Cruz County and is situated to the east of UC Santa Cruz and to the west of Highway 9 (a portion of the property lies between Highway 9 and the San Lorenzo River). Henry Cowell Redwoods State Park lies to the north. See map in Attachment 1.

3. Probable Environmental Effects of the Project

The primary issues to be addressed in the EIR are anticipated to include:

- Land Use
- Vegetation and Wildlife
- Geology and Soils
- Water Resources
- Archaeological and Historic Resources
- Visual Quality and Aesthetics
- Transportation/Circulation
- Utilities and Service Systems
- Fire Hazard

An outline of the EIR scope of work is included in Attachment 1.

4. Other Background Information

The Draft Pogonip Master Plan is being prepared by the City of Santa Cruz Parks and Recreation Department concurrent with preparation of the Draft EIR. An environmental consultant will prepare the EIR. The contact listed below can provide the consultant address and contact person. Refer to the preliminary schedule in Attachment 1.

5. Contact Person Name, Address and Phone Number

Susan Harris
Department of Parks and Recreation
City of Santa Cruz
323 Church Street
Santa Cruz, CA 95060
(408) 429-3206

Sincerely,



Susan Harris
Associate Planner

Attachment

ATTACHMENT 1

NOTICE OR PREPARATION
of an
ENVIRONMENTAL IMPACT REPORT
for the
POGONIP MASTER PLAN

City of Santa Cruz
County of Santa Cruz, California

June 18, 1997

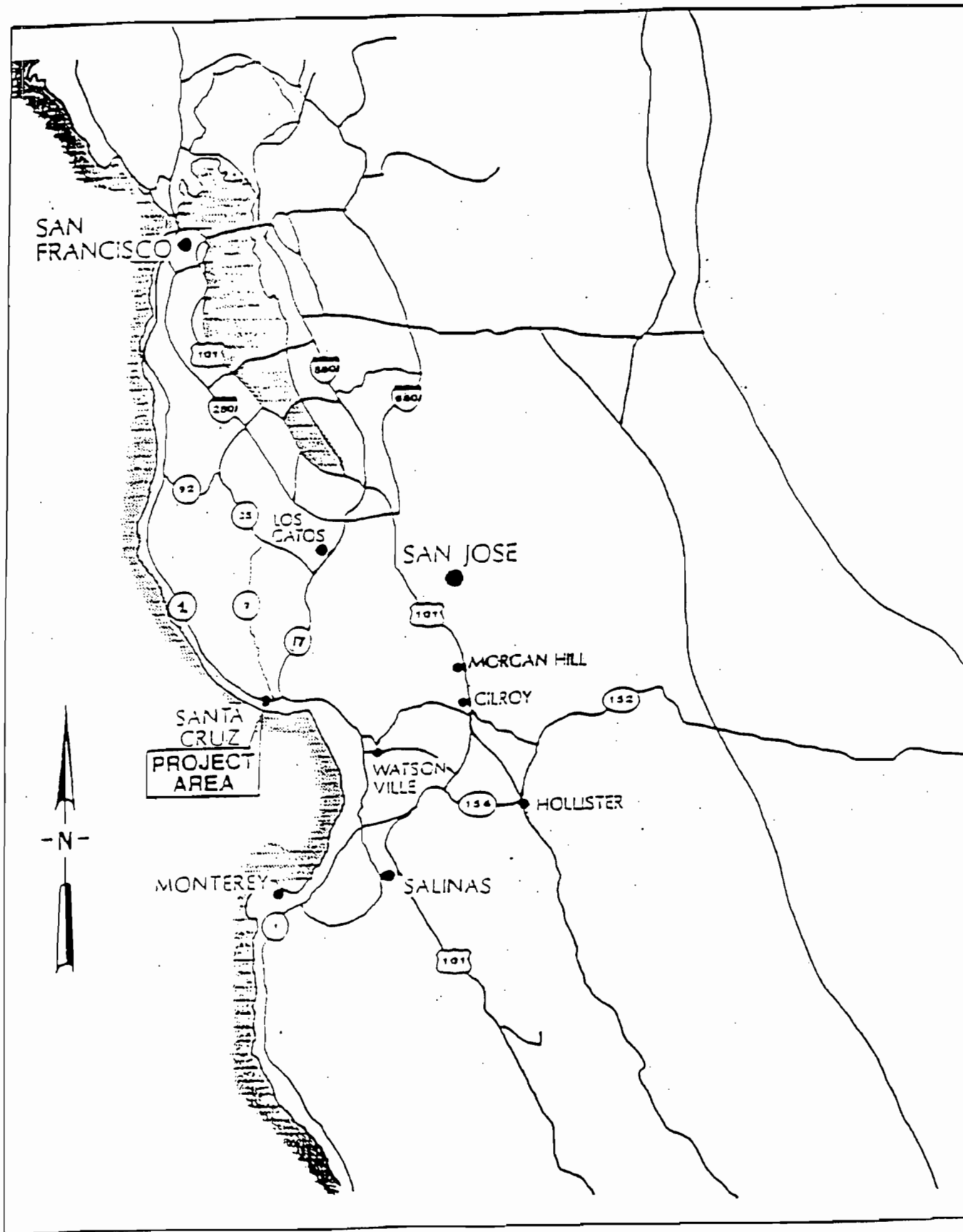
I. PROJECT DESCRIPTION

The property originally known as Pogonip, totaling 614 acres, was annexed and acquired by the City of Santa Cruz in 1989, with funding from the California Parks and Wildlife Bond Act of 1988. Prior to the City's ownership, the property was owned and managed by the Cowell Foundation. In 1997, the City acquired an additional 25-acre parcel. The Master Plan and EIR will address the previously acquired 614 acres and the recent acquisition, totaling 640 acres.

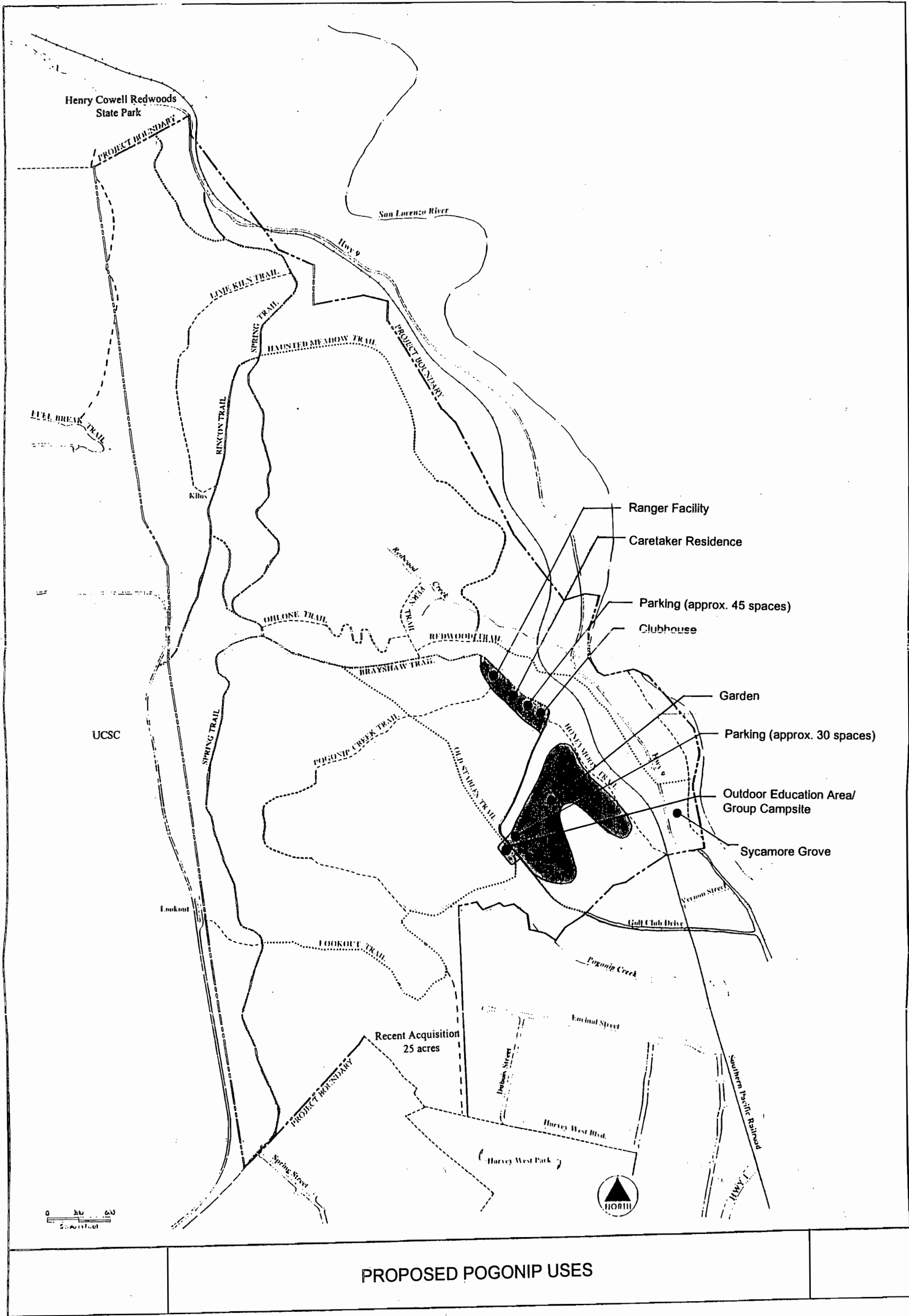
The City's General Plan land use designation for most of the property, 614 acres, is Natural Area; the zoning designation is Parks (PK). The remaining approximately 25-acre parcel, acquired by the City in 1997, is designated as Very Low Residential in the General Plan. The zoning is Residential Suburban (R-S-10A).

The University of California Santa Cruz (UCSC) campus lies along the western boundary of the property. To the east lies Highway 9 and the San Lorenzo River. Henry Cowell Redwoods State Park lies to the north, and a mix of residential and office/light industrial uses are located to the southeast. Pogonip is separated from much of the UCSC property by a steep slope along the western boundary. The property also slopes upward above the San Lorenzo River and along the southeastern boundary. A portion of the property is located immediately adjacent to the San Lorenzo River. Elevations range from less than 100 feet to 800 feet in the northwestern portion.

Presently, the property is open to pedestrian use only. There is no public parking on-site or public vehicle access. A historic clubhouse is situated in the central portion of the property, but is not open to public use. In 1988, the structure was declared unsafe by the County of Santa Cruz and was condemned. A small park ranger facility and horse corrals are situated to the northwest of the clubhouse.



REGIONAL LOCATION MAP



a. Biological Resources

Pogonip features several different plant communities including: upland redwood forest, mixed evergreen forest, central coast riparian scrub, central coast cottonwood-sycamore riparian forest, coast live oak forest, coastal terrace prairie, non-native grassland, palustrine emergent wetlands, and ornamental and exotic plantings.

Most of the special status plant species are associated with the coastal terrace prairie habitat. Special status plant species which are known to occur on-site include Robust spineflower (*Chorizanthe robusta* var. *robusta*), Gairdner's yampah (*Perideridia gairdneri* spp. *gairdneri*), San Francisco popcorn flower (*Plagiobothrys diffusus*), and Santa Cruz Clover (*Trifolium buckwestiorum*). Other special status plant species have the potential to occur.

Known sensitive wildlife resources include a bobcat den, a redtail hawk nest, a white-tailed kite nest, and Ohlone tiger beetle habitat. California red-legged frogs and Southwestern pond turtle have been found outside of the project area, to the north and south along the San Lorenzo River.

Information on Pogonip's biological resources include the *Pogonip Biotic Assessment* (Habitat Restoration Group, 1997), *Pogonip Biotic Study* (John Gilchrist and Associates, 1986), and other focused studies.

b. Cultural and Historic Resources

A preliminary cultural resource evaluation conducted in 1996 found there are no recorded archaeological sites within the property boundaries. There are two prehistoric sites and four historic sites within approximately one-half mile of the project area.

A general surface reconnaissance was conducted by field archaeologists in 1996 within selected open land areas. Much of the area was of poor visibility due to dense vegetation and forest debris. In 1997, the Santa Cruz Archaeological Society conducted a surface survey/reconnaissance of the lower meadow area of the project site. This surface survey located 10 possible historic resources and no prehistoric resources.

Sensitive historic features within the property include a clubhouse constructed in 1911, lime kilns, a historic fence line, a concrete reservoir and house site, and a spring box site. Datable activities within the project area include:

1850s to 1946	Limestone mining
1860s to 1880s	Logging
1911	Construction of the clubhouse and golf links
19__	Construction of an estate site
1930s to 1940s	Polo grounds

c. Existing Infrastructure

The only paved road access to the property is provided off of Highway 9, via Golf Club Drive. This road is a narrow, single-lane roadway which has not been improved to City standards. Within Pogonip, Golf Club Drive is approximately 10 feet in width. A railroad trestle, with limited clearance, crosses Golf Club Drive approximately 1000 feet from the property boundary.

Historically, a spring located in the western portion of the property served as the water source. A septic system served the Clubhouse. A 6-inch municipal water line exists along Golf Club Drive from Highway 9 to the southeast boundary of Pogonip. A 6-inch sanitary sewer line is located within 700 feet of the Golf Club Drive entrance. Neither of these lines currently serve the site. The project proposes extension of the municipal water and sanitary sewer lines along the Golf Club Drive alignment to the clubhouse.

d. Pogonip Master Plan

The City is preparing a Master Plan for the property (including the recent 25-acre Wavecrest property acquisition) in accordance with the City of Santa Cruz General Plan and Zoning Ordinance. The General Plan requires the City to develop, implement and maintain an updated management plan for the protection and enhancement of Pogonip. The General Plan also states the City shall "develop and implement the master plan for Pogonip per the mixed-use plan in the Pogonip Land Use Options Assessment (Land Use Element, 3.4.1).

Section 24.10.1745 of the Zoning Ordinance requires a special use permit or an approved Park Master Plan at the inception of a use, to establish use and design parameters within the specific park, in those lands designated as parks district.

In February, 1997 the Santa Cruz City Council conceptually approved the following uses for Pogonip, which represent a refinement of the mixed-use plan. Some or all of these uses will be included in the Master Plan.

Clubhouse Rehabilitation - Rehabilitation of the historic 8,000 square foot, two-story Clubhouse is proposed. The clubhouse would serve as a staging site for educational programs, a community meeting and retreat center, and a site for special indoor/outdoor events. The City anticipates initiating preparation of a detailed rehabilitation plan for the Clubhouse after approval of the Master Plan and EIR.

Overnight Retreat Cabins - The cabins are proposed to augment the meeting/retreat center at the Clubhouse and would be located in the vicinity at the edge of the upper meadow. Additional evaluation of this concept will be conducted in the early part of the Master Plan process. If this use continues to be included in the Master Plan, City staff will work with the EIR consultant to determine a site which avoids/minimizes environmental impacts.

Organic Garden Project - An approximately five to ten acre organic garden project would be located in the lower meadow or at another appropriate location. The garden would be operated by the private non-profit Homeless Garden project. Support facilities would include a small office and storage area. Two greenhouses, approximately 20 by 200 feet, are also proposed. Preliminary evaluations suggest that contouring and terracing may be required, in addition to soil amendments. Fencing will also be needed to protect crops from wildlife.

Outdoor Education Area/Group Campsite - A one-acre outdoor education area and group camping site is proposed for the lower meadow, to the west of Golf Club Drive. This facility is intended to serve primarily youth groups and other community organizations, in groups not larger than approximately 30 people.

Trails - The project will include increasing use along specified service and historic roads to include equestrians and bicyclists. Some of the existing trails are also proposed to be realigned to avoid sensitive areas. New trails may also be proposed to provide connections to trails within UCSC and Henry Cowell State Park.

Natural Resource Management Areas - Sensitive habitat areas and plant communities will be designated as Natural Resource Management Areas as a result of the Master Plan/EIR process. These areas are likely to include highly diverse coastal terrace prairie, central coast cottonwood-sycamore riparian forest, palustrine emergent wetlands, and other sensitive areas.

Historic Sites - The historic sites include the Clubhouse, lime kilns and quarry, and other historic features. The Master Plan will include recommendations for preservation and interpretation of these sites and features.

Parking areas - Parking areas are proposed for the lower meadow and upper meadow sites. The upper meadow parking area, approximately 45 spaces, will serve the Clubhouse. Larger events would require a shuttle system. The parking lot will be located in the area previously disturbed by the Clubhouse grounds activities. The lower meadow parking area, approximately 30 spaces, will be located as close as possible to Golf Club Drive. Also, it is the City's intent to preserve the rural character of Golf Club Drive to the maximum extent possible while also meeting emergency vehicle access needs.

Park Ranger/Maintenance Facilities - Expansion of the existing Park Ranger and maintenance facility is proposed for the upper meadow area. The horse corrals would also be improved. Horses are kept on-site for ranger patrols. Continuation of a caretaker residence is also proposed; currently a caretaker resides in a small trailer to the rear of the Clubhouse. The caretaker facility would be located near the Ranger facility.

II. EIR SCOPE OF WORK

The primary issues to be addressed in the EIR are anticipated to include:

- a) Land Use
- b) Vegetation and Wildlife
- c) Geology and Soils
- d) Water Resources
- e) Archaeological and Historic Resources
- f) Visual Quality and Aesthetics
- g) Transportation/Circulation
- h) Utilities and Service Systems
- i) Fire Hazard
- j) Alternatives
- k) Cumulative Impacts
- l) CEQA Mandatory Sections

a. Land Use

The EIR will document land use compatibility, issues, land use designations and restrictions related to the site, as well as policies related to land use. This will include:

- Description of existing General Plan and zoning designations for the site from the City of Santa Cruz General Plan and Zoning Ordinance;
- Summary of relevant policies from the Santa Cruz General Plan related to on-site uses (i.e., Land Use Element and Parks and Recreation Element) and how the project may or may not conform to such policies;
- Description of existing on-site and surrounding land uses (extending to an area about one-fourth mile outside the project boundaries).
- Analysis of the project's compatibility with General Plan and zoning designations and regulations;
- Assessment of potential secondary land use impacts (using information from other sections of the EIR) related to increased noise, lighting, and traffic from proposed on-site uses;
- Summary of ongoing uses at the project site that would be subject to provisions of the Master Plan;
- Development of mitigation measures, if necessary, for any identified land use impacts.

b. Vegetation and Wildlife

The EIR will focus on documenting the site's sensitive habitats and evaluating potential impacts and mitigation opportunities related to implementation of the proposed Master Plan activities. This will include:

- Evaluation of all Master Plan components in the EIR, including structural developments (e.g., Clubhouse rehabilitation, outdoor education facility, parking facilities) as well as land use changes.
- Qualitative evaluation of potential impacts to biotic resources from the expected increase in recreational use. Additionally, the evaluation will assess the effect of changing land uses on such resources, such as proposed changes of some single-use trails to multi-use (i.e., addition of bicycle and/or equestrian use).
- Incorporation of results of studies performed for the Pogonip and the immediate vicinity that were reviewed during preparation of the *Pogonip Biotic Assessment* (HRG, 1995) and *Pogonip Environmental Constraints Analysis* (HRG, 1996). Surveys conducted by HRG in 1995 documented the biotic features of the property as well as the occurrence of several sensitive botanical and wildlife resources. Sensitive resources include federally-listed plant species (robust spineflower), State-listed plant species (San Francisco popcorn flower), rare insect species (Ohlone tiger beetle) and other locally unique biotic resources (coastal terrace prairie, locally unique plant species, wildlife corridors, seasonal wetlands).
- Assessment of nesting activities of white-tailed kites. Documented nesting of this species was previously considered to be a potential constraint to development of the Homeless Garden Project site (HRG, 1995).
- Determination of potential wetland areas in the vicinity of the proposed garden site.
- Identification of thresholds of significance for impacts to biological resources. The constraint criteria developed by HRG in the *Pogonip Environmental Constraints Analysis* will be utilized in developing the thresholds. Based on these thresholds, and previous analysis of biotic resource concerns conducted by HRG, potentially significant direct impacts to biotic resources will be identified.
- Analysis of indirect impacts to sensitive resources from property development/land uses. Examples of indirect impacts include trampling of vegetation by off-trail use; introduction of invasive, non-native plant species; changes in drainage patterns; disturbances to sensitive wildlife resulting from noise; and an increased presence of people. The proposed activities on the site will be evaluated as to effects on wildlife movement within and/or through the site, including any potential effects on wildlife with large ranges, such as mountain lion and deer.
- As per CEQA Guidelines, evaluation of the proposed project as to its consistency with Federal, State and City laws, policies and/or ordinances.
- Recommendation of measures to reduce significant impacts to a level of insignificance, as needed.
- Identification of opportunities for on-site mitigation of significant impacts, such as areas that can be preserved and/or restored/revegetated. Management actions required for the protection of rare/sensitive species will be identified, as well as techniques for the re-establishment of sensitive resources, as applicable.

A formal delineation of Waters of the United States, including wetlands, may be conducted for the proposed garden area if deemed necessary. The delineation will be conducted pursuant to the 1987 Corps of Engineers Wetlands Delineation Manual. A report, including applicable graphics and data sheets, will be prepared. The report will be suitable for the City's submittal to the Corps of Engineers for a Section 404 permit.

c. Geology and Soils

The geology and soils resources consultant will characterize the geology, seismic and soils environments of the Pogonip site with special attention to trail locations and routing, and proposed agricultural use of the site. The consultant will undertake the following tasks:

- Describe geologic and soils conditions by review of aerial photographs and available documentation from UCSC and the City of Santa Cruz.
- Review and incorporate hydrogeologic studies that have been previously developed.
- As identified by the City, document existing erosion problems with standard ground photos.
- Characterize site geology, seismicity, and soils using published geologic references, local hydrogeologic and geotechnical reports, and unpublished research by the geology and soils resources consultant.
- Assess potential erosion and other soil-related impacts from the garden project, parking lot and road improvements, trails and other uses
- Develop mitigation measures for geologic/soils impacts associated with the Pogonip Master Plan. An emphasis will be placed on measures to reduce potential erosion from the garden project and trail use. Construction-related as well as operation-related mitigation measures will be recommended.

d. Water Resources

The water resources consultant will work closely with the biological resources consultant to address water quality and runoff issues, and will undertake the following tasks:

- Describe hydrologic conditions at the Pogonip site using existing information and aerial photographs available at the UCSC map library and through other sources.
- Review and incorporate hydrologic studies that have been previously developed.
- Conduct a reconnaissance-level inventory of the recently acquired 25-acre parcel to provide information on hydrologic features, springs and seeps (to be added by the biological resources consultant to the "Geology and Surface Hydrology" map prepared for the *Pogonip Environmental Constraints Analysis*). Conduct a reconnaissance-level inventory of springs and seeps throughout the property using the existing hydrologic assessment as a foundation. These observations will help describe flow persistence, define whether the source of the spring is the shallow

marine terrace deposits or deeper bedrock, and allow inferences regarding the extent of contributing areas. This site work will provide the basis for evaluating whether management measures may affect yield from the springs or persistence of moisture in the wetlands to which they flow.

- Document hydrologic features and erosion problems with standard photos.
- Evaluate the potential use of shallow wells or horizontal wells as a water supply source for on-site uses.
- Evaluate opportunities, if needed, for reducing sediment and agricultural runoff to adjacent wetlands and neighboring properties from proposed garden operations. If these opportunities prove significant, the practices likely to be most effective will be described.
- Assess possible changes in runoff and recharge resulting from proposed management actions. Management alternatives with hydrologic implications that may be considered in the Master Plan EIR include trail design, location and size of parking areas, and irrigation of new agricultural acreage. Significant opportunities, if any, for improving management of runoff from the UCSC campus will be re-assessed and recommendations will be coordinated with ongoing discussions between UCSC and the City of Santa Cruz.
- Develop water quality Best Management Practices (BMPs) that may be attached as an appendix in the EIR.
- Identify and evaluate significant opportunities for habitat enhancement through restoration of native wetland and riparian species adjacent to seeps and springs, in consultation with the biological resources consultant.
- Develop mitigation plans and a monitoring program for hydrologic impacts associated with the Pogonip Master Plan. Mitigation requirements are most likely to be required if wetland habitats are altered by trail routing, agricultural conversions, changes in quantity or quality of stormwater runoff, and irrigation tailwater from proposed agricultural operations.

e. Archaeological and Historic Resources

Known, potentially important cultural resources at the Pogonip include: lime kilns, the golf course and associated irrigation system, clubhouse, quarries, fence line, polo grounds, swimming pool, spring box, and a house site. The Pogonip Clubhouse has been assessed as potentially eligible for listing on the National Register of Historic Places (NRHP). Because the eligibility criteria for listing in the NRHP are very similar to those for listing in the California Register of Historical Resources, the Clubhouse is potentially eligible for State registration.

The EIR will include:

- A description of the inventory of known cultural resources.
- Assessment, using existing information, of the potential importance of each resource with reference to *CEQA Guidelines* Appendix K and California Register of Historical Resources nomination guidelines including the clubhouse, limekilns, estate ruins, golf course and polo grounds.
- A description of the potential for undiscovered cultural resources, the probable nature of such resources and their potential importance.
- A description of the potential direct short-term and long-term impacts on known cultural resources which could result with implementation of the development plan (e.g., impacts resulting from: road or trails development; construction in the Clubhouse area; tilling in the homeless garden; or introduction of more park users who could contribute to the accelerated decay of the lime kilns through deliberate vandalism or by climbing on structures).
- A description of potential direct impacts on undiscovered potential cultural resources in specific settings which could result from implementation of the development plan (e.g., unanticipated discovery of a previously unknown prehistoric archaeological site during infrastructure development).
- Definition of mitigation measures to address direct impacts on both known and unknown cultural resources (e.g., plan to address unanticipated discoveries with explicit mitigation procedures).
- Definition of mitigation measures to address indirect impacts on cultural resources (e.g., measures to discourage or prohibit park visitor access to certain cultural resources; documentation and monitoring programs to inspect or maintain the integrity of cultural resources).

f. Visual Quality and Aesthetics

The EIR will fully characterize the visual setting, describe the changes that the proposed project would have on the visual character and recommend any necessary mitigation measures for minimizing or avoiding any potential visual impacts. The site's lower and higher ridgelines require special protection under the City's Community Design Element of the Santa Cruz General Plan. As an open space and recreation area, the Pogonip site's inherent scenic quality must be preserved to continue attracting visitors. Visibility from off-site, particularly from the lower UCSC campus and nearby roads, is also an important visual consideration.

The primary features of the project that may have an impact on visual quality and aesthetics include: the garden site and its associated facilities such as fencing and parking; the group campground and parking lot; rehabilitation of the Clubhouse, related recreation amenities and parking lot; overnight retreat cabins and their access and parking; the park ranger station/maintenance facility/caretaker residence; road

improvements; trail improvements and new trails. Some of these features are proposed in locations that are considered to have high and moderate visual sensitivity.

Visual changes that may occur would be caused by man-made development (e.g. buildings, pavement, and other structures) in an otherwise natural setting, the introduction of parked vehicles, and new linear features (e.g. roads and trails) through woodland and meadows associated with caused grading and vegetation removal. The visibility of light at night will also need to be assessed.

The EIR will include:

- A description of the existing on-site visual features in terms of vegetative communities, topography, and special features such as waterways.
- Documentation of on-site visual conditions with black and white photographs that will accompany the text. Key viewpoints will be discussed with staff.
- Mapping of selected viewpoints for photographs.
- Clear definition of significance criteria at the start of the impact discussion, with an emphasis on foreground views, public (vs. private) views, introduction of man-made elements into the natural setting, and potential for increased glare.
- Assessment of potential changes in visual conditions from selected viewpoints such as two or three sites within the Pogonip area, Highway 1 or 9, Coolidge Drive or other UCSC location, as agreed upon by the Parks and Recreation Department staff.
- Definition of significance of visual changes in terms of foreground, midground, or background visibility from selected viewpoints.
- Identification of the potential for both on-site and off-site visual impacts related to lighting at the Clubhouse, overnight facilities, and parking areas. Generally describe areas from which such lighting may be visible.
- Development of appropriate mitigation measures for potentially significant impacts. Mitigation measures that will be considered may include: locating facilities where they will be screened from especially sensitive viewpoints; reconfiguring or realigning use areas and facilities to help hide them or to give them a more natural appearance; "breaking up" use areas or reducing their sizes; planting native vegetation to reduce visibility; and requiring specific materials, colors and other design measures.

g. Transportation/Circulation

The EIR will include analysis of

- The capacity of Golf Club Drive, within Pogonip and off-site, particularly at the railroad trestle;
- Availability of on-site and off-site parking and how cars on site may impact Golf Club Drive;

- Potential impacts to traffic operations at key intersections near the project;
- On-site circulation; and
- Pedestrian, bicycle and equestrian access to the park, particularly crossings of Highway 9 and Coolidge Drive.

Analysis of weekday PM peak hour and Saturday peak hour traffic conditions is proposed. The project should not generate a significant volume of trips during the AM peak hour given the proposed park uses. Utilization of the park should be greatest on weekends, particularly for special events and by trail users.

The EIR will include:

- Documentation of existing traffic conditions, including off-site and on-site roadway geometrics, pedestrian access points, existing facilities for pedestrians, bicyclists and equestrians in the area and provisions for parking on the nearby street system. Available aerial and topographic mapping will be utilized to supplement the site visit to establish existing conditions.
- Assessment of parking availability on local streets serving potential access locations to the site, as identified by the City.
- Identification of weekday PM peak period intersection conditions for the following three intersections:
 Highway 9/Golf Club Drive;
 Highway 9/Encinal Avenue; and
 Highway 1/Highway 9.

Recent PM peak hour intersection movement volume counts available from the City of Santa Cruz for the Highway 9 intersections with Highway 1 and Encinal Street will be utilized to establish existing conditions at these locations. The consultant will perform counts for the Golf Course Drive/Highway 9 intersection.

- Weekend peak period intersection turning movement counts at Highway 9/Golf Club Drive. If counts are not already available from the City, recent weekend peak period intersection turning movement counts will also be performed at Highway 9/Encinal Avenue and Highway 1/Highway 9.
- A description of existing transit access to the site in terms of the nearest bus stops and scheduling of the buses.
- Using significance criteria consistent with City of Santa Cruz policies and policies of other regional transportation agencies, the transportation-related impacts of the project will be assessed. These include standards applied by Caltrans and the Santa Cruz County Transportation Commission.

The standards of significance are expected to include the following:

1. A reduction of existing intersection or highway roadway levels of service to unacceptable levels (below LOS D) with the project;
2. Project-related contribution of traffic to arterials or at intersections currently operating at unacceptable levels;
3. Inadequate parking or circulation capacity to accommodate the anticipated traffic increase;
4. Unsafe conditions created by proposed roadway designs or the increase in traffic associated with the project; and
5. Inadequate provisions for pedestrian, bicycle, or transit access.

- Determination of traffic-related impacts by developing forecasts of existing plus project peak hour traffic volumes at key intersections serving the project. Project trips will be assigned to the local road network using trip distribution patterns appropriate for the proposed project. The Golf Club Drive/Highway 9 intersection will be quantitatively evaluated, while the Encinal/Highway 9 and Highway 9/Highway 1 intersections will be qualitatively evaluated.
- Evaluation of potential traffic operations on Golf Club Drive, including the potential for emergency vehicles and buses to access the site. The design of this roadway, including the limited capacity at the railroad trestle, will limit the number of vehicles allowed on the site.
- A description of ingress and egress problems that may arise if Golf Club Drive is the only vehicular access point to the site. It is assumed that on-site parking capacity information will be provided at the start of the ADEIR to determine how many cars may use this entrance.
- Establishment of the maximum size of special events at the Clubhouse given the number of parking spaces that can be provided on-site near the Clubhouse and establish the number of spaces needed on-site for other park uses. Two potential parking areas have been identified on the Pogonip site with about 45 spaces located near the Clubhouse and 30 spaces located in the Lower Meadow for the garden project and bus parking. The lack of on-site parking spaces will be a limiting factor with regards to the volume of project-generated traffic (including Clubhouse special events) that can be allowed on-site. Identify alternative transportation options.
- Assessment of parking and on-site circulation impacts from non-Clubhouse facilities, such as the retreat cabins and garden.
- Assessment of pedestrian, bicycle and transit access and safety-related issues associated with each.
- Determination of cumulative traffic impacts by adding cumulative project traffic to the existing-plus-project volume to establish cumulative traffic volumes. The list of cumulative projects will be developed in consultation with the City Planning

Department. Intersection levels of service will be recalculated to identify cumulative impacts for the same three intersections studied for the project.

- Mapping of the site with respect to the local road network, existing vehicular and pedestrian access points to the park and existing/potential deficient conditions.
- Identification of mitigation measures required to address project and cumulative impacts. Levels of service and other appropriate measures will be re-evaluated assuming implementation of the recommended mitigation measures. Mitigation measures may address safety considerations for ingress/egress at Golf Club Drive such as pull-out areas, stop signs, and other measures. For large events at the Clubhouse, an off-site parking area with a shuttle bus to the park is one possible method for bringing large numbers of people to the site without requiring extensive improvements to Golf Club Drive or providing large parking areas on-site.

h. Utilities and Service Systems.

The EIR will include evaluation of the potential impacts of the proposed project on existing utilities and public service systems, including public safety (fire and police), water, wastewater, solid waste, electricity, gas, and telecommunications.

The site is currently served by on-site well-water and a septic system near the Clubhouse. A six-inch municipal water line and six-inch sanitary sewer line south of the site are proposed to be extended to service the project. The potential impacts of the proposed project on these and other relevant systems will be analyzed. The EIR will include:

- A description of existing utilities and public service systems that serve the site (i.e. fire and police protection, water supply, wastewater, solid waste, gas/electricity, and telecommunications).
- Contact of service providers and review of available data to describe existing service levels.
- Determination of potential public safety and fire protection needs for the site.
- Determination of potential demand for water supply that the Clubhouse, overnight retreat cabins, agricultural operations, outdoor education area/group campsite, and other proposed facilities would generate and the ability to meet this demand by extension of City water lines.
- Determination of the adequacy of the existing water system for fire suppression, based on conversations with City fire department staff.
- Assessment of the impact proposed uses would place on wastewater facilities in terms of available capacity.
- Coordination with staff of the biological resources consultant and cultural resources consultant to determine if extension of sewer/water uses may potentially impact biological or cultural resources.

- Evaluation of the demand for solid waste services, including consideration of special events at the Clubhouse and garden maintenance for the Homeless Garden Project.
- Evaluation of potential demand for electrical and telecommunications services from the proposed project, and how such demands would be met.
- Identification of mitigation measures, as necessary, for potentially significant impacts.

i. Fire Hazard

This analysis will include:

- Evaluation of the extent to which the Master Plan fire management program will affect the site's visual quality; for example, the removal of large areas of non-native trees may visually expose development or otherwise alter the character of the landscape.
- Assessment of the secondary impacts on wildlife species; for example, the removal of certain plant species may reduce important wildlife habitat.
- Assessment of potential secondary impacts on special status plant species; prescribed burning and grading may temporarily or permanently cause the removal of protected species.
- Determination of whether any potential prehistoric or historic resources would be adversely affected by the fire management program.

j. Alternatives

No more than three alternatives to the proposed project will be evaluated to comply with CEQA requirements. The first alternative will be the "No Project Alternative" which will assume no changes from existing conditions. The other alternatives will be provided by the City.

k. Cumulative Impacts

Cumulative impacts will address potential impacts associated with the proposed project in conjunction with other off-site proposed, permitted, or under-construction projects. Cumulative impacts will be summarized by topic (i.e., land use, traffic, etc.) and mitigation measures will be identified if any significant cumulative impacts are identified. The focus of the cumulative analysis will be upon impacts related to the proposed project.

I. CEQA Mandatory Sections

The EIR will included documentation for each of the following CEQA-required conclusions:

- *Growth-Inducing Impacts*
- *Significant Irreversible Impacts*
- *Short-term Versus Long-term Use of the Environment*
- *Issues Found Not to be Significant*

The Notice of Preparation is expected to identify "Issues Found Not to be Significant," such as air quality, noise, school impacts, and energy impacts. Mitigation measures included in the Master Plan to minimize or eliminate impacts such as controls on noise will be summarized in the EIR.

III. PRELIMINARY EIR SCHEDULE

The preliminary schedule for the EIR is described below. The Parks and Recreation Department will prepare the Draft Master Plan concurrent with preparation of the Draft EIR in order to minimize the environmental impacts of proposed uses. The Draft Master Plan will be distributed concurrent with the distribution of the Draft EIR.

Project Scoping	July 1997
Scoping Meeting	July 24, 1997
Draft EIR	November 1997
Public Review period begins (45+ days)	November 1997
Parks and Recreation Commission	January 1998
Greenbelt Committee	January 1998
City Council Public Hearing	January 1998
Final EIR	February 1998
City Council Certification of Final EIR	March 1998
Findings	March 1998



PETE WILSON
GOVERNOR

State of California

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

1400 TENTH STREET
SACRAMENTO 95814



LEE GRISSOM
DIRECTOR

DATE: June 23, 1997
TO: Reviewing Agencies
RE: POGONIP MASTER PLAN
SCH# 97062099

REC'D 7 1997

Attached for your comment is the Notice of Preparation for the POGONIP MASTER PLAN draft Environmental Impact Report (EIR).

Responsible agencies must transmit their concerns and comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of this notice. We encourage commenting agencies to respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

SUSAN HARRIS
CITY OF SANTA CRUZ PARKS AND RECREATION DEPARTMENT
323 CHURCH STREET
SANTA CRUZ, CA 95060

with a copy to the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the review process, call Kristen Derscheid at (916) 445-0613.

Sincerely,

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Attachments

cc: Lead Agency

S = sent by lead agency

X = sent by SCH

Resources Agency

- ☒ **Nadell Gayon**
Resources Agency
1020 Ninth Street, Third Floor
Sacramento, CA 95814
916/327-1722 Fax 916/327-1648
- ☐ **Nicole Leiria**
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1629 S Street
Sacramento, CA 95814
916/445-6281 Fax 916/327-7250
- ☐ **Elizabeth A. Fuchs**
California Coastal Commission
45 Fremont Street, Suite 1970
San Francisco, CA 94105-2219
415/904-5200 Fax 415/904-5400
- ☐ **Reed Holderman**
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1330 Broadway, Suite 1100
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- ☒ **Keren Yewell**
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916/445-8733 Fax 916/324-0948
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P.O. Box 942896
Sacramento, CA 94296-0001
916/653-9107 Fax 916/653-9824
- ☒ **Environmental Review**
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P.O. Box 942896
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1416 Ninth Street, Room 1623
Sacramento, CA 95814
916/327-1531 Fax 916/327-1600
- ☐ **Steve McAdam**
S.F. Bay Conservation & Dev't. Comm.
30 Van Ness Avenue, Room 2011
San Francisco, CA 94102
415/557-3686 Fax 415/557-3767
- ☐ **Nadell Gayon**
Department of Water Resources
1020 Ninth Street, Third Floor
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Health & Welfare

- ☐ **Kim Dinh**
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601 N. 7th Street, PO Box 942732
Sacramento, CA 94214-7320
916/323-6111 Fax 916/327-6092

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- ☐ **Richard L. Elliott**, Regional Manager
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601 Locust
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916/225-2363 Fax 916/225-2381
- ☐ **Ryan Broddrick**, Regional Manager
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1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
916/358-2900 Fax 916/358-2912
- ☒ **Brian Hunter**, Regional Manager
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P.O. Box 47
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707/944-5518 Fax 707/944-5563
- ☐ **George Nokes**, Regional Manager
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1234 East Shaw Avenue
Fresno, CA 93710
209/445-6152 Fax 209/445-6607
- ☐ **Department of Fish and Game**
Environmental Services
330 Golden Shore, Suite 50
Long Beach, CA 90802
310/590-5132 Fax 310/590-5192

Independent Commissions/Agencies

- ☐ **California Energy Commission**
1516 Ninth Street, MS-15
Sacramento, CA 95814
916/654-3944
- ☐ **Native American Heritage Comm.**
915 Capitol Mall, Room 364
Sacramento, CA 95814
916/653-4082 Fax 916/657-5390
- ☐ **Martha Sullivan**
Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
415/703-2011 Fax 415/703-1965
- ☒ **Betty Silva**
State Lands Commission
100 Howe Avenue, Suite 100-S
Sacramento, CA 95826
916/574-1872 Fax 916/574-1885
- ☐ **Gerald R. Zimmerman**
Colorado River Board
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1035
818/543-4676 Fax 818/543-543-4685
- ☐ **Tahoe Regional Planning**
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P.O. Box 1038
Zephyr Cove, NV 89448
702/588-4547 Fax 702/588-4527
- ☐ **Thomas Ottoman**
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San Francisco, CA 94129
415/666-9300
- ☐ **Debby Eddy**
Delta Protection Commission
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Walnut Grove, CA 95690
916/776-2290 FAX 776-2293

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- ☐ **Linda Evans**
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- ☒ **Alice Huffaker**
California Highway Patrol
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- State and Consumer Services**
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- California Environmental Protection Agency**
- ☐ **Mike Tolstrup**
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- ☐ **Mark deBle**
Calif. Waste Management Board
8800 Cal Center Drive
Sacramento, CA 95826
916/255-4164 Fax 916/255-4071
- ☐ **Wayne Hubbard**
State Water Resources Control Board
Division of Clean Water Programs
P.O. Box 944212
Sacramento, CA 94244-2120
916/227-4408 Fax 916/227-4549
- ☐ **Phil Zentner**
State Water Resources Control Board
Division of Water Quality
P.O. Box 944213
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916/657-0912 Fax 916/657-2388
- ☐ **Mike Falkenstein**
State Water Resources Control Board
Division of Water Rights
901 P Street, 3rd Floor
Sacramento, CA 95814
916/657-1377 Fax 916/657-1485
- ☐ **Dept. of Toxic Substances Control**
CEQA Tracking Center
400 P Street, Fourth Floor
P.O. Box 806
Sacramento, CA 95812-0806
916/324-3119 Fax 916/324-1788

Regional Water Quality Control Board

- ☐ **NORTH COAST REGION (1)**
5550 Skyline Blvd., Suite A
Santa Rosa, CA 95403
707/576-2220 Fax 707/523-0135
- ☒ **SAN FRANCISCO BAY REGION (2)**
2101 Webster, Suite 500
Oakland, CA 94612
510/286-1255 Fax 510/286-1380
- ☐ **CENTRAL COAST REGION (3)**
81 Higuera Street, Suite 200
San Luis Obispo, CA 93401-5427
805/549-3147 Fax 805/543-0392
- ☐ **LOS ANGELES REGION (4)**
101 Centre Plaza Drive
Monterey Park, CA 91754-2156
213/266-7556 Fax 213/266-7600
- ☐ **CENTRAL VALLEY REGION (5)**
3443 Routier Road, Suite A
Sacramento, CA 95827-3098
916/255-3000 Fax 916/255-3015
- ☐ **Fresno Branch Office**
3614 East Ashlan Avenue
Fresno, CA 93726
209/445-5116 Fax 209/445-5910
- ☐ **Redding Branch Office**
415 Knollcrest Drive
Redding, CA 96002
916/224-4845 Fax 916/224-4857
- ☐ **LAHONTAN REGION (6)**
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150
916/542-5400 Fax 916/544-2271
- ☐ **Victorville Branch Office**
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359
619/241-6583 Fax 619/241-7308
- ☐ **COLORADO RIVER BASIN
REGION (7)**
73720 Fred Waring Drive, #100
Palm Desert, CA 92260-2564
619/346-7491 Fax 619/341-6820
- ☐ **SANTA ANA REGION (8)**
3737 Main Street, Suite 500
Riverside, CA 92501-3339
714/782-4130 Fax 909/781-6288
- ☐ **SAN DIEGO REGION (9)**
9771 Clairemont Mesa Blvd., Suite B
San Diego, CA 92124-1331
619/467-2952 Fax 619/571-6972

called 7/23 send to Central Coast

A-22



REC'D AUG 14 1997

BRADY AND ASSOCIATES

United States Department of the Interior

AUG 18 1997

FISH AND WILDLIFE SERVICE

Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

August 11, 1997

Susan Harris
Department of Parks and Recreation
City of Santa Cruz
323 Church Street
Santa Cruz, California 95060

Subject: Notice of Preparation of an Environmental Impact Report for the Pogonip Master Plan, City of Santa Cruz, Santa Cruz County, California

Dear Ms. Harris:

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced document, dated June 18, 1997 and received by us on June 23, 1997, which requests information that the Service believes necessary for inclusion in a draft environmental impact report (EIR). The draft EIR will evaluate alternatives for the proposed "Park" Master Plan for the 640-acre Pogonip Park. The draft EIR will also analyze a General Plan Amendment and Rezoning of a 25-acre portion currently designated for residential use within the Park. We offer the following information and recommendations to aid you in planning for the conservation of sensitive wildlife habitats and federally listed species within the area of the proposed action and to assist you in complying with pertinent Federal statutes.

The Service believes the following issues should be thoroughly addressed in the EIR:

1. A complete discussion of the purpose and need for the Master Plan and General Plan Amendment.
2. A description of the proposed action, including all feasible alternatives and the no action alternative. This alternatives analysis is important to the Service's evaluation of the action, as feasible alternatives often reduce effects to biological resources.
3. Specific acreage and detailed descriptions of the amount and types of habitat that may be affected by the proposed action or its alternatives. Of particular concern will be the acreage of wetland and riparian habitats to be affected. This number should be verified by the U.S. Army

Corps of Engineers or U.S. Environmental Protection Agency. Maps and tables should be included to assist in the evaluation of project-related effects.

4. Quantitative and qualitative information concerning plant and animal species associated with each habitat type.

5. A list of sensitive species that are found at or near the project site including candidate, proposed, and federally listed species, State listed species, and locally declining or sensitive species. A detailed discussion of these species, focusing on their site-related distribution and abundance and the anticipated effects of the project on these species, should be included. Federally listed species that occur within, or in the vicinity of, the area affected by the Master Plan include the endangered robust spineflower (*Chorizanthe robusta* var. *robusta*) and the threatened California red-legged frog (*Rana aurora draytonii*).

The Service is responsible for administering certain portions of the Endangered Species Act of 1973, as amended (Act). Section 9 of the Act prohibits the "take" of any listed species. The definition of "take" includes to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. "Harm" in the definition of "take" is further defined by regulation to include significant habitat modification or destruction where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering (50 CFR 17.3). Exemptions to the section 9 prohibitions against take may be authorized by the Service pursuant to sections 7, for Federal actions, or 10(a)(1)(B), for actions without a Federal nexus, as mandated in the Act. Only listed species receive protection under the Act. However, proposed and candidate species should be considered in the planning process in the event they become listed prior to project completion.

The Service also recommends that the draft EIR contain an analysis of the proposed action's anticipated effects on the Ohlone tiger beetle (*Cicindela ohlone*) because the site supports grasslands that provide habitat for the Ohlone tiger beetle. At present, this site is one of six areas known to support this species. On March 1, 1996, the Service found that sufficient information did not exist to warrant listing of the Ohlone tiger beetle as endangered or threatened under the provisions of the Act (61 *Federal Register* 8014). However, since that time, the Service has received additional information indicating that the Ohlone tiger beetle is extremely limited in distribution and is restricted to a very specific habitat type. Additionally, several of its known populations are threatened by future development. This new information may lead the Service to re-evaluate the need for listing this species under the Act.

6. An assessment of the effects on biological resources, including those which are direct, indirect, and cumulative. All aspects of the Master Plan should be included in this assessment.

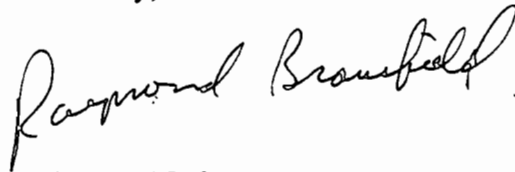
7. An analysis of the effects of the Master Plan on the hydrology of associated drainages and any other riparian or wetland communities within the sphere of influence of the project. The effects of alteration of natural flows within the affected creeks and rivers should be thoroughly examined.

8. Specific mitigation plans to offset project-related effects, including cumulative habitat loss, degradation, and modification resulting from the direct, indirect, and cumulative consequences of the action. The objective of the mitigation plan should be to offset qualitative and quantitative project-induced loss of habitat values. Avoidance of the effects through project modification is considered mitigation. In particular, the Service recommends that impacts to wetlands, riparian corridors, and grasslands, which provide an important habitat to many species of wildlife, be avoided. The EIR should also identify measures to ensure the continued viability and health of the grassland community that provides habitat for the robust spineflower and the Ohlone tiger beetle.

9. Identification of construction methods to be employed to prevent soil erosion, along with specific erosion and sedimentation control plans to be carried out throughout the life of the project.

We look forward to reviewing the draft EIR. Should you have any questions regarding these comments, please contact Mr. David Pereksta of my staff at (805) 644-1766.

Sincerely,



Diane K. Noda
Field Supervisor

Acting

DEPARTMENT OF TRANSPORTATION

50 HIGUERA STREET
SAN LUIS OBISPO, CA 93403-8114
TELEPHONE: (805) 549-3111
TDD (805) 549-3259

REC'D AUG 15 1997



August 6, 1997

5-SCr-9-3.67-4.42
NOP for POGONIP EIR

Susan Harris
City of Santa Cruz
Department of Parks and Recreation
323 Church Street
Santa Cruz, CA 95060

BRADY AND ASSOCIATES

AUG 19 1997

Dear Ms. Harris:

Caltrans District 5 staff has reviewed the Notice of Preparation for the POGONIP Environmental Impact Report. The following comments were generated as a result of the review:

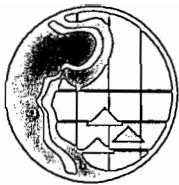
1. Caltrans has concerns with any future park facilities that immediately impact the operation of State Route (SR) 9 or that could impact its future widening. For example, the Golf Drive/SR 9 intersection may likely need upgrading due to a projected increase in use.
2. As development occurs at or near the POGONIP Open Space Preserve on SR 9 (Felton, Glen Arbor, etc.), there will be increased pressure to make improvements to SR 9. Possible Section 4(f) involvement at POGONIP will be eased by early coordination/joint planning between Caltrans and the City.
3. Please include a detailed description of the kind of "special events" that are proposed and the frequency in which they might occur.
4. Per our telephone conversation on August 6, 1997, please include a list with detailed mapping of proposed locations where any crossings at SR 9 are anticipated.

I hope this letter gives your agency a better understanding of Caltrans' concerns with this project. We would appreciate the opportunity to review the pre-draft EIR prior to its release to the public. Thank you for consideration of our comments on the proposed project. If you have any questions or need to contact us, please contact me at (805) 549-3131.

Sincerely,

Charles Larwood
District 5
Intergovernmental Review Coordinator

cc: C Belsky, SCH
L. Wilshusen, SCCRTC
N. Papadakis, AMBAG



MONTEREY BAY
Unified Air Pollution Control District
serving Monterey, San Benito, and Santa Cruz counties

AIR POLLUTION CONTROL OFFICER
Douglas Quetin

24580 Silver Cloud Court • Monterey, California 93940 • 408/647-9411 • FAX 408/647-8501

June 24, 1997

Susan Harris
City of Santa Cruz
Parks and Recreation Department
323 Church Street
Santa Cruz, CA 95060

**DISTRICT
BOARD
MEMBERS**

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VICE CHAIR:
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San Benito
County

Cella Scott
Santa Cruz

Alan Styles
Salinas

Walt Symons
Santa Cruz
County

SUBJECT: NOP FOR POGONIP MASTER PLAN

Dear Ms. Harris:

Staff has reviewed the NOP and has the following comments:

1. Direct and indirect source emissions from all proposed activities should be quantified and their impact on air quality assessed.
2. If project or cumulative traffic would significantly affect an intersection or roadway at LOS D or below, dispersion modeling should be undertaken to determine if carbon monoxide concentrations would violate ambient air quality standards at sensitive receptor locations.
3. Project PM₁₀ construction emissions should be quantified. If emissions would exceed 82 lbs/day, the project would have a significant impact on air quality. However, PM₁₀ modeling could be undertaken to verify or dispute this findings per the District's CEQA Air Quality Guidelines.
4. Mitigation measures should be identified for any significant impacts on air quality. The EIR should quantify the emission reduction effectiveness of each measure, identify the agency(ies) responsible for implementation and monitoring, and conclude whether mitigation measures would reduce impacts below significance levels.

The District's CEQA Air Quality Guidelines can be used to help prepare the air quality analysis. If you have any questions, please do not hesitate to call.

Sincerely,

Janet Brennan
Supervising Planner, Planning and
Air Monitoring Division

c: Nicolas Papadakis, AMBAG

REC'D JUL 14 1997

July 10, 1997

Ms. Susan Harris
City of Santa Cruz
Parks and Recreation Department
323 Church Street
Santa Cruz, CA 95060

RE: MCH # 079706 - Notice of Preparation of DEIR for Pognip Master Plan

Dear Ms. Harris

AMBAG's Regional Clearinghouse circulated a summary notice of your environmental document to our member agencies and interested parties for review and comment.

The AMBAG Board of Directors considered the project on **July 9, 1997** and has no comments at this time. However, we are forwarding the enclosed comments on this project that we have received from other agencies or interested parties.

Thank you for complying with the Clearinghouse process.

Sincerely,



Nicolas Papadakis
Executive Director

Enclosures

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • ST.

Post-It* Fax Note	7671	Date	7-24-97	# of pages	6
To	Susan Harris	From	Christine Alderson		
Subject	Hard copy to follow.	Co.	UCSC		
Phone #		Phone #	459-4407		
Fax #	469-9253	Fax #	459-5586		

OFFICE OF
PHYSICAL PLANNING AND CONSTRUCTION

SANTA CRUZ, CALIFORNIA 95064

July 24, 1997

Susan Harris
Associate Planner
Department of Parks and Recreation
City of Santa Cruz
323 Church Street
Santa Cruz, CA 95060

Dear Ms. Harris,

Thank you for the opportunity to respond to the Notice of Preparation (NOP) for the Environmental Impact Report being prepared on the Pogonip Master Plan. As described in the NOP, the Pogonip Master Plan may include the opening of Pogonip trails to bicycle and equestrian use and may propose a new trail to provide a connection between Pogonip and the fireroads within the UCSC campus. Our comments will focus on aspects of Pogonip planning and CEQA analysis that could affect University property.

1. The University expects that increasing trail use associated with the openings of both Gray Whale State Park and the Pogonip City Park will result in increased use of University trails between the two parks. The University is particularly concerned about ongoing and increasing use of ad-hoc trails by bicyclists. The University therefore supports the planning, construction, and maintenance of a Pogonip-UCSC multi-use connector trail that would minimize environmental impacts on University property and the Pogonip. To that end University staff and faculty have reviewed the City Park Department's schematic trail alignments (presented to the City Council on June 24, 1997), have participated in field walks of possible connector trail alignments, and have participated in ongoing discussions with the City Parks Department and the State Department of Parks and Recreation. The following information is intended to support the identification of a feasible multi-use connector trail alignment:

- a. Development on the UCSC campus is governed by the 1988 Long Range Development Plan (LRDP); that plan is the "general plan" for the campus. It divides the campus into 11 land use categories and describes permissible uses within each category. Recent discussions regarding possible multi-use trail alignments suitable for connecting campus fire roads to the Pogonip have focused on alignments that would traverse one or more of the following land use categories: Environmental Reserve, Colleges and Graduate Housing, and Campus Resource Land. The University supports the identification of a multi-use connector trail alignment that fully conforms to the policies of the campus LRDP. (See Attachment A for a description of the three relevant land use categories.) The University cannot support (and

Pogonip Master Plan EIR NOP: UCSC Response
Page 2

does not consider feasible) the construction of a multi-use trail across the campus Environmental Reserve, because such a trail would not conform to campus land use policies.

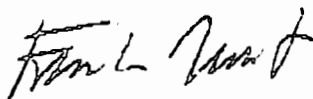
- b. Although campus lands are open to the public, the University mission does not include the construction and/or maintenance of public recreation facilities, and it is difficult in the current fiscal climate for the University to obtain funds for activities not directly related to its educational mission. The University therefore supports the development of a connector trail which is as short as possible on University property, thereby minimizing construction and long-term maintenance and enforcement costs to the University. The University cannot support (and does not consider feasible) the construction of a new lengthy, public recreation trail on campus.
 - c. University staff participated in a "field walk" with staff from the City Parks Department, the State Department of Parks and Recreation, and the Association of Concerned Trailriders in an attempt to identify feasible connector trail alignments. The results of that walk are summarized in Attachment B, "Regional/Cross Campus Trail Alignment Alternatives." Three technically feasible alignments were identified. The University supports further consideration and refinement of one of the alignments, the "Lower Trail." The "Lower Trail" is the only one of the three alignments that fully conforms to the Campus LRDP and other campus policies (see Attachments A and B.)
 - d. The University requests that the Pogonip Master Plan identify the "Lower Trail" (or a variant, as described in Attachment B) as a feasible alignment for a connector trail or that the Master Plan identify an alternative feasible alignment that conforms to University policies, in consultation with University staff. The University opposes the inclusion in the Master Plan of the "Middle Trail," the "Upper Trail," or any other trail alignment that would not conform to University policies. The University further requests that the EIR fully evaluate the environmental effects of the connector trail. Special attention should be paid to the hydrologic and biotic impacts of any new trails proposed for development.
2. The University has additional comments (which were presented to the City Council on June 24, 1997) regarding elements of early drafts of the Pogonip Master Plan offered to the University for review. We request that the following comments be addressed in the Master Plan and EIR:
- a. The University requests that existing parking lots on the lower campus not be designated by the City or shown on City maps as public parking available for visitors to the Pogonip. Such a designation would be incompatible with the University's parking needs and policies.
 - b. The University requests that ADA accessible parking be identified on Pogonip property, rather than on Spring Trail, near Spring Street (as has been suggested).
 - c. The University requests that the Conlidge Drive overlook not be identified by the City as a trailhead. The campus is attempting to minimize long-term parking at the overlook and requests that the Pogonip Master Plan support these efforts.

Pogonip Master Plan EIR NOP: UCSC Response
Page 3

- d. The University requests that the intersection of Rincon Road and Coolidge Drive not be identified as a primary access point to the Pogonip. The intersection has serious safety problems resulting from very short sight lines and relatively high traffic speeds. Although these concerns might theoretically be addressed by the construction of a Rincon connector trail, University staff have serious doubts about the technical feasibility of such a connector due to topography. Moreover, staff has doubts about the planning feasibility of such a connector due to the absence of existing trails or sidewalks to which the connector could be linked.
3. The University holds an option for a relocatable easement for an eastern access road through the Pogonip. The Master Plan should acknowledge this fact, and the EIR should assess the impacts of any Master Plan elements that would preclude the exercising of this option.

The University supports the development of a Master Plan for the Pogonip and the eventual opening of the park. Please let us know if we can provide additional information or assistance in support of collaborative resolutions to planning challenges faced by the University and the City. Again, thank you for the opportunity to respond to the Notice of Preparation.

Sincerely,



Frank Zwart
Assistant Vice Chancellor
Physical Planning and Construction

cc: C. Aldecoa
D. Fitch
M. Fusari
J. Lang
L. Pageler
Santa Cruz City Council
T. Vani

Attachment A: Campus Land Use Categories Affected by Possible Pogonip Connector Trail Alignments

Campus Resource Land: 471 acres of campus land were not proposed for development in the LRDP; these lands are considered available for the future development of University facilities under a future LRDP. Small projects, for example water storage tanks and roads, are permitted on these lands, subject to the review of appropriate committees and approval of the Chancellor. The construction or rehabilitation of a multi-use trail in this area would probably be considered consistent with policies for this land use category, with appropriate approvals, if the alignment would not compromise future development.

Colleges and Graduate Housing: 241 acres of campus land configured in two half-acres around the core of the campus are designated for the development of Colleges and Graduate Housing. The northernmost portions of the eastern College area (i.e., those relevant to the trail discussion) are not yet developed. The following uses are permitted in this land use category: academic facilities, housing, student service facilities, and recreational amenities. Infrastructure (including roads and utilities) to serve College facilities are also permitted. A short segment of a public access multi-use trail, whose alignment would not compromise the campus's ability to construct additional college facilities in the future, might be considered consistent with policies for this land use category.

Environmental Reserve: The 393-acre Environmental Reserve was established to protect natural features and processes of the campus for teaching and research. Boundaries were drawn to include special habitats, special status species, and other unique campus features. Under the LRDP, lands within the Environmental Reserve are to be maintained in their natural state, to the greatest extent feasible. The Reserve is to be managed in conformance with plans prepared by the Campus Natural Reserve Committee. The development of a public access multi-use trail through the Natural Reserve is not considered a permissible use under LRDP guidelines or Environmental Reserve management guidelines.

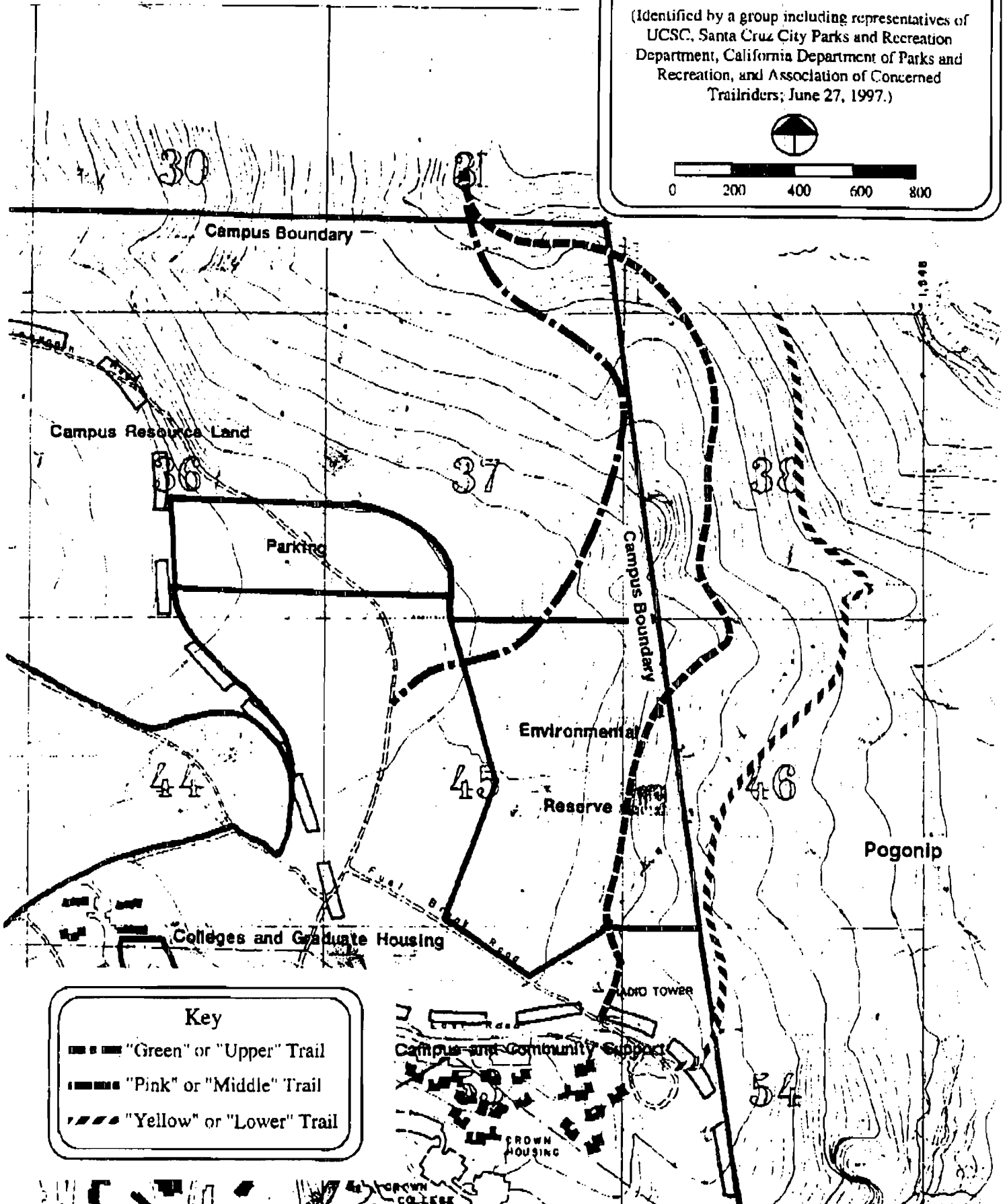
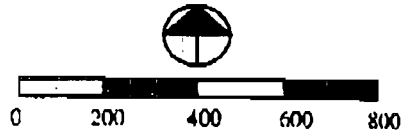
Attachment B: Regional/Cross-Campus Trail Alignment Alternatives

Alignment	Description	Constraints
"Yellow" or "Lower Trail"	Connecting to the easternmost end of Fuel Break Road, this trail extends northeast to the campus boundary, where it begins contouring down slope to the north and east on the Pogonip. At an elevation of approx. 550' the trail makes a sharp turn before proceeding north toward the Rincon Connecting Trail to Henry Cowell State Park and Highway 9. Approximately 95% of this alignment appears to fall on Pogonip property, with only a small section near Fuel Break Road crossing campus lands designated "Colleges and Graduate Housing." Two variations of this alignment may be possible: one connecting to the "Pink" alignment near the 700' contour, and another potentially connecting to Lime Kiln Trail near the 575' contour.	• Bud and Emma McCrary have laid out this alignment on site and believe it is feasible to construct. • The McCrarys believe this trail would require heavy excavation in the vicinity of the 600' contour. This could be avoided by connecting instead to the "Pink" alignment near the 700' contour. • This alignment traverses a short segment of Colleges and Graduate Housing land. • This is the University's preferred alternative, as it avoids the Environmental Reserve. Moreover, it requires construction of only a short section of the trail on campus land and is therefore more likely to be financially feasible.
"Pink" or "Middle Trail"	Connecting to Fuel Break Road near the transmitter towers, this trail extends north across campus "Environmental Reserve" lands before contouring east onto the Pogonip. It then continues north toward the boundary junction of Pogonip, UCSC and Cowell State Parks, where it passes back onto UCSC "Campus Resource Lands" before dropping north onto Cowell State Park. The trail then connects to Highway 9 via an existing trail in Cowell State Park. While the McCrarys found the "180" boundary marker between UCSC and Pogonip lands, the location of the boundary remains a point of discussion between the City and University. The University has agreed to provide up to \$400 to share in funding a resurvey of this boundary.	• Bud and Emma McCrary have laid out this alignment on site and believe it is feasible to construct. • Both the McCrarys and Maggie Fusari note that the alignment crosses seeps on Environmental Reserve lands where special trail construction (culverts, raised walkways, etc.) would likely be required. • This alignment traverses three campus land use designations, including a lengthy stretch of Environmental Reserve, and it is relatively lengthy on campus land. • This alignment is inconsistent with the 1988 Long Range Development Plan and Environmental Reserve policies. In addition, its length might make it financially infeasible.
"Green" or "Upper Trail"	This alignment extends northeast from Chinquapin Road across "Colleges and Graduate Housing" land—cutting across the northwest corner of the campus "Environmental Reserve"—dropping steeply across "Campus Resource Land" onto Cowell State Park, where it connects to Highway 9. The entire alignment traverses campus and Cowell State Park lands, avoiding the Pogonip property.	• The McCrarys have not identified this alignment on the site to the same degree as the Lower and Middle trails. • Emma McCrary questions the feasibility of this alignment, primarily due to steepness of the local ravines. • This alignment traverses three campus land use designations, including a small stretch of Environmental Reserve, and it is lengthy on campus land. • This alignment is inconsistent with the 1988 Long Range Development Plan and Environmental Reserve policies (although it might be made consistent with alignment modifications.) This alignment's length might make it financially infeasible.

NOTES: The resurveying of the UCSC/Pogonip boundary should help to clearly define the relationship of the three alignments to the two properties. The construction of any alignment which traverses University property would be required to go through the UCSC planning and approval process.

Pogonip-UCSC Connector Trail Potential Alignments

(Identified by a group including representatives of UCSC, Santa Cruz City Parks and Recreation Department, California Department of Parks and Recreation, and Association of Concerned Trailriders; June 27, 1997.)



Key

- "Green" or "Upper" Trail
- "Pink" or "Middle" Trail
- ... "Yellow" or "Lower" Trail

Appendix B
DRAFT POGONIP MASTER PLAN
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■ ■ ■

Draft Pogonip Master Plan
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 - I.2 A Legacy of Community Involvement
 - I.3 Summary of Master Plan Elements
 - I.4 Master Plan Approval Process
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 - 1.1 Setting
 - 1.2 Resource Highlights
 - 1.3 Planning Process
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 - 2.1 Pogonip Community Clubhouse
 - 2.2 Outdoor Education Camp
 - 2.3 Sycamore Grove Nature Area
 - 2.4 Pogonip Garden
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 - 3.2 City-wide and Regional Trail Opportunities
 - 3.3 Trail Alignments and Improvements
 - 3.4 Trail Use Alternatives
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 - 4.2 Limekilns, Limestone Quarries and Historic Features
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 - 5.3 Central Coast Cottonwood-Sycamore Riparian Forest
 - 5.4 Central Coast Riparian Scrub
 - 5.5 Robust Spineflower Habitat
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 - 6.1 Values at Risk From Fire
 - 6.2 Fire Hazards
 - 6.3 Risk of Ignition
 - 6.4 Methods of Wildland Fuel Management
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- Preliminary Phasing Plan

Appendix C
SUMMARY OF SCOPING MEETING COMMENTS
AND MEETING MINUTES

■ ■ ■

APPENDIX C
SUMMARY OF SCOPING MEETING COMMENTS

□ □ □

A scoping meeting for the *Draft Pogonip Master Plan EIR* was held in the City of Santa Cruz on July 24, 1997. The following is a summary of EIR issues mentioned in oral comments made by the public at this meeting. Written comments and a list of attendees are attached at the end of Appendix C.

1. Hazard such as transportation-related hazards (bicyclists) and traffic on Golf Club Drive.
2. Need for an alternative with less parking at the Clubhouse and more shuttle service.
3. Runoff from the Clubhouse parking lot.
4. Need for contact with UCSC regarding trails.
5. Recreation impacts may be significant.
6. Need for control of illegal camping in terms of fire hazards, water quality, soils impacts, visual issues, safety of trail users, and police services.
7. Land use compatibility of garden with other uses.
8. Impact of garden on historic uses.
9. Need for more rangers for security, especially with illegal campers.
10. Of the three trail alternatives, can a combination result?
11. Are soil samples being taken, and could the Spring Trail water trough be a safe water supply for horses?
12. Issue of historic sites such as Remington House and nearby orchard.

13. Issue of security and trespassing onto adjacent property.
14. Bobcat on the site may be chased by dogs.
15. Idea of separate parallel trails so that trail wouldn't have to be shared (i.e., Spring Trail).
16. Loss of birds of prey due to increased use and plowing for garden. Two barn owls at Clubhouse mentioned.
17. Connecting trails to State parks; need to link ocean to Big Basin State Park.
18. Use of Pogonip as alternative to Hwy. 1/9 for bicyclists wanting to avoid interchange; impacts of not doing trail connection.
19. Undergrounding of new utility lines and visual impacts of greenhouses; preference for lowest part of Lower Meadow, east of existing site; importance of design review.
20. Does garden meet open space image? Is it what voters voted for? Do other open space areas have gardens?
21. Any City policies addressing no new buildings visible from the City? Need to check General Plan viewsheds.
22. What about COG railway through lower part of UCSC?
23. Parking at Sycamore Grove and issue of safety due to being distant from other parts of the site.
24. Lower Meadow would be totally changed from its natural condition. Land use and visual analysis needed.
25. Impact of mountain bikes in terms of the estimated increase in the number of bicyclists based on nearby park information.
26. Spring Trail use and potential to open Rincon to bicyclists as an alternative.

POGONIP MASTER PLAN
ENVIRONMENTAL IMPACT REPORT SCOPING MEETING

ATTENDANCE LIST

July 24, 1997

NAME

ADDRESS

RICHARD STOVER 1603 KING ST. S.C. 95060

Steve Miller 220 Central Aptos 95003

Chuck Beebe 131 Felicidad Soquel 95023

DAVID BASKIN 633 Highway Ave SC 95060

Bruce Engelhardt 708 Riverside Ave. #E, S.C. 95060

Renee Miller 132 Laguna St S.C. 95060

Tom Lipp 521 Monterey Dr, Aptos 95003

Rich Schmale 414 Pennsylvania #3 SCruz 9506.

Chasen Brewer 107 Washington - S.C.

Ann Stout 121 Pasture Rd SC

PATRICIA DOLER 215 ALLERTON ST S.C. 95065

KAY ARCHER BOWDEN 225 ROSS ST SC 95060

ED SILVEIRA 150 Belvedere 95065 SC

MARK MICHEL 1127 Soquel Av. S.C. 95062

Kate Stafford 1520 Scenic Dr Felton, CA. 95018

CITY OF SANTA CRUZ
Parks and Recreation Department

Public Scoping Meeting
for the
Pogonip Master Plan
Environmental Impact Report

July 24, 1997, Thursday
7:00 to 9:00 p.m.
Louden Nelson Community Center

Agenda

Rudy I Introduction

Susan II Pogonip Master Plan Project Description

- Clubhouse rehabilitation
- Homeless Garden Project organic garden
- Outdoor education camp/group campsite
- Sycamore Grove nature area
- Trails
- Parking
- Ranger facility and caretaker residence

Susan III. Master Plan/EIR Schedule

Amy IV Potential Environmental Impacts to be Addressed in the EIR

V Public Comments

PUBLIC COMMENT FORM

POGONIP MASTER PLAN ENVIRONMENTAL IMPACT REPORT SCOPING

The issues listed below will be addressed in the Pogonip Master Plan Environmental Impact Report (EIR). If you have any specific concerns related to these issues, please write your concerns or comments in the space provided on this form. Comments from the public will be summarized and addressed, as appropriate, in the text of the EIR. Your name is voluntary.

Issues: Land Use; Vegetation and Wildlife; Geology and Soils; Water Resources; Archaeological and Historic Resources; Visual Quality and Aesthetics; Transportation and Circulation; Utilities, Service Systems and Public Services; and Fire Hazard. Alternatives and CEQA Assessment Conclusions such as growth inducement and cumulative impacts will also be addressed.

Issues that were found not to be significant and that will only be briefly mentioned in the EIR without detailed analysis include: Population and Housing; Air Quality; Energy and Mineral Resources; Hazards; Noise; and Recreation.

Topic(s) of Concern (see list above):

*Erosion caused by intensifying use to include
bicycles & horses.
Safety hazards to walkers if bicycles & horses added.
ESTIMATE # OF EQUESTRIAN USERS*

Specific Environmental Issues related to the above (continue comments on reverse if additional space is needed):

Name and Phone Number (if clarification is needed)

*KAY REICHER BOWDEN
(408) 425-3613*

PUBLIC COMMENT FORM

POGONIP MASTER PLAN ENVIRONMENTAL IMPACT REPORT SCOPING

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Issues that were found not to be significant and that will only be briefly mentioned in the EIR without detailed analysis include: Population and Housing; Air Quality; Energy and Mineral Resources; Hazards; Noise; and Recreation.

Topic(s) of Concern (see list above):

Mitigating impact of multi use on hikers.
I support multi use on fire roads -
I would like to see it work on existing trails,
but believe it is worthwhile to consider

Specific Environmental Issues related to the above (continue comments on reverse if additional space is needed):

Installation of an additional hiking trail from
the Top of Spring Street, parallel to spring
fire Road, at least to the Lookout Trail -
to mitigate impact of multi use on spring road
on hikers by providing them a separate trail
connection to existing trails - Lookout Trail
which are to be hiker only -

Name and Phone Number (if clarification is needed)

DAVID BASKIN
w) 425 8999
th) 427 0548

PUBLIC COMMENT FORM

BRADY AND ASSOCIATES

JUL 31 1997

POGONIP MASTER PLAN
ENVIRONMENTAL IMPACT REPORT SCOPING

The issues listed below will be addressed in the Pogonip Master Plan Environmental Impact Report (EIR). If you have any specific concerns related to these issues, please write your concerns or comments in the space provided on this form. Comments from the public will be summarized and addressed, as appropriate, in the text of the EIR. Your name is voluntary.

Issues: Land Use; Vegetation and Wildlife; Geology and Soils; Water Resources; Archaeological and Historic Resources; Visual Quality and Aesthetics; Transportation and Circulation; Utilities, Service Systems and Public Services; and Fire Hazard. Alternatives and CEQA Assessment Conclusions such as growth inducement and cumulative impacts will also be addressed.

Issues that were found not to be significant and that will only be briefly mentioned in the EIR without detailed analysis include: Population and Housing; Air Quality; Energy and Mineral Resources; Hazards; Noise; and Recreation.

Topic(s) of Concern (see list above):

Land Use. I feel that homeless garden should have independent site. I feel it makes no more sense to have agriculture in an open space preserve, Pogonip, than to have it on the floor of Yosemite Valley.

Specific Environmental Issues related to the above (continue comments on reverse if additional space is needed):

I feel that homeless garden and 2 greenhouses will dominate the viewshed from the Golf Club Drive entrance, cover the majority of one meadow, and change "ambiance" from pastoral to one of activity, bustling activity. I am also concerned about nitrates from garden seeping down-hill into sensitive areas, groundwater issues.

Name and Phone Number (if clarification is needed)

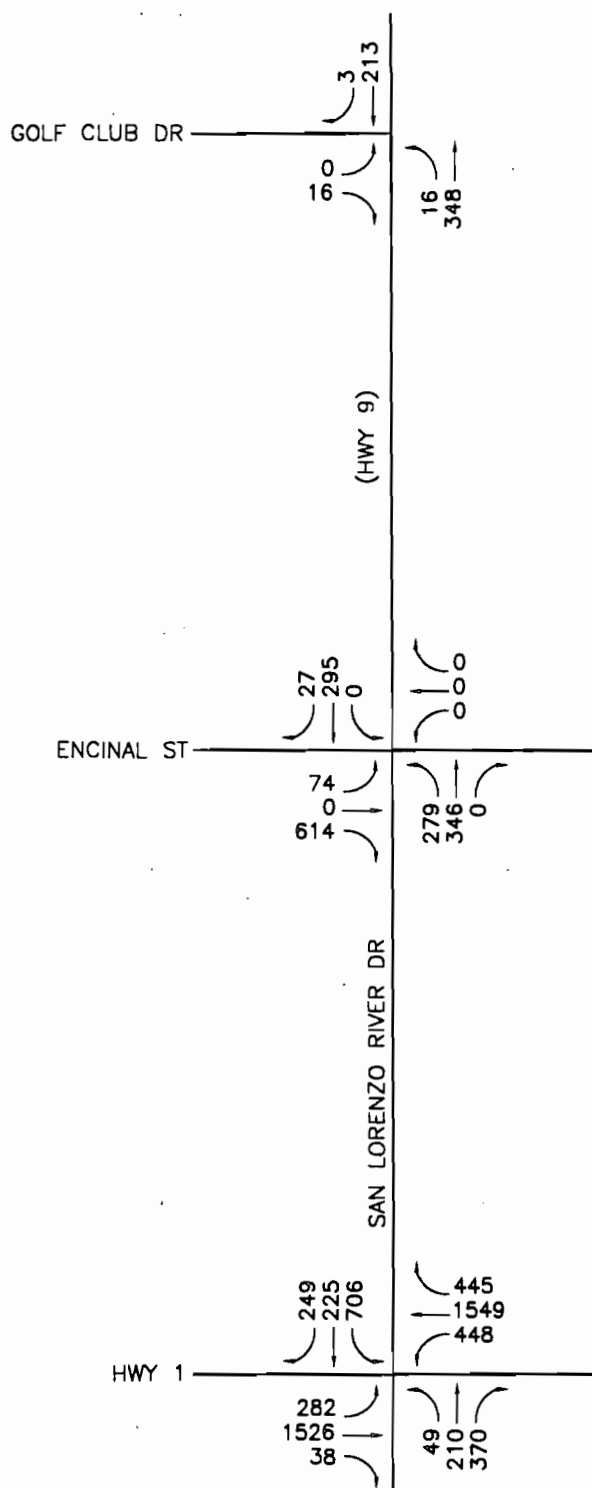
Richard Schmale
423-7418

Appendix D
TRAFFIC DATA

■ ■ ■



WEEKDAY PM
PEAK HOUR



WEEKEND
PEAK HOUR

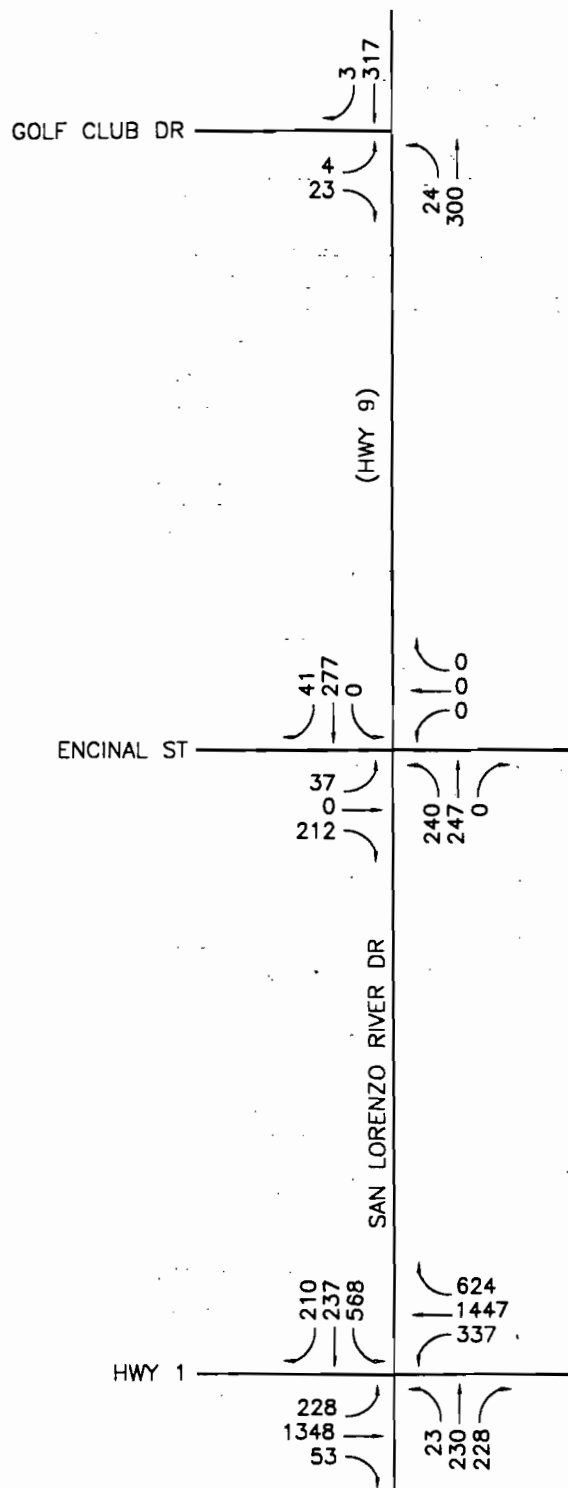
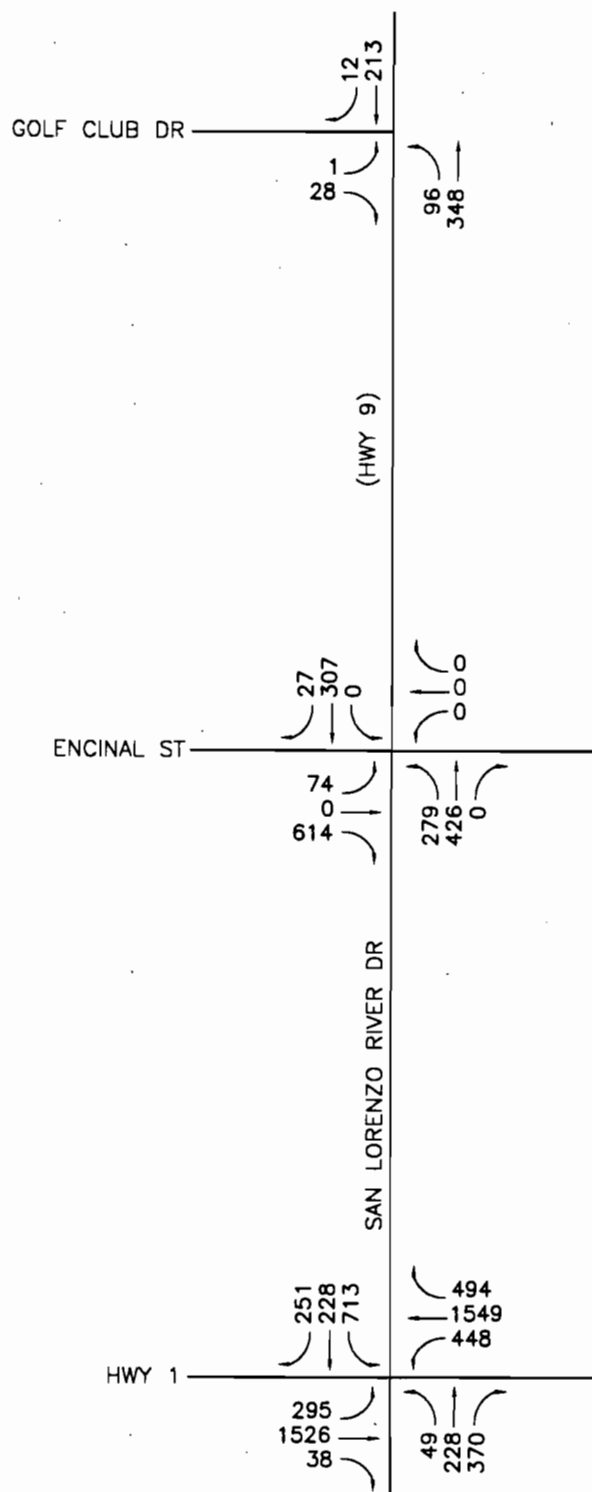


EXHIBIT A-1 -
EXISTING PEAK HOUR
TRAFFIC VOLUMES



**WEEKDAY PM
PEAK HOUR**



**WEEKEND
MID-DAY PEAK HOUR**

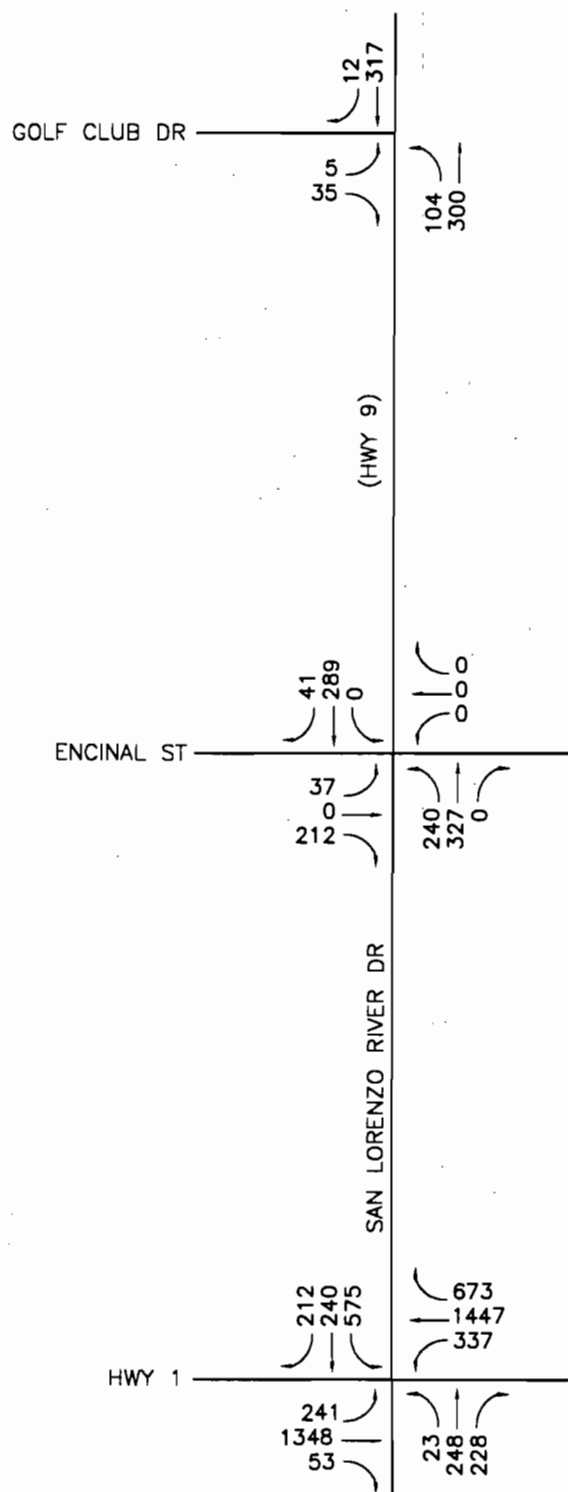
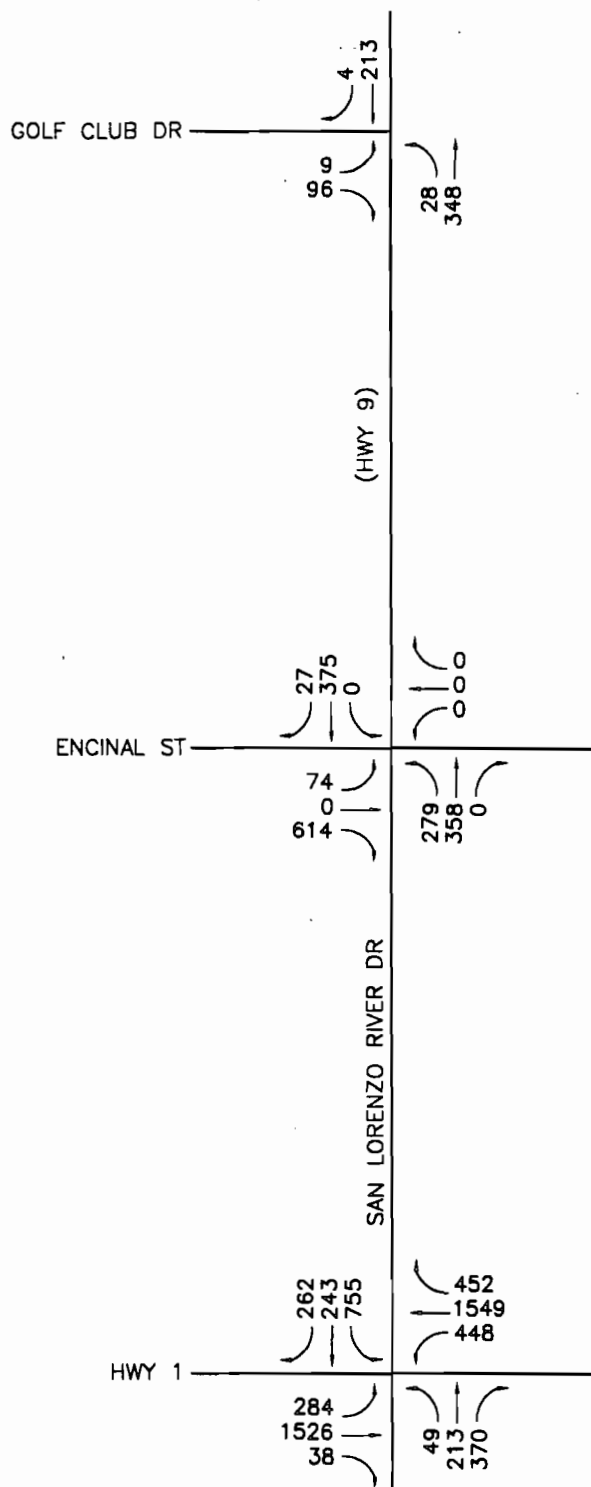


**EXHIBIT A-2 -
EXISTING PLUS PROJECT
TRAFFIC VOLUMES (INBOUND PEAK)**



WEEKDAY PM
PEAK HOUR



WEEKEND
MID-DAY PEAK HOUR

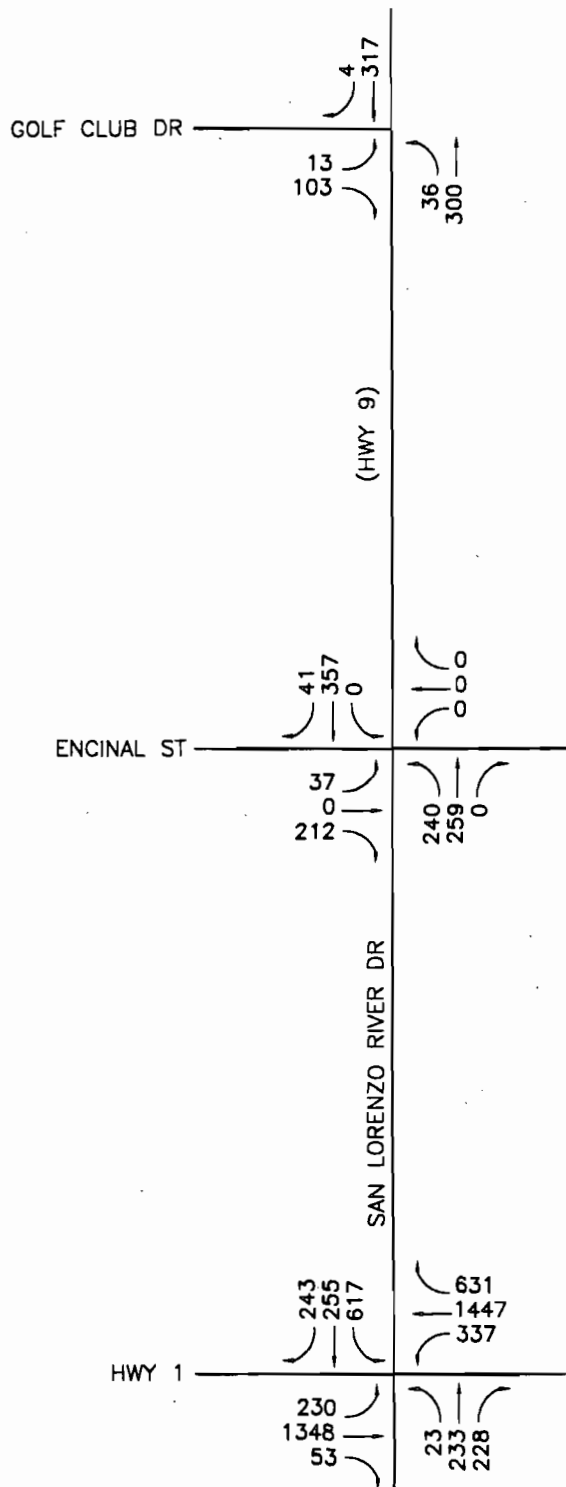


EXHIBIT A-3 -
EXISTING PLUS PROJECT
TRAFFIC VOLUMES (OUTBOUND PEAK)

SEP 26 1997

LEVEL OF SERVICE DESCRIPTION
TWO-WAY STOP CONTROLLED INTERSECTION

The 1994 Highway Capacity Manual (HCM) provides the following description of the methodology for the capacity analysis at Two-Way Stop Controlled (TWSC) intersections.

"Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers or vehicles on the major street. Both gap acceptance and empirical models have been developed as a means to describe this interaction.

Gap acceptance models begin with the recognition that TWSC intersections give no positive indication or control to the driver on the minor street as to when it is safe to leave the stop line and enter the major traffic stream. The driver must determine both when a gap in the major stream is large enough to permit safe entry and when it is his or her turn to do so on the basis of the relative priority of the competing traffic streams. This decision-making process has been formalized into what is known as gap acceptance theory.

Gap acceptance theory relies on three basic elements: the size and distribution (availability) of gaps in the major traffic stream, the usefulness of these gaps to the minor stream drivers, and the relative priority of the various traffic streams at the intersection".

Using the above gap acceptance theory, the average total delay is estimated for the study intersection. The level of service criteria based on the HCM methodology is tabulated in Table 1. Average total delay is defined as total elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line.

The level of service criteria is somewhat different for TWSC intersections than the criteria used by the HCM for signalized intersections. The reason is the exception that a signalized intersection is designed to carry higher volumes. In addition drivers waiting at a signalized intersection may relax during the red interval rather being required to remain alert while evaluating the adequacy of gaps in major street traffic flow.

TABLE 1. LEVEL OF SERVICE CRITERIA
FOR TWSC INTERSECTIONS

Level of Service	Average Total Delay (Sec/Veh)
A	≤ 5
B	$> 5 \text{ and } \leq 10$
C	$> 10 \text{ and } \leq 20$
D	$> 20 \text{ and } \leq 30$
E	$> 30 \text{ and } \leq 45$
F	> 45

LEVEL OF SERVICE DESCRIPTION -
SIGNALIZED INTERSECTIONS

Level of Service	Vehicle Delay (secs.)	Volume to Capacity Ratio	Description
A	<5.00	0.00-0.59	Free Flow/Insignificant Delays: No approach is fully utilized by traffic and no vehicle waits longer than one red indication.
B	5.1-15.0	0.60-0.69	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	15.1-25.0	0.70-0.79	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.
D	25.1-40.0	0.80-0.89	Approaching Unstable/Tolerable Delays: Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.
E	40.1-60.0	0.90-0.99	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
F	≥60.0	N/A	Forced Flow/Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C., 1985.

APPENDIX

LEVEL OF SERVICE DESCRIPTION - SIGNALIZED INTERSECTIONS

Level of Service	Vehicle Delay (secs.)	Volume to Capacity Ratio	Description
A	<5.00	0.00-0.59	Free Flow/Insignificant Delays: No approach is fully utilized by traffic and no vehicle waits longer than one red indication.
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F	≥60.0	N/A	Forced Flow/Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C., 1985.

APPENDIX

LEVEL OF SERVICE DESCRIPTION TWO-WAY STOP CONTROLLED INTERSECTION

The 1994 Highway Capacity Manual (HCM) has provided the description of the conceptual approach for the capacity analysis at Two-Way Stop Controlled (TWSC) intersections. "Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers or vehicles on the major street. Both gap acceptance and empirical models have been developed as a means to describe this interaction.

Gap acceptance models begin with the recognition that TWSC intersections give no positive indication or control to the driver on the minor street as to when it is safe to leave the stop line and enter the major traffic stream. The driver must determine both when a gap in the major stream is large enough to permit safe entry and when it is his or her turn to do so on the basis of the relative priority of the competing traffic streams. This decision-making process has been formalized into what is known as gap acceptance theory.

Gap acceptance theory relies on three basic elements: the size and distribution (availability) of gaps in the major traffic stream, the usefulness of these gaps to the minor stream drivers, and the relative priority of the various traffic streams at the intersection".

Using the gap acceptance theory the average total delay is estimated for the study intersection. The level of service criteria based on the HCM methodology is tabulated in Table 1. Average total delay is defined as total elapse time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line.

The level of service criteria is somewhat different for TWSC intersection as compared to the criteria used by the HCM for signalized intersections. The reason being that the expectation that a signalized intersection is designed to carry higher traffic volumes in addition that drives a signalized intersection may relax during the red interval.

TABLE 1. LEVEL OF SERVICE CRITERIA
FOR TWSC INTERSECTIONS

Level of Service	Average Total Delay (Sec/Veh)
A	≤ 5
B	$> 5 \text{ and } \leq 10$
C	$> 10 \text{ and } \leq 20$
D	$> 20 \text{ and } \leq 30$
E	$> 30 \text{ and } \leq 45$
F	> 45

LEVEL OF SERVICE
CALCULATION WORKSHEETS

Route 9/Golf Club Drive

=====
 Center For Microcomputers In Transportation
 University of Florida
 512 Weil Hall
 Gainesville, FL 32611-2083
 Ph: (904) 392-0378
 =====

Streets: (N-S) Highway 9 (River St) (E-W) Golf Club Drive
 Major Street Direction.... NS
 Length of Time Analyzed... 15 (min)
 Analyst..... 97
 Date of Analysis..... 7/19/97
 Other Information..... Existing Weekday PM Peak Hour
 Two-way Stop-controlled Intersection
 =====

	Northbound				Southbound				Eastbound				Westbound		
	L	T	R		L	T	R		L	T	R		L	T	R
No. Lanes	0	> 1	0	N	0	1	< 0	N	0	> 0	< 0		0	0	0
Stop/Yield															
Volumes	16	348				213	3		0		16				
PHF	.95	.95				.95	.95		.95		.95				
Grade		0				0				0					
MC's (%)															
SU/RV's (%)															
CV's (%)															
PCE's	1.10								1.10		1.10				

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		226
Potential Capacity: (pcph)		1064
Movement Capacity: (pcph)		1064
Prob. of Queue-Free State:		0.98
Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		227
Potential Capacity: (pcph)		1336
Movement Capacity: (pcph)		1336
Prob. of Queue-Free State:		0.99
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.98
Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		608
Potential Capacity: (pcph)		471
Major LT, Minor TH		
Impedance Factor:		0.98
Adjusted Impedance Factor:		0.98
Capacity Adjustment Factor due to Impeding Movements		0.98
Movement Capacity: (pcph)		462

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	0	462	>				
			1064	3.4	0.0	A	3.4
EB R	19	1064	>				
NB L	19	1336		2.7	0.0	A	0.1

Intersection Delay = 0.2 sec/veh

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Streets: (N-S) Highway 9 (River St) (E-W) Golf Club Drive
 Major Street Direction.... NS
 Length of Time Analyzed... 15 (min)
 Analyst..... DT
 Date of Analysis..... 7/19/97
 Other Information..... Existing Weekend Mid-day Peak Hour
 Two-way Stop-controlled Intersection
 =====

	Northbound				Southbound				Eastbound				Westbound		
	L	T	R		L	T	R		L	T	R		L	T	R
No. Lanes	0	> 1	0		0	1	< 0		0	> 0	< 0		0	0	0
Stop/Yield				N				N							
Volumes	24	300			317	3			4		23				
PHF	.95	.95			.95	.95			.95		.95				
Grade		0			0					0					
MC's (%)															
SU/RV's (%)															
CV's (%)															
PCE's	1.10								1.10		1.10				

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		336
Potential Capacity: (pcph)		936
Movement Capacity: (pcph)		936
Prob. of Queue-Free State:		0.97
Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		337
Potential Capacity: (pcph)		1184
Movement Capacity: (pcph)		1184
Prob. of Queue-Free State:		0.98
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.97
Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		676
Potential Capacity: (pcph)		430
Major LT, Minor TH Impedance Factor:		0.97
Adjusted Impedance Factor:		0.97
Capacity Adjustment Factor due to Impeding Movements		0.97
Movement Capacity: (pcph)		418

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	4	418 >	803	4.7	0.0	A	4.7
EB R	26	936 >					
NB L	28	1184		3.1	0.0	A	0.2

Intersection Delay = 0.3 sec/veh

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Streets: (N-S) Highway 9 (River St) (E-W) Golf Club Drive
 Major Street Direction.... NS
 Length of Time Analyzed... 15 (min)
 Analyst..... 97
 Date of Analysis..... 7/19/97
 Other Information..... Ex + Prj Weekday PM Peak Inbound Peak
 Two-way Stop-controlled Intersection

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	Northbound				Southbound				Eastbound				Westbound		
	L	T	R		L	T	R		L	T	R		L	T	R
No. Lanes	0	> 1	0		0	1	< 0		0	> 0	< 0		0	0	0
Stop/Yield				N				N							
Volumes	96	348			213	12			1		28				
PHF	.95	.95			.95	.95			.95		.95				
Grade		0			0					0					
MC's (%)															
SU/RV's (%)															
CV's (%)															
PCE's	1.10								1.10		1.10				

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		230
Potential Capacity: (pcph)		1059
Movement Capacity: (pcph)		1059
Prob. of Queue-Free State:		0.97
Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		237
Potential Capacity: (pcph)		1322
Movement Capacity: (pcph)		1322
Prob. of Queue-Free State:		0.92
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.89
Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		698
Potential Capacity: (pcph)		417
Major LT, Minor TH Impedance Factor:		0.89
Adjusted Impedance Factor:		0.89
Capacity Adjustment Factor due to Impeding Movements		0.89
Movement Capacity: (pcph)		372

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	1	372	>				
			1003	3.7	0.0	A	3.7
EB R	32	1059	>				
NB L	111	1322		3.0	0.2	A	0.6

Intersection Delay = 0.6 sec/veh

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Streets: (N-S) Highway 9 (River St) (E-W) Golf Club Drive
 Major Street Direction.... NS
 Length of Time Analyzed... 15 (min)
 Analyst..... DT
 Date of Analysis..... 7/19/97
 Other Information..... Ex + Prj Weekend Mid-day Peak Inbound Peak

Two-way Stop-controlled Intersection

	Northbound				Southbound				Eastbound				Westbound		
	L	T	R		L	T	R		L	T	R		L	T	R
No. Lanes	0	> 1	0		0	1	< 0		0	> 0	< 0		0	0	0
Stop/Yield				N				N							
Volumes	104	300				317	12		5		35				
PHF	.95	.95				.95	.95		.95		.95				
Grade		0				0				0					
MC's (%)															
SU/RV's (%)															
CV's (%)															
PCE's	1.10								1.10		1.10				

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		340
Potential Capacity: (pcph)		931
Movement Capacity: (pcph)		931
Prob. of Queue-Free State:		0.96
Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		347
Potential Capacity: (pcph)		1171
Movement Capacity: (pcph)		1171
Prob. of Queue-Free State:		0.90
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.87
Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		766
Potential Capacity: (pcph)		381
Major LT, Minor TH		
Impedance Factor:		0.87
Adjusted Impedance Factor:		0.87
Capacity Adjustment Factor due to Impeding Movements		0.87
Movement Capacity: (pcph)		333

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	6	333	>				
			757	5.1	0.1	B	5.1
EB R	41	931	>				
NB L	120	1171		3.4	0.3	A	0.9

Intersection Delay = 0.7 sec/veh

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Streets: (N-S) Highway 9 (River St) (E-W) Golf Club Drive
 Major Street Direction.... NS
 Length of Time Analyzed... 15 (min)
 Analyst..... 97
 Date of Analysis..... 7/19/97
 Other Information..... Ex + Prj Weekday PM Peak Outbound Peak
 Two-way Stop-controlled Intersection
 =====

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes	28	348		213	4		9		96			
PHF	.95	.95		.95	.95		.95		.95			
Grade		0		0				0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		226
Potential Capacity: (pcph)		1064
Movement Capacity: (pcph)		1064
Prob. of Queue-Free State:		0.90
Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		228
Potential Capacity: (pcph)		1335
Movement Capacity: (pcph)		1335
Prob. of Queue-Free State:		0.98
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.97
Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		621
Potential Capacity: (pcph)		463
Major LT, Minor TH Impedance Factor:		0.97
Adjusted Impedance Factor:		0.97
Capacity Adjustment Factor due to Impeding Movements		0.97
Movement Capacity: (pcph)		449

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	10	449 >					
			956	4.3	0.4	A	4.3
EB R	111	1064 >					
NB L	32	1335		2.8	0.0	A	0.2

Intersection Delay = 0.8 sec/veh

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Streets: (N-S) Highway 9 (River St) (E-W) Golf Club Drive
 Major Street Direction.... NS
 Length of Time Analyzed... 15 (min)
 Analyst..... DT
 Date of Analysis..... 7/19/97
 Other Information..... Ex + Prj Weekend Mid-day Peak Outbound Peak

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	> 0	< 0	0	0	0
Stop/Yield			N			N						
Volumes	36	300			317	4	13		103			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		336
Potential Capacity: (pcph)		936
Movement Capacity: (pcph)		936
Prob. of Queue-Free State:		0.87
Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		338
Potential Capacity: (pcph)		1183
Movement Capacity: (pcph)		1183
Prob. of Queue-Free State:		0.96
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.96
Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		690
Potential Capacity: (pcph)		422
Major LT, Minor TH		
Impedance Factor:		0.96
Adjusted Impedance Factor:		0.96
Capacity Adjustment Factor due to Impeding Movements		0.96
Movement Capacity: (pcph)		404

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	15	404	>				
			816	5.3	0.6	B	5.3
EB R	119	936	>				
NB L	42	1183		3.2	0.0	A	0.3

Intersection Delay = 0.9 sec/veh

**LEVEL OF SERVICE
CALCULATION WORKSHEETS**

Route 9/Encinal Avenue

Streets: (N-S) Highway 9 (River St) (E-W) Encinal Avenue
 Analyst: DT File Name: 2EXWDPM.HC9
 Area Type: Other 1-6-97 PM
 Comment: Existing Weekday PM Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	> 1			2	<		>	< 1			
Volumes	279	346			295	27	74		614			
Lane W (ft)	12.0	12.0			12.0			12.0	12.0			
RTOR Vols			110			0			0			
Lost Time	3.00	3.00			3.00	3.00	3.00		3.00			

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru			
Right	*				Right	*		
Peds					Peds			
SB Left		*			WB Left			
Thru		*			Thru			
Right		*			Right			
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	37.0A	12.0A			Green	29.0A		
Yellow/AR	4.0	4.0			Yellow/AR	4.0		
Cycle Length:	90 secs	Phase combination order: #1 #2 #5						

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	668	1583	0.440	0.422	12.2	B	12.5	B
	LT	725	1716	0.502	0.422	12.8	B		
SB	TR	504	3486	0.707	0.144	26.8	D	26.8	D
EB	LR	488	1464	0.689	0.333	19.6	C	22.7	C
	R	472	1417	0.821	0.333	25.5	D		

Intersection Delay = 19.7 sec/veh Intersection LOS = C
 Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.653

=====
Streets: (N-S) Highway 9 (River St) (E-W) Encinal Avenue
Analyst: DT File Name: 2EXWEMD.HC9
Area Type: Other 7-19-97 MD
Comment: Existing Weekend Mid-Day Peak Hour
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	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	> 1			2	<		>	< 1			
Volumes	240	247			277	41	37		212			
Lane W (ft)	12.0	12.0			12.0			12.0	12.0			
RTOR Vols			110			0			0			
Lost Time	3.00	3.00			3.00	3.00	3.00		3.00			

Signal Operations												
Phase Combination	1	2	3	4	5	6	7	8				
NB Left	*				EB Left	*						
Thru	*				Thru							
Right	*				Right	*						
Peds					Peds							
SB Left		*			WB Left							
Thru		*			Thru							
Right		*			Right							
Peds					Peds							
EB Right					NB Right							
WB Right					SB Right							
Green	37.0A	12.0A			Green	29.0A						
Yellow/AR	4.0	4.0			Yellow/AR	4.0						
Cycle Length: 90 secs Phase combination order: #1 #2 #5												

Intersection Performance Summary									
	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmnts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	668	1583	0.374	0.422	11.7	B	11.6	B
	LT	724	1715	0.363	0.422	11.6	B		
SB	TR	500	3461	0.704	0.144	26.8	D	26.8	D
EB	LR	483	1450	0.081	0.333	13.3	B	15.5	C
	R	472	1417	0.472	0.333	15.9	C		
Intersection Delay = 17.3 sec/veh Intersection LOS = C									
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.463									

Streets: (N-S) Highway 9 (River St) (E-W) Encinal Avenue
Analyst: DT File Name: 2PCWDPMI.HC9
Area Type: Other 1-6-97 PM
Comment: Ex+ Prj Weekday PM Peak Inbound Peak

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	> 1			2	<		>	< 1			
Volumes	279	426			307	27	74		614			
Lane W (ft)	12.0	12.0			12.0			12.0	12.0			
RTOR Vols			110			0			0			
Lost Time	3.00	3.00			3.00	3.00	3.00		3.00			

Signal Operations												
Phase Combination		1	2	3	4		5	6	7	8		
NB	Left	*				EB	Left	*				
	Thru	*					Thru					
	Right	*					Right	*				
	Peds						Peds					
SB	Left		*			WB	Left					
	Thru		*				Thru					
	Right		*				Right					
	Peds						Peds					
EB	Right					NB	Right					
WB	Right					SB	Right					
Green		37.0A	12.0A			Green	29.0A					
Yellow/AR		4.0	4.0			Yellow/AR	4.0					
Cycle Length: 90 secs Phase combination order: #1 #2 #5												

Intersection Performance Summary									
Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	Delay	LOS
Mvmts	Cap	Flow	Ratio	Ratio					
NB	L	668	1583	0.440	0.422	12.2	B	13.5	B
	LT	725	1716	0.618	0.422	14.3	B		
SB	TR	504	3487	0.733	0.144	27.6	D	27.6	D
EB	LR	488	1464	0.689	0.333	19.6	C	22.7	C
	R	472	1417	0.821	0.333	25.5	D		
Intersection Delay = 20.0 sec/veh Intersection LOS = C									
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.712									

Streets: (N-S) Highway 9 (River St) (E-W) Encinal Avenue
Analyst: DT File Name: 2PCWEMDI.HC9
Area Type: Other 7-19-97 MD
Comment: Ex+ Prj Weekend Mid-Day Peak Inbound Peak

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	> 1			2	<		>	< 1			
Volumes	240	327			289	41	37		212			
Lane W (ft)	12.0	12.0			12.0			12.0	12.0			
RTOR Vols			110			0			0			
Lost Time	3.00	3.00			3.00	3.00	3.00		3.00			

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru			
Right	*				Right	*		
Peds					Peds			
SB Left		*			WB Left			
Thru		*			Thru			
Right		*			Right			
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	37.0A	12.0A			Green	29.0A		
Yellow/AR	4.0	4.0			Yellow/AR	4.0		
Cycle Length: 90 secs Phase combination order: #1 #2 #5								

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	668	1583	0.374	0.422	11.7	B	12.2	B
	LT	724	1715	0.479	0.422	12.6	B		
SB	TR	500	3464	0.727	0.144	27.4	D	27.4	D
EB	LR	483	1450	0.081	0.333	13.3	B	15.5	C
	R	472	1417	0.472	0.333	15.9	C		

Intersection Delay = 17.4 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.516

Streets: (N-S) Highway 9 (River St) (E-W) Encinal Avenue
 Analyst: DT File Name: 2PCWDPMO.HC9
 Area Type: Other 1-6-97 PM
 Comment: Ex+ Prj Weekday PM Peak Outbound Peak

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	> 1			2	<		>	< 1			
Volumes	279	358			375	27	74		614			
Lane W (ft)	12.0	12.0			12.0			12.0	12.0			
RTOR Vols			110			0			0			
Lost Time	3.00	3.00			3.00	3.00	3.00		3.00			

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru			
Right	*				Right	*		
Peds					Peds			
SB Left		*			WB Left			
Thru		*			Thru			
Right		*			Right			
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	32.0A	17.0A			Green	29.0A		
Yellow/AR	4.0	4.0			Yellow/AR	4.0		
Cycle Length:	90 secs	Phase combination order: #1 #2 #5						

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	580	1583	0.507	0.367	14.9	B	15.6	C
	LT	629	1716	0.599	0.367	16.1	C		
SB	TR	699	3494	0.635	0.200	22.7	C	22.7	C
EB	LR	488	1464	0.689	0.333	19.6	C	22.7	C
	R	472	1417	0.821	0.333	25.5	D		

Intersection Delay = 20.1 sec/veh Intersection LOS = C
 Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.690

Streets: (N-S) Highway 9 (River St) (E-W) Encinal Avenue
Analyst: DT File Name: 2PCWEMDO.HC9
Area Type: Other 7-19-97 MD
Comment: Ex+ Prj Weekend Mid-Day Peak Outbound Peak

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	> 1			2	<		>	< 1			
Volumes	240	259			357	41	37		212			
Lane W (ft)	12.0	12.0			12.0			12.0	12.0			
RTOR Vols			110			0			0			
Lost Time	3.00	3.00			3.00	3.00	3.00		3.00			

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru			
Right	*				Right	*		
Peds					Peds			
SB Left		*			WB Left			
Thru		*			Thru			
Right		*			Right			
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	32.0A	17.0A			Green	29.0A		
Yellow/AR	4.0	4.0			Yellow/AR	4.0		
Cycle Length: 90 secs Phase combination order: #1 #2 #5								

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	580	1583	0.436	0.367	14.2	B	14.2	B
	LT	629	1716	0.434	0.367	14.2	B		
SB	TR	695	3475	0.633	0.200	22.6	C	22.6	C
EB	LR	483	1450	0.081	0.333	13.3	B	15.5	C
	R	472	1417	0.472	0.333	15.9	C		

Intersection Delay = 17.5 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.493

**LEVEL OF SERVICE
CALCULATION WORKSHEETS**

Route 9/Route 1

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4c 08-15-1997
Center For Microcomputers In Transportation

Streets: (N-S) Highway 9 (River St) (E-W) Highway 1
Analyst: DT File Name: 3EXWDPM.HC9
Area Type: Other 9-25-96 PM
Comment: Existing Weekday PM Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	2	3	1
Volumes	49	210	370	706	225	249	282	1526	38	448	1549	445
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vols			150			125			19			200
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations										
Phase Combination		1	2	3	4		5	6	7	8
NB	Left	*				EB	Left	*	*	
	Thru	*					Thru		*	*
	Right	*					Right		*	*
	Peds						Peds			
SB	Left		*			WB	Left	*		
	Thru		*				Thru			*
	Right		*				Right			*
	Peds						Peds			
EB	Right					NB	Right			
WB	Right					SB	Right			
Green		20.0A	29.0A			Green	18.0A	4.0A	44.0A	
Yellow/AR		4.0	4.0			Yellow/AR	4.0	4.0	4.0	
Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7										

Intersection Performance Summary									
	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	261	1676	0.199	0.156	32.1	D	58.5	E
	T	290	1862	0.763	0.156	43.0	E		
	R	233	1500	0.990	0.156	79.3	F		
SB	L	731	3288	1.047	0.222	72.9	F	59.2	E
	T	414	1862	0.573	0.222	31.7	D		
	R	333	1500	0.390	0.222	29.3	D		
EB	L	329	1644	0.903	0.200	53.0	E	29.5	D
	T	2148	5472	0.823	0.393	25.7	D		
	R	588	1499	0.034	0.393	16.3	C		
WB	L	472	3353	1.030	0.141	77.7	F	46.9	E
	T	1824	5472	0.984	0.333	41.9	E		
	R	490	1471	0.524	0.333	24.3	C		

Intersection Delay = 44.3 sec/veh Intersection LOS = E
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.983

Streets: (N-S) Highway 9 (River St) (E-W) Highway 1
Analyst: DT File Name: 3EXWEMD.HC9
Area Type: Other 8-9-97 MD
Comment: Existing Weekend Mid-day Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	1	3	1
Volumes	23	230	228	568	237	210	228	1348	53	337	1447	624
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vols			110			105			25			300
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru		*	
Right	*				Right		*	
Peds					Peds			
SB Left		*			WB Left	*	*	
Thru		*			Thru	*	*	
Right		*			Right	*	*	
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	20.0A	28.0A			Green	18.0A	5.0A	44.0A
Yellow/AR	4.0	4.0			Yellow/AR	4.0	4.0	4.0
Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7								

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmnts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	261	1676	0.092	0.156	31.6	D	43.4	E
	T	290	1863	0.835	0.156	48.5	E		
	R	233	1500	0.531	0.156	35.7	D		
SB	L	720	3353	0.855	0.215	39.9	D	37.0	D
	T	400	1863	0.622	0.215	33.1	D		
	R	322	1500	0.341	0.215	29.3	D		
EB	L	236	1676	1.017	0.141	87.7	F	36.9	D
	T	1863	5588	0.838	0.333	29.4	D		
	R	500	1500	0.060	0.333	19.8	C		
WB	L	348	1676	1.021	0.207	77.7	F	31.3	D
	T	2235	5588	0.749	0.400	23.4	C		
	R	600	1500	0.568	0.400	21.3	C		

Intersection Delay = 35.0 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.883

=====
Streets: (N-S) Highway 9 (River St) (E-W) Highway 1
Analyst: DT File Name: 3PCWDPMI.HC9
Area Type: Other 9-25-96 PM
Comment: Ex + Prj Weekday PM Peak Hour Inbound Peak
=====

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	2	3	1
Volumes	49	228	370	713	228	251	295	1526	38	448	1549	494
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vols			150			125			19			200
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations												
Phase Combination				1	2	3	4	5	6	7	8	
NB	Left	*						EB	Left	*		
	Thru	*							Thru	*		
	Right	*							Right	*		
	Peds								Peds			
SB	Left		*					WB	Left	*		
	Thru		*						Thru	*		
	Right		*						Right	*		
	Peds								Peds			
EB	Right							NB	Right			
WB	Right							SB	Right			
Green		20.0A	30.0A					Green	26.0A	43.0A		
Yellow/AR		4.0	4.0					Yellow/AR	4.0	4.0		
Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6												

Intersection Performance Summary									
	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	261	1676	0.199	0.156	32.1	D	60.2	F
	T	290	1863	0.828	0.156	47.9	E		
	R	233	1500	0.990	0.156	79.3	F		
SB	L	755	3288	1.025	0.230	65.3	F	53.9	E
	T	428	1863	0.561	0.230	31.0	D		
	R	344	1500	0.383	0.230	28.7	D		
EB	L	329	1644	0.946	0.200	60.3	F	45.7	E
	T	1786	5481	0.989	0.326	43.4	E		
	R	489	1500	0.041	0.326	20.1	C		
WB	L	671	3353	0.725	0.200	35.3	D	42.2	E
	T	1786	5481	1.004	0.326	46.7	E		
	R	479	1471	0.645	0.326	27.2	D		

Intersection Delay = 47.0 sec/veh Intersection LOS = E
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.994
=====

Streets: (N-S) Highway 9 (River St) (E-W) Highway 1
Analyst: DT File Name: 3PCWEMDI.HC9
Area Type: Other 8-9-97 MD
Comment: Ex+ Prj Weekend Mid-day Peak Inbound Peak

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	1	3	1
Volumes	23	248	228	575	240	212	241	1348	53	337	1447	673
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vols			110			105			25			300
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds					Peds			
SB Left		*			WB Left	*		
Thru		*			Thru	*		
Right		*			Right	*		
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	20.0A	28.0A			Green	29.0A	42.0A	
Yellow/AR	4.0	4.0			Yellow/AR	4.0	4.0	
Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6								

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmnts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	261	1676	0.092	0.156	31.6	D	48.7	E
	T	290	1863	0.901	0.156	56.5	E		
	R	233	1500	0.531	0.156	35.7	D		
SB	L	720	3353	0.865	0.215	40.6	E	37.5	D
	T	400	1863	0.632	0.215	33.4	D		
	R	322	1500	0.348	0.215	29.3	D		
EB	L	372	1676	0.682	0.222	34.6	D	32.1	D
	T	1780	5588	0.877	0.319	31.9	D		
	R	478	1500	0.063	0.319	20.7	C		
WB	L	372	1676	0.953	0.222	58.8	E	39.6	D
	T	1780	5588	0.941	0.319	36.6	D		
	R	478	1500	0.820	0.319	35.0	D		

Intersection Delay = 37.4 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.919

=====
Streets: (N-S) Highway 9 (River St) (E-W) Highway 1
Analyst: DT File Name: 3PCWDPMO.HC9
Area Type: Other 9-25-96 PM
Comment: Ex + Prj Weekday PM Peak Hour Outbound Peak
=====

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	2	3	1
Volumes	49	213	370	755	243	262	284	1526	38	448	1549	452
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vols			150			125			19			200
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*	*	
Thru	*				Thru	*	*	
Right	*				Right	*	*	
Peds					Peds			
SB Left		*			WB Left	*		
Thru		*			Thru		*	
Right		*			Right		*	
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	20.0A	31.0A			Green	18.0A	4.0A	42.0A
Yellow/AR	4.0	4.0			Yellow/AR	4.0	4.0	4.0
Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6 #7								

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	261	1676	0.199	0.156	32.1	D	58.7	E
	T	290	1863	0.773	0.156	43.6	E		
	R	233	1500	0.990	0.156	79.3	F		
SB	L	779	3288	1.051	0.237	72.7	F	58.7	E
	T	442	1863	0.580	0.237	30.8	D		
	R	356	1500	0.405	0.237	28.5	D		
EB	L	329	1644	0.909	0.200	53.9	E	31.2	D
	T	2071	5481	0.853	0.378	27.6	D		
	R	567	1500	0.035	0.378	17.1	C		
WB	L	472	3353	1.030	0.141	77.7	F	55.0	E
	T	1746	5481	1.028	0.319	53.2	E		
	R	469	1471	0.566	0.319	25.9	D		

Intersection Delay = 48.2 sec/veh Intersection LOS = E
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 1.001
=====

Streets: (N-S) Highway 9 (River St) (E-W) Highway 1
Analyst: DT File Name: 3PCWEMDO.HC9
Area Type: Other 8-9-97 MD
Comment: Ex + Prj Weekend Mid-day Peak Outbound Peak

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	1	3	1
Volumes	23	233	228	617	255	243	230	1348	53	337	1447	631
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vols			110			105			25			300
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru		*	
Right	*				Right		*	
Peds					Peds			
SB Left		*			WB Left	*		
Thru		*			Thru		*	
Right		*			Right		*	
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	20.0A	28.0A			Green	29.0A	42.0A	
Yellow/AR	4.0	4.0			Yellow/AR	4.0	4.0	
Cycle Length: 135 secs Phase combination order: #1 #2 #5 #6								

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:	
	Mvmts	Cap	Flow	Ratio	Ratio			Delay	LOS
NB	L	261	1676	0.092	0.156	31.6	D	44.1	E
	T	290	1863	0.845	0.156	49.5	E		
	R	233	1500	0.531	0.156	35.7	D		
SB	L	720	3353	0.927	0.215	46.7	E	41.5	E
	T	400	1863	0.670	0.215	34.4	D		
	R	322	1500	0.450	0.215	30.5	D		
EB	L	372	1676	0.650	0.222	33.6	D	32.0	D
	T	1780	5588	0.877	0.319	31.9	D		
	R	478	1500	0.063	0.319	20.7	C		
WB	L	372	1676	0.953	0.222	58.8	E	39.0	D
	T	1780	5588	0.941	0.319	36.6	D		
	R	478	1500	0.728	0.319	30.2	D		

Intersection Delay = 37.5 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.924

Appendix E
SOILS INFORMATION

■ ■ ■

Appendix E-1

The following table is derived from the County Soils Report/SCS 1980.
The soil units are mapped on Figure IV. C-2.

Soil name and map symbol	Proposed Masterplan Actions and Uses	Camp/picnic area: soil constraints	Structures/ infrastructure: soil constraints	Paths and trails soils constraints	Drainage constraints
100 Aptos loam, warm, 15-30% slopes	- Spring Trail: Pedestrian and Multi-use alternatives - Existing and future gulley treatments - Fire Management area	severe: slope	severe: slope	moderate: slope	slope, depth to rock
104 Baywood loamy sand, 0-2% slopes	- Sycamore Grove Nature Trail - Hike only	moderate: too sandy, soil blowing	severe: floods	moderate: too sandy' soil blowing	cutbanks cave
113 Ben Lomond Catelli Sur complex, 30-75% slopes	- Redwood Trail realignment - Hike only - Fern Trail	severe: slope	severe: slope	severe: slope	slope
118 Bonny Doon rock outcrop complex, 50-85% slopes	Wavecrest property/Harvey West Park Resource management	severe: slope	severe: slope	severe: slope	slope
125 Danville loam, 2-9% slopes	- Pogonip Creek Trail crossing/seep realignment - Hike only	slight	severe: shrink-swell, low strength	slight	percs slowly, slope
133 Elkhorn sandy loam, 2-9% slopes	- Resource management - Lookout Trail - Fern Trail Seep realignment - Hike only	slight	moderate: slope shrink-swell	slight	slope
134 Elkhorn sandy loam, 9-15% slopes	- Resource management - Fire Management - Informal foot-trails off Spring trail - Spring Trail: Pedestrian and Multi-use alternatives	moderate: slope	severe: slope	slight	slope
135 Elkhorn sandy loam, 15-30% slopes	- Resource management - Spring Trail: Pedestrian and Multi-use alternatives	severe: slope	severe: slope	moderate: slope	slope
136 Elkhorn -Pfeiffer complex, 30-50% slopes	- Resource management - Informal trails along rail line	severe: slope	severe: slope	severe: slope	slope
142 Lompico-Felton complex, 5-30% slopes	- Resource management - Pedestrian and Multi use trail alts: Rincon Tr./ Spring Tr./ Cowell Connector Trail/UCSC Connector	severe: slope	severe: slope	moderate: slope	slope, depth to rock
143 Lompico-Felton complex, 30-50% slopes	- Resource management - Multi-use Trail UCSC Connector	severe: slope	severe: slope	severe: slope	slope, depth to rock
144 Lompico-Felton complex, 50-75% slopes	- Resource management - Multiuse Trail UCSC Connector	severe: slope	severe: slope	severe: slope	slope, depth to rock
145 Lompico variant loam 5-30% slopes	- Resource management - Fern Trail	severe: slope	severe: slope, shrink-swell, low strength	moderate: slope	depth to rock, percs slowly, slope
157 Nisene-Aptos complex, 30-50% slopes	Resource management	severe: slope	severe: slope	severe: slope	slope
158 Nisene-Aptos complex, 50-75% slopes	- Resource management - Harvey West Park Connector Trail - Lookout Trail improvements	severe: slope	severe: slope	severe: slope	slope, depth to rock
171 Soquel loam, 2-9% slopes	Resource management	slight	moderate: slope, shrink-swell, low strength	slight	favorable
172 Soquel loam, 9-15% slopes	Resource management	moderate: slope	severe: slope	slight	favorable
174 Tierra-Watsonville complex, 15-30% slopes	- Resource management - Pedestrian and Multi use Spring trail	severe: slope, percs slowly	severe: slope, shrink-swell, low strength	moderate: slope	slope, percs slowly
175 Tierra-Watsonville	Resource management	severe: slope,	severe: slope,	severe: slope	slope, percs

complex, 30-50% slopes	• Harvey West Park Connector Trail • Brayshaw Reroute/ Open Turn alignment above reservoir site • Downslope of Garden Project and Env. Education Center	percs slowly	shrink-swell, low strength		slowly
177 Watsonville loam, 2-15% slopes	• Pedestrian and Multi use Spring Trail • Fire Management Area	severe: percs slowly	severe: slope, shrink swell, low strength	slight	slope, percs slowly, wetness
179 Watsonville loam, thick surface, 2-15% slopes	• Homeless Garden Project Site • Outdoor Education Center	severe: percs slowly	severe: slope, shrink-swell, low strength	slight	slope, percs slowly, wetness
178 Watsonville loam, 0-20% slopes	Clubhouse rehabilitation and parking area	severe: percs slowly	severe: shrink-swell, low strength	slight	percs slowly, wetness
180 Watsonville loam, thick surface, 15-30% slopes	Haunted Meadow Trail	severe: slope percs slowly	severe: slope: shrink-swell, low strength	moderate: slope	slope, percs slowly, wetness
183 Zayante coarse sand, 30-50% slopes	Brayshaw Trail in the vicinity of the concrete reservoir	severe: slope, too sandy	severe: slope	severe: slope, too sandy	slope, cutbanks cave