CITY OF ARCATA

LOCAL COASTAL PROGRAM

(Coastal Land Use Element

and

Implementing Ordinances)

CERTIFIED AS LEGALLY ADEQUATE

BY THE

CALIFORNIA COASTAL COMMISSION

ON

OCTOBER 10, 1989

INTRODUCTION

The Coastal Land Use Element was prepared by the City of Arcata as part of its Local Coastal Program as mandated by the California Coastal Act of 1976. The Coastal Land Use Element is the policy and background information section of the Local Coastal Program. The summary of the policies (Sections I through VI) is also incorporated into the City's General Plan as one of the General Plan Elements.

THE CALIFORNIA COASTAL ACT

The California Coastal Act was passed in 1976. The Act states that the basic goals of the state for the Coastal Zone are to:

(a) Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.

(b) Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state.

(c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.

(d) Assure priority for coastal-dependent and coastal related development over other development on the coast.

(e) Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

In order to achieve these goals the state established the Coastal Zone and adopted a set of policies for the types of development that are allowed in the zone. It also established procedures for approving permits for allowed development.

In addition, the state has required that each city prepare a Local Coastal Program (LCP) for that portion of the Coastal Zone within its jurisdiction.

THE LOCAL COASTAL PROGRAM

The City of Arcata's Local Coastal Program (LCP) includes the Coastal Land Use Element of the General Plan, the Coastal Land Use and Development Guide (Coastal LUDG), a Coastal Zone Land Use Map showing the coastal zoning districts and a Coastal Wetlands Map. The Coastal Land Use Element establishes the policies of the LCP. The Coastal LUDG is the zoning and subdivision ordinance for the portion of the City within the Coastal Zone.

BACKGROUND

This Coastal Land Use Element was initially prepared in 1979 and updated in November of 1980 and September of 1981. The following people were involved in its preparation and updating:

City of Arcata

Mark Leonard, Planning Director

Coastal Commission

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The March 1987 version of the Coastal Land Use Element represents a substantial revision of the Element. Various sectons relating to housing that are no longer required by state law have been deleted. New sections have been added which include new policies and plans for the Arcata Marsh and Wildlife Sanctuary, Butcher's Slough and related tidelands, wetlands and riparian corridors. A new Coastal Wetlands Map is proposed as part of the Element. And the provisions for the continued operation of farmed wetlands is included as policies.

Sections I through VI of this document are summaries of the recommended policies found in the Appendices.

TABLE OF CONTENTS

Section I. URBAN SERVICES BOUNDARY

I-1 The City shall, with concurrence from Humboldt County, designate a Urban Services Boundary line as shown on the map in Appendix J of the Arcata General Plan.

I-2. The City shall not provide urban services, nor approve urban developments outside the Urban Services Boundary. The following Land Use designations are the only designations that shall be considered appropriate for land uses in the Coastal Zone but outside the Boundary:

- Coastal Agriculture Exclusive
- Coastal Natural Resource Protection
- Coastal Public Facility
- Coastal Public Facility (Parks)

I-3. Areas inside the Urban Services Boundary but outside the present City Limits shall not be approved for urban development until after they have annexed to the City.

I-4. The City shall retain discretion to extend domestic water and/or sewer services to existing residential units outside the Urban Services Boundary subject to the following guidelines:

(a) The extension must be an emergency response to a failure of existing water and/or sewer disposal systems.

(b) The capacity of the extension shall be limited to a size adequate to meet the existing residential requirements. No extension of trunk lines or oversized lines shall be permitted.

(c) No new or additional uses may be permitted to have access to the extension.

(d) No extension shall be permitted to serve uses that are clearly inconsistent with adopted Land Use Plans and Policies.

(e) An annexation agreement shall be provided by the property owner.

(f) The City may extend sewer and water service to serve intensive agricultural uses beyond the City limits and Urban Services Boundary subject to the following guidelines:

(1) The extension shall be only to serve the domestic needs of employees of an agricultural use.

(2) No new or additional uses may be permitted to have access to the extension.

(3) No agricultural chemicals or wastes may be discharged into the extension.

(4) The capacity of the extension shall be limited to a size adequate to meet the needs of the specific agricultural operation and shall be a pressurized system.

(5) In the event that the agricultural operation for which an extension is made ceases operation, the extension shall be disconnected from the City system and capped.

Section II. COASTAL LAND USE MAP

II-1. The City shall adopt the following Coastal Land Use designations which shall serve as the basis for developing specific zoning districts. These are the same designations as used in the existing General Plan.

Residential

- Coastal Rural Residential (up to 12 p/na)
- Coastal Low Density Residential (up to 24 p/na)
- Coastal Medium Density Residential (up to 45 p/na)
- Coastal Medium-High Density Resid. (up to 75 p/na)
- Coastal High Density Residential (up to 115 p/na)

p/na = persons per net acre

Commercial

- Coastal General Commercial
- Coastal Central Business District (CBD)
- Coastal Thoroughfare Commercial

Industrial

- Coastal Industrial Commercial
- Coastal Heavy Industrial

Public and Quasi-Public

- Coastal Public Facility
- Coastal Public Facility (Parks)
- Coastal Natural Resource Protection

Agricultural

- Coastal Agriculture Exclusive (60 ac. min. parcel area)

Section III. ENVIRONMENTAL CONSTRAINTS

III-1. The City shall regulate land use in areas of significant natural hazards in the following manner:

(a) New Critical Facilities. No new critical facilities shall be permitted to locate in areas of potential liquefaction or within the 100-year flood plain (Table 1).

TABLE 1. CRITICAL FACILITIES

Critical Facilities include: power plants, large dams, civil defense headquarters, major electrical facilities, power and communication sub-stations, hospitals, schools, fire stations, police stations, radio stations, television stations, microwave stations, major public buildings, sewage treatment plants, and water works.

(b) Existing Critical Facilities. Existing critical facilities located in areas of potential liquefaction shall not be permitted to expand beyond a cost of

$50,000 (as of December 1980) with allowances for inflation without requiring a detailed site investigation which addresses the potential for liquefaction and settlement, and develops adequate mitigations satisfactory to the City and to a registered geologist, a professional civil engineer, or a certified engineering geologist who supervises the study. Replacement of existing facilities or structures will not require further site investigation as outlined above. Existing critical facilities located in the 100-year flood plain shall be permitted to expand only if adequate flood control measures are provided and if the expansion cannot be provided for elsewhere due to the nature of the facility.

(c) Non-critical Facilities. Non-critical facilities shall be permitted to locate or expand in areas of potential liquefaction. Non-critical facilities shall be permitted to locate or expand in the 100-year flood plain only if flood proofing measures which meet flood insurance criteria and which are satisfactory to the City are provided, and if it can be shown that such development would not cause additional flooding and/or drainage problems in other areas.

III-2. For non-critical facilities, the City may require site-by-site soils and geologic engineering studies when the Director of Community Development determines that public health and safety could be affected. These studies shall be done by a registered geologist, a registered civil engineer with expertise in soils, or a certified engineering geologist in areas of potential liquefaction and settlement. Potential hazards shall be evaluated using the ground shaking parameters presented in the Seismic Safety Element. The study should show that the proposed project minimizes the potential hazard to life and health.

III-3. To protect structures and critical facilities in the Coastal Zone, and to provide protection of existing habitat values, the City shall encourage and promote flood protection practices which manage flooding problems on a watershed basis.

(a) The City shall encourage the expansion of Janes Creek Flood Control District to include the watersheds of Janes, Jolly Giant, Grotzman, Campbell, and Beith Creeks, or shall otherwise coordinate with the County to alleviate existing flooding problems.

(b) The newly formed district or designated agency shall evaluate alternate flood control measures and select a flood control plan that improves drainage and minimizes potential hazards in the Coastal Zone.

(c) In evaluating alternates, emphasis shall be placed on improvement of drainage. However, enlarging of existing tidegates, dredging of presently undredged sections of creek, or construction of new structures shall be allowed only when no less environmentally damaging alternate is feasible, only when adequate mitigation is provided, and only when not located within a wetland. If mitigation for said development is provided in the form of a fully approved restoration project such development may be permitted in a wetland.

(d) The City shall seek funding to develop a comprehensive stream maintenance program for streams within its jurisdiction. This program shall provide for stream rehabilitation projects designed to improve flow capacity, minimize channel erosion, and enhance riparian habitat; annual channel inspection to identify and remove barriers to anadromous fish, debris dams, and obsolete flood control or scientific study facilities.

(e) The City shall seek assistance and ultimately develop a comprehensive plan that identifies storm drain pollution sources, educates the public and businesses about the nature of waste treatement and its importance to Arcata's creeks, and requires pre-treatment of waste by the identified pollution sources.

III-4. Land Use Designations. Since a significant portion of the developed area of the City of Arcata lies within the high liquefaction potential zone, alteration of the existing land use patterns in the City would not be physically nor economically possible. Present General Plan Land Use Designations and Policies are adequate to insure proper development in the Coastal Zone and need not be altered for Hazard purposes.

III-5. The City shall seek funds to establish a hazard inspection and abatement program to reduce the risk associated with hazardous structures to an acceptable level.

III-6. To protect riparian habitats and to minimize erosion runoff, and interference with surface water flow, the City shall establish Riparian Buffer Areas along all streams within the Coastal Zone. The City shall add a new section, Riparian Buffer Areas, to Article 4 of the City's Coastal Land Use and Development Guide. This new section will formalize the City commitment to protection of riparian habitat by defining and identifying such habitat and by applying the following regulations within the buffer areas.

(a) New development and redevelopments shall maintain or restore a natural vegetation buffer strip along all designated streams. This buffer strip shall be subject to the following definitions:

Distinct Riparian Vegetation - 100 feet from the outer edge of the existing riparian corridor: all of Jacoby Creek. Existing riparian corridor includes those areas adjacent to the creek that are presently dominated by trees and other vegetation characteristic of streamside vegetation.

Channeled Creeks - 25 feet from the center line of the creek: all of Grotzman Creek, lower Beith Creek, all of Campbell Creek, and Jolly Giant Creek above Butcher's Slough, and Janes Creek above McDaniel Slough;

Sloughs - 25 feet from the outer edge of the slough area, McDaniel Slough, Gannon Slough, and Butcher Slough.

(b) Indigenous vegetation shall be retained in the buffer areas.

(c) Fencing that crosses a stream channel, that acts as a barrier to anadromous fish, or acts as a collector for debris shall not be permitted.

(d) Where opportunities arise, the City shall require fencing along channels to prevent further bank erosion by livestock.

III-7. The City shall seek funding to provide for restoration of the following degraded resources:

(a) Jolly Giant Creek from Butcher's Slough north to Highway 101.

(b) Janes Creek between 11th Street and Alliance Road.

(c) Campbell Creek, from Samoa Boulevard to 7th Street, in conjunction with the Arcata Community Park development.

(d) Beith and Grotzman Creeks east of Highway 101 and west of Old Arcata Road.

(e) Campbell Creek from Samoa Boulevard to Gannon Slough.

(f) Gannon Slough

III-8. The City shall maintain the Natural Resource Protection designation on all tidelands and water areas of Arcata Bay, and shall declare that these areas are fragile coastal resources that require protection from uncontrolled access. The City shall use the following guidelines when permitting access to these areas:

(a) Motorized vehicles should be restricted to paved roads and parking lots.

(b) Pedestrians should be restricted to designated trails and facilities.

(c) Valid scientific and educational studies of the wetlands and tidelands should be encouraged.

III-9. To protect aquaculture in Arcata Bay, the City shall:

(a) Ensure that its wastewater discharge does not aggravate existing coliform loading problems in Arcata Bay;

(b) As part of the stream maintenance program, take measures to reduce coliform loading of perennial streams within its jurisdiction. These measures shall include controlling identified sources of coliform loading such as septic tank leachate and run-off from agricultural operations.

III-10. To encourage additional aquaculture in Humboldt Bay, the City shall continue the development and management of:

(a) Integrated wetland enhancement, wastewater treatment, and the salmon ranching program.

(b) The tidelands for commercial and sports oyster production.

III-11. The City's wastewater reclamation, reuse, and aquaculture project is consistent with Coastal Act Policies and requires no special provisions in Arcata's General Plan.

Section IV. DEVELOPMENT CONSTRAINTS

IV-1. New development shall not restrict access to the shoreline. Access to coastal areas shall be required for new development. The City shall declare that the tidal and water areas of Arcata are a fragile coastal resource that requires protection from uncontrolled access.

IV-2. The City shall require a Use Permit or Nature Area Permit for any activity or development proposed in the Natural Resources Protection Zone.

IV-3. The City shall adopt a Coastal Wetlands Map showing the location of wetlands, riparian corridors and uplands within the Coastal Zone. All development within the areas identified on the map as wetland or riparian corridor shall require compliance with the Coastal Wetlands Development Standards of the Coastal Land Use and Development Guide.

The City shall establish a Wetlands Buffer Area to protect the areas shown as wetlands on the Coastal Wetlands Map. All development within the buffer areas shall comply with the Wetlands Buffer Area Development Standards of the Coastal Land Use and Development Guide.

The City shall designate and zone all areas shown as wetlands or riparian corridor on the Coastal Wetlands Map as either Coastal Agriculture Exclusive, Coastal Natural Resource Protection, or Coastal Public Facility.

IV-4. Diking, filling, or dredging of Bay waters, wetlands, and estuaries shall be permitted where feasible mitigation measures have been provided to minimize adverse environmental effects, for the following limited uses:

(a) For incidental public service purposes including, but not limited to, burying cables and pipes, and maintenance of existing dikes and public facilities;

(b) To maintain a channel adequate to serve the boat ramp at current levels of use;

(c) Resource restoration purposes;

(d) Nature study, aquaculture, or similar resource dependent activities;

(e) Agriculture within existing farmed wetlands but not including the expansion thereof.

IV-5. The City shall permit shoreline structures (such as dikes or tidegates) that may alter the natural shoreline only to protect existing development only when no other feasible less environmentally damaging alternative is available, and only when not located within a wetland, unless the wetland will be the primary beneficiary of the structure.

IV-6. The City shall not permit disposal of dredge spoils on existing wetlands unless such disposal is necessary for a resource restoration project or the maintenace of existing agricultural operations in farmed wetlands. Fill will be allowed for aquaculture projects if it can be shown that it is necessary for the project and is required to be located within the wetland and there is no other feasible less environmentally damaging alternative.

IV-7. The City shall apply Coastal Agricultural Exclusive zoning to all areas designated for agriculture on the Local Coastal Plan Map. The minimum lot size in the Coastal Agricultural Exclusive zone shall be 60 acres.

IV-8. The Coastal Agricultural Exclusive zone shall include the following:

(a) The "Permitted Uses" section shall include: "Agricultural structures - includes greenhouses or other nursery structures erected over exposed soil."

(b) The "Conditionally Permitted Uses" section shall include: "Greenhouses or other nursery structures erected on concrete perimeter foundations may be permitted if no less environmentally damaging alternate is available."

(c) Commercial greenhouses will not be allowed to locate within a wetland.

IV-9. Where wetlands are seasonally farmed, continued agricultural use of the wetlands is allowed. Expanding farming operations into non-farmed wetlands by diking or otherwise altering the functional capacity of the wetland is not permitted. Farm-related structures (including barns, sheds, and farm-owner occupied housing) necessary for the continuance of the existing operation of the farmed wetlands may be located on an existing farmed wetland parcel, only if no alternative upland location is viable for such purpose and the structures are sited and designed to minimize the adverse environmental effects on the farmed wetland. Clustering and other construction techniques to minimize both the land area covered by such structures and the amount of fill necessary to protect such structures will be required. The location of the wetlands shall be determined by use of the adopted Coastal Wetlands Map.

IV-10. If land divisions are allowed creating new parcels mapped as wetlands on the adopted Coastal Wetlands Map, such divisions shall require the recordation of deed restrictions providing that no filling would be allowed on the wetland portion of the parcel in connection with new development other than that permitted under Section 30233 of the Coastal Act or the Coastal Wetlands Development Standards, and that the use of the newly created parcel would be limited to grazing or similar agricultural uses consistent with the Coastal Agricultural Exclusive zoning district.

IV-11. Private and public non-vehicular recreational activities such as hiking, riding, fishing, hunting, and other recreational activities which do not require permanent structures, facilities, or foundations may be permitted in the Agricultural Exclusive zone if they do not interfere with adjacent agricultural uses, or limit the potential of the site to return to agricultural use or significantly displace the wildlife utilizing the area, especially in wetlands. This recommendation shall be implemented in the Land Use and Development Guide.

IV-12. The City shall issue Conditional Use Permits in industrially zoned areas for the following heavy manufacturing uses in the Coastal Zone only when no feasible less environmentally damaging alternative is available, and only when adequate mitigation has been demonstrated: Salvage yards, drilling for gas or oil, the smelting and reduction of metallic ores,

manufacturing, refining, and storage of petroleum products, acids, cement, concrete, pottery, asphaltic paving products, lime, explosives, fireworks, gas, glue, gypsum, plaster of paris, and inflammable fluids or gases. Conditions for approval shall include, as a minimum, the following criteria:

- Assurance to the satisfaction of a registered geologist, a registered civil engineer with expertise in soils, or a certified engineering geologist of adequate protection from groundshaking.

- No significant adverse impacts on aquatic habitat.

- Adequate protection from flooding.

- Assurance to the satisfaction of the Design Assistance Committee that visual resources will not be degraded.

IV-13. The City shall issue Conditional Use Permits in industrially zoned areas within the Coastal Zone for animal processing plants only for coastal dependent industries. Conditions of approval shall include, at a minimum:

- Assurance to the satisfaction of a registered geologist, a registered civil engineer with expertise in soils, or a certified engineering geologist of adequate protection from groundshaking.

- No significant adverse impacts on aquatic habitat.

- Adequate protection from flooding.

- Assurance to the satisfaction of the Design Assistance Committee that visual resources will not be degraded.

IV-14. The City shall identify the following areas as Coastal Scenic Areas:

(a) Arcata Bay tideland and water areas:

(b) All land designated as Natural Resource Protection on the Land Use Map;

(c) All land between Highway 101 and Old Arcata Road designated Agriculture Exclusive on the Land Use Map;

(d) All land on the western Arcata plain designated Agriculture Exclusive on the Land Use Map.

IV-15. The City shall follow the Environmental Impact Review procedures established in the Land Use and Development Guide for any proposed use in the Coastal Scenic Areas. An initial study that takes visual resources as a consideration shall be prepared to determine the appropriate environmental document. If it is determined that the proposed use would significantly alter the appearance of natural landforms, would significantly alter the appearance of existing land uses, or would significantly block views from existing public thoroughfares to the Bay, then no permit shall be issued unless it can be shown that the proposed use will serve to restore or enhance a visually degraded area.

IV-16. The City shall designate the following routes as Scenic Routes and shall establish guidelines to retain their scenic features: Old Arcata Road from the 7th Street Overcrossing to Crescent Drive; Bayside Cut-off from Highway 101 to Old Arcata Road; Samoa Boulevard (State Highway 255) from Sunny Brae to Manila; Janes Road from 11th Street to Simpson Mill; Highway 101 from Bayside Cut-off to Mad River; South "I" Street, from Highway 255 south; and South "G" Street from "H" Street to Highway 101.

IV-17. Billboards and off-site signs designed to be read from any State highway or freeway shall not be permitted in the Coastal Zone.

IV-18. It is the policy of the City to prevent the additional planting of landscaping along Highway 101 that would interrupt the scenic views from Highway 101 to the Bay or eastward across the agricultural lands. It is further the policy of the City to work with Caltrans, Humboldt County, and the Commission to enhance scenic views along Highway 101.

IV-19. Development in the Heavy Industrial area bounded by Samoa Boulevard, Butcher's Slough and Gannon Slough should include local native plant landscaping, screenings and other mitigations to ensure compatibility with the educational, recreational, wildlife and other uses of the Humboldt Bay National Wildlife Refuge and the Arcata Marsh and Wildlife Sanctuary.

Section V. URBAN DEVELOPMENT

V-1. The City has determined that no special allocation of urban services is required in the Coastal Planning Area.

V-2. The City shall encourage the retention and expansion of commercial visitor serving facilities along Samoa Boulevard within the General Commercial zoning district and along South "G" and South "I" Streets in the Industrial-Commercial zoning district.

V-3. The City shall require that new development or redevelopment in the industrial area surrounding South "G" Street provide dense landscaped screens along all perimeter lot lines visible from Highway 101.

V-4. The City shall identify Samoa Boulevard, a State Highway, as a community entryway and seek funding to develop a specific public improvement program between the highway overpass and "K" Street that provides for consistent landscaping, street furniture, and directional signing.

V-5. The City shall designate the following routes as Public Access Corridors. These corridors should be properly signed and identified to lead the public to approved Bay access points:

(a) "I" Street from Samoa Boulevard to the Boat Launching Facility should be designated as the major Public Access Corridor.

(b) South "G" Street from Samoa Boulevard to Highway 101 should be designated as a Public Access Corridor because of the improved access to the Marsh and Wildlife Sanctuary.

(c) Highway 101 from Samoa Boulevard (State Highway 255) south to Bayside Cutoff.

(d) Samoa Boulevard from Highway 101 west to Mad River Slough.

V-6. The City shall encourage the use of Planned Development zoning as a means of providing a variety of housing types, land uses, and sufficient usable open space through innovative design. The Planned Development District should allow diversification in the relationship of buildings, structures, and open spaces while insuring substantial compliance to the base district regulations.

Section VI. PUBLIC FACILITIES

VI-1. The City shall develop the community park area bounded by Highway 101, Samoa Boulevard, 7th Street, and Union Street as an active use recreational area.

VI-2. The City shall designate the floodplain along McDaniel Slough north of Highway 255 and south of 11th Street as parkland and identify this area as a passive use recreational area.

VI-3. The City shall designate the area encompassed by the Arcata Marsh and Wildlife Sanctuary as Natural Resources Protection, and identify the recreational component of the project as a passive use recreational area.

VI-4. The City shall support the development of access to the Humboldt Bay National Wildlife Refuge, Jacoby Creek Unit.

VI-5. The City shall encourage the continued use of the tideland, or scientific and educational studies, commercial aquaculture, and recreational boating and fishing.

VI-6. The City shall maintain the Boat Basin at its current design level of use.

VI-7. The City shall seek funding to establish interpretive sites along the Arcata Bay shore including a Nature Center and Wildlife Care Center to serve as an educational focal point for Arcata's natural resource areas.

VI-8. The City shall seek funding to establish a system of foot trails and interpretive sites along the Arcata Bay shore subject to the following guidelines:

(a) All planning and development in the area that is both south of Samoa Boulevard and west of Highway 101 and which is identified as wetlands or riparian corridor on the adopted Wetlands Map shall be subjected to review by the Marsh and Wildlife Sanctuary Task Force for consistency with the goals and management of the Marsh and Wildlife Sanctuary.

(b) Development in the area bounded by Butcher's Slough and Gannon Slough should occur in conjunction with development of the National Wildlife Refuge and the Arcata Marsh and Wildlife Sanctuary.

(c) Motorized vehicles shall be restricted to paved roads and parking lots;

(d) Pedestrians shall be restricted to designated trails and facilities;

(e) Valid scientific and educational studies of the wetlands and tidelands shall be encouraged.

VI-9. The City shall restrict development of the Corporation Yard facilities to its existing boundaries, and shall maintain a landscaped screen along the northern and eastern perimeter of the oxidation pond.

VI-10. The City shall maintain the existing facilities of the Arcata Marsh and Wildlife Sanctuary and construct new facilities consistent with the plan developed by the Marsh Task Force or its equivalent and adopted by the City Council.

Appendix A

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

SHORELINE ACCESS

(Access component as required by Coastal Act)

30210. In carrying out the requirements of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

30211. Development shall not interfere with the public's right of access to the sea where acquired through use, or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

30212. (a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources; (2) adequate access exists nearby; or (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

(b) For purposes of this section, "new development" does not include:

(1) Replacement of any structire pursuant to the provisions of subdivision (g) of Section 30610.

(2) The demolition and reconstruction of a single-family residence; provided that the reconstructed residence shall not exceed either the floor area, height or bulk of the former structure by more than 10 percent, and that the reconstructed residence shall be sited in the same location on the affected property as the former structure.

(3) Improvements to any structure which do not change the intensity of its use, which do not increase either the floor area, height or bulk of the structure by more than 10 percent, which do not block or impede public access, and which do not result in a seaward encroachment by the structure.

(4) The reconstruction or repair of any seawall; provided, however, that the reconstructed or repaired seawall is not seaward of the location of the former structure.

(5) Any repair or maintenance activity for which the commission has determined, pursuant to Section 30610, that a coastal development permit will be required unless the commission determines that the activity will have an adverse impact on lateral public access along the beach.

As used in this subdivision "bulk" means total interior cubic volume as measured from the exterior surface of the structure.

(c) Nothing in this division shall restrict public access nor shall it excuse the performance of duties and responsibilities of public agencies which are required by Sections 66478.1 to 66478.14, inclusive, of the Government Code and by Section 4 Article X of the California Constitution.

OBJECTIVES

Determine what level of use the ecosystem of the tidal marshland is capable of sustaining and where access points would be located.

EXISTING CONDITIONS

Ownership

Virtually all of the Arcata Bay shorline is under public ownership or control The City of Arcata State Tidelands Grant encompasses 1,400 acres of mudflats and adjoining marshes in the northeastern corner of Arcata Bay. The Humboldt Bay National Wildlife Refuge, Jacoby Creek Unit, adjoins the tideland Grant at its southeastern border. The Humboldt Bay National Wildlife Refuge presently encompasses 60 acres of tidelands.

Access

Even though public control of the shoreline has been preserved, actual public access to the shore is limited to the following types and areas:

Pedestrian Access. Pedestrian access areas are mainly used by duck hunters, bird watchers, educational groups, hikers, fishermen, and joggers. Pedestrian access points are well defined and identified. They occur along "H" Street, South "G" Street, and South "I" Street.

Vehicular Access. Vehicular access to the Arcata Marsh and Wildlife Sanctuary is present along "H" Street, South "G" Street, and South "I" Street, and at a station maintained by the National Wildlife Refuge. Access to the Arcata Marsh and Wildlife Sanctuary is restricted to developed parking areas and trails and access to the refuge station is restricted to bonafide research or educational activities.

Boating Access. Small boats may be launched from the City's boat ramp at the foot of South "I" Street, and are sometimes launched from the Mad River Slough area. Canoes and kayaks can also be launched from the "H" Street entrance to the Arcata Marsh and Wildlife Sanctuary into Butcher's Slough and taken south into Arcata Bay. A rocked trail allows portage around the southernmost pedestrian bridge across the slough. These boats are predominantly shallow draft scull boats, drift boats, rowing dorys, and sail boats used by duck hunters, bird watchers, and boating enthusiasts. Pleasure boating on Arcata Bay is limited because of a lack of adequate low water channels and channel markings.

Present Use

Present use of Arcata Bay falls into two distinct types - consumptive and non-consumptive uses. Consumptive uses involve the actual removal of individual units, such as fish or waterfowl, by fishermen, hunters, commercial oyster growers, or others. Non-consumptive uses involve nature study, wildlife observations, or scenic enjoyment.

The most significant consumptive wildlife use in Arcata Bay is waterfowl hunting. Most of the hunting is done from temporary blinds along the shoreline or islands. Sculling is also used extensively for taking waterfowl. Hunting is presently prohibited within 100 yards of the Arcata Marsh and Wildlife Sanctuary and Oxidation Pond. Shark fishing and clamming rate as the most popular fishing activities on Arcata Bay. Franklin R. Klopp Recreation Lake, within the Sanctuary, is periodically stocked with trout and supports a related sport fishery. In order to avoid a put-and-take fishery in the lake and thus remain consistent with the goals of the Sanctuary, special State fishing regulations have been placed on anglers at Klopp Lake. The regulations are designed to encourage a quality fishing experience, while at the same time increasing the challenge. California Department of Fish and Game regulations Article 7, section 13.49 limit the take of trout to three per day and the method of take is limited to only artificial lures with a single barbless hook.

Much of the 1500 acres of tidelands under Arcata's control can be leased for commercial aquaculture purposes, particularly oyster farming. The permitting and leasing process for these activities have been in place for a number of years and have been adequate to protect the tidelands from unrestricted growth and environmentally damaging culture techniques.

The heaviest non-consumptive uses of Arcata Bay are wildlife observation, photography, scientific and educational activities, picnicking, and boating. The vast majority of people pursuing these recreational activities use South "I" Street as their main access to the Arcata Marsh and Wildlife Sanctuary and Arcata Bay. Traffic counts on South "I" Street at the Sanctuary entrance and spot use checks by the City of Arcata indicate that over 100,000 people visit the Sanctuary and Bay on an annual basis. The recent addition of another major Sanctuary entrance on South "G" Street will significantly reduce the traffic load on South "I" Street. The Sanctuary and Bay are also used as an outdoor laboratory by HSU undergraduate classes, by College of the Redwoods classes, and by high schools and grammar schools for environmental studies. Since 1962, more than 38 Master's Theses dealing with bay resources have been completed by HSU graduate students in a wide range of majors.

Constraints to Access

Legal or physical constraints. The Arcata Bay shoreline can be divided into four distinct areas for the purposes of reviewing legal or physical contraints - the reclamation dikes, the Arcata Marsh and Wildlife Sanctuary, the City's corporation yard and sewage treatment plant, and the tidelands.

The existing dike along the edge of the Bay from the Mad River Slough east to the Arcata Marsh and Wildlife Sanctuary was built between 1895 and 1915 and is maintained by Reclamation District 768. This District, formed in 1905,

presently consists of 21 property owners and contains 1,340.08 acres. There are 103.52 acres outside the dike which are not included in the District. The District, by means of an assessment against each member property, including the City of Arcata, maintains the large double wooden flood gate at the mouth of McDaniel Slough, several smaller metal flood gates, and approximately four miles of dike. The Board of Directors of the District has jurisdiction over any changes or improvements to the dike. Pedestrian access to the dike is prohibited due to the agricultural activities north of the dike.

The Arcata Marsh and Wildlife Sanctuary covers approximately 160 acres including the majority of the Arcata Bay shoreline within the Arcata City limits. The major components of the Sanctuary are approximately 75 acres of restored wetlands at the foot of South "I" Street; approximately 26 acres of restored wetlands surrounding Butcher's Slough between South "I" Street and South "G" Street; approximately 45 acres of oxidation pond east of the Sanctuary, and 17 acres of restored saltmarsh north of the oxidation pond. At this time access to the Sanctuary is very good through six parking areas, more than 4.5 miles of trails, and the only boat launching facility on Arcata Bay. While access is good, City of Arcata Ordinance 1088 details many use restrictions and prohibitions for the Sanctuary in order to maintain public access and ecological values of the area. Access to any part of the Sanctuary which is not a parking lot, trail, or the boat ramp, requires written permission by the Arcata Director of Public Works or his designee. A permit system in place for three years has been adequate to control and monitor activities in these areas.

Arcata's corporation yard, located at 600 South "G" Street, houses the City's wastewater treatment plant, garage, and the street and utilities maintenance materials and equipment. Public access to the corporation yard is restricted, however, access can be gained by written permission from the Director of Public Works.

State Tideland grants to the City of Arcata in 1913 and 1917 placed 1,500 acres of tidelands under Arcata's control. The area extends roughly from the mouth of Gannon Slough west past the mouth of McDaniel Slough, and south approximately 1.25 miles. Access to the tidelands are somewhat restricted because of the nature of the Bay itself, and the existence of only one boat launching facility. The shallowness of the Bay and the mud bottom restrict almost any travel on the tidelands except by boat. The only boat launching facility is located at the foot of South "I" Street within the Sanctuary. The launching ramp ties into an unmaintained channel that is not navigable at low tides due to the lack of water. Therefore, access to the tidelands are restricted more by environmental conditions than planned management.

The eastern marshes from the City's oxidation pond to the mouth of Jacoby Creek are mainly in government ownership. Access to these areas can be gained by pedestrians from various points along South "G" Street. The Eureka Southern Railroad Line separates the Bay from all public thoroughfares, thereby raising liability insurance problems if unrestricted access across the rail lines is encouraged. Parking space along this area is limited.

Environmental Constraints

Of Humboldt Bay's original 7,000 acres of Coastal Salt Marsh Habitat, only about 600 acres remain. With the exception of Gunther Island, the best salt marsh formations are located along the eastern and northern margins of Arcata Bay.

The salt marsh provides high-tide roosts for herons, gulls, ducks, and shorebirds. One endangered species, the clapper rail, is restricted to the salt marsh. However, the status of the clapper rails in Humbolt Bay is unknown at present, none having been reported since 1966. This habitat supports 114 species of birds and large populations of mice.

Like eelgrass beds of the flats, this habitat is extremely important to the ecology of the Bay. Aside from providing cover, nesting sites, and feeding areas for a diverse bird fauna, the salt marsh is a source of detritus; an energy source for the estuarine food web.

Saltwater marsh is one of the more sensitive habitats found in Humboldt County. Plants are distributed according to well defined zones of tolerance to salinity and saturation rates. Heavy foot traffic is likely to compact the fine silty marsh soils and destroy plant life, thereby creating new channels. The probability follows that users would pioneer new paths to avoid these wet channels; paths would multiply and damage to habitat would be compounded.

Potential Access to Corridors and Sites

As noted previously in this Appendix, access to Arcata Bay and its associated waterfront is now well defined with six parking areas along South "I", "H", and South "G" Streets; a trail network over 4.5 miles long covering over 160 acres; and the only boat launching facility in Arcata Bay. Only one access corridor planned by the City has not yet materialized. This corridor would be a green belt park to be created along Janes Creek and McDaniel Slough from Zehndner Avenue south to the Bay.

A number of limiting factors have kept this corridor from becoming a reality. However, interest has been renewed in public access along McDaniel Slough by recent wetland mitigation bank planning for a 438 acre parcel just west of the Slough. The following list represents the major constraints and concerns that would have to be resolved before this greenbelt park/Bay access corridor could be opened to the public.

1. Access to the park itself is extremely limited. The entry on Zehndner Avenue is constricted by housing built adjacent to the creek on the west and by a church parking lot on the east. This would allow access by pedestrians only. No public parking areas exist in the immediate vicinity of the park. Consequently, the entry point would only be convenient for residents of the surrounding neighborhoods.

2. Extensive alterations to the creek channels and/or the rail line and highway would be required to allow safe passage across the railroad and Highway 255.

3. Although an entry to the park could be developed on the south side of Highway 255, a parking lot would be required to make this entry usable.

4. The park presently passes through productive agricultural land and could create conflicts between recreational uses and agricultural uses.

POLICY RECOMMENDATIONS

A-1 The City shall declare that the tidal and water areas of Arcata Bay are a fragile coastal resource that requires protection from uncontrolled access.

A-2 The City shall designate the following routes as Public Access Corridors. These corridors should be properly signed and identified to lead the public to approved Bay access points:

(a) "I" Street from Samoa Boulevard south through the Arcata Marsh and Wildlife Sanctuary to the Boat launching facility on Arcata Bay.

(b) South "G" Street south of "H" Street to Highway 101.

(c) Highway 101 from Samoa Boulevard (Highway 255) south to Bayside Cutoff.

(d) Samoa Boulevard from Highway 101 west to Mad River Slough.

A-3 The City shall seek funding to establish a system of foot trails and interpretive sites along the Arcata Bay shore subject to the following guidelines:

(a) All planning and development in the area that is both south of Samoa Boulevard and west of Highway 101 and which is identified as wetlands or riparian corridor on the adopted Wetlands Map shall be subjected to review by the Marsh and Wildlife Sanctuary Task Force for consistency with the goals and management of the Marsh and Wildlife Sanctuary.

(b) Development in the area bounded by Butcher's Slough and Gannon Slough should occur in conjunction with development of the National Wildlife Refuge and the Arcata Marsh and Wildlife Sanctuary.

(c) Motorized vehicles shall be restricted to paved roads and parking lots;

(d) Pedestrians shall be restricted to designated trails and facilities;

(e) Valid scientific and educational studies of the wetlands and tidelands shall be encouraged.

A-4 New development shall not restrict access to the shoreline. Access to coastal areas shall be required of new development.

A-5 The City shall support the development of access to the Humboldt Bay National Wildlife Refuge, Jacoby Creek Unit.

Appendix B

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

RECREATION AND VISITOR-SERVING FACILITIES

30212.5 Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

30213 (part) Lower cost visitor and recreational facilities shall be protected, encouraged, and where feasible, provided. Developments providing public recreational opportunities are preferred.

30214 (a) The public access policies of this Article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

(b) It is the intent of the Legislature that the public access policies of this Article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Article 4 Section X of the California Constitution.

(c) In carrying out the public access policies of this Article, the commission, regional commissions, and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which minimize management costs and encourage the use of volunteer programs.

30220. Coastal areas suited for water oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

30221. Ocean front land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that

could be accommodated on the property is already adequately provided for in the area.

30222. The use of private lands suitable for visitor serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal dependent industry.

30222.5 Ocean front land that is suitable for coastal dependent aquaculture shall be protected for that use, and proposals for aquaculture facilities located on those sites shall be given priority, except over other coastal dependent developments or uses.

30223. Upland areas necessary to support coastal recreational use shall be reserved for such uses, where feasible.

30224. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launch facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating suport facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

30250. (c) Visitor serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction to visitors.

OBJECTIVES

Determine what type of recreational and visitor serving developments are desirable in north Arcata Bay and what level of use they should be designed for.

EXISTING CONDITIONS

Existing Parks and Recreation Facilities

Public recreational areas and facilities located in the Coastal Zone include the Arcata Marsh and Wildlife Sanctuary and the Jacoby Creek Unit of the Humboldt Bay National Widlife Refuge. In addition, the tidelands of Arcata Bay are important for hunting and fishing activities. Also located within the Coastal Zone, but well away from the shoreline, are two school playing fields.

The Arcata Marsh and Wildlife Sanctuary covers over 170 acres and all of Arcata Bay's shoreline within Arcata city limits. As recent as 1978, this area consisted of deteriorating mill buildings, an abandoned sanitary landfill, pastureland, and the oxidation pond with its associated wastewater treatment plant. Grants from the California Coastal Conservancy, efforts by a number of volunteers, and progressive thinking by the Arcata City Council

and staff have resulted in a waterfront that has 6 parking areas, and over 4.5 miles of trails winding past 7 different types of wetlands, all within 1/2 mile of downtown Arcata.

Trailheads are located on South "G" Street, "H" Street, and South "I" Street. Each trailhead has parking associated with it. All parts of the Sanctuary can be reached from any of the trailheads.

South "I" Street is the traditional entrance to the Sanctuary and has three parking lots and the boat launching facility to Arcata Bay. Areas reached by the South "I" Street entrance include three freshwater marshes, a brackish lake, the upland area created out of the old landfill, and Butcher's Slough.

"H" Street has a small parking lot (4 spaces) that serves as a neighborhood entrance to the Butcher's Slough area. This entrance serves the residential area on "H" and "G" Streets.

South "G" Street has two entrances to the Sanctuary, one to Butcher's Slough and the old landfill site, and another for the oxidation pond. While the oxidation pond is part of the City's wastewater treatment process, it also represents the largest freshwater impoundment on the Bay's edge, and therefore, valuable wildlife habitat. A grant from the California Coastal Conservancy in 1981 opened up public access along the oxidation pond dike that also includes vistas of the Marsh Pilot Project, the 17-acre saltmarsh, and the wastewater aquaculture facility.

The various wetland habitats in the Sanctuary, and the nearness of the mudflats/bay and forested hillsides have made the Sanctuary one of the most popular areas for birdwatchers. To date, more than 200 species of birds have been sighted at the Sanctuary making the Sanctuary important not only ecologically, but also economically through increased tourism.

Humboldt Bay Wildlife Refuge

Located west of the Eureka Southern Railroad right-of-way and between the oxidation ponds and Bracut Industrial Park, the refuge consists of 65 acres of tideland and salt marshes with one caretaker's cabin. The problems of access across the railroad tracks and inadequate parking limits use of this reserve to research and educational activities. However, a route which would provide foot access to the Refuge from the oxidation ponds is included in a past county-wide trails plan prepared by the County Public Works Department. It was recommended in the Trails Plan Environmental Impact Report that this route be raised on a wooden boardwalk to avoid damage to the marsh. This portion of the trail has not been built as of 1986.

School Facilities

School playing fields at St. Mary's and Bloomfield elementary schools are located well away from the coast in developed residential areas. These parks and proposed additions are described in the City of Arcata Parks, Recreation, and Open Space Master Plan. Existing recreational facilities at St. Mary's include a soccer field, auditorium/gymnasium, library, playground, open field with tires and spools, bike racks, and drinking fountain. No additional facilities are proposed. Bloomfield School contains playground equipment,

open space areas, drinking fountain, tot lot, two basketball courts, three sets of bleachers, parking area, library, soccer field, and two baseball backstops. The construction of an additional tot lot and improvements to the ballfields are proposed. These school fields primarily serve residents in the adjacent neighborhoods.

Existing Visitor Serving Facilities

The north Arcata Bay shore area has not been commercially developed to serve visitor needs for recreation. Private, non-recreation oriented visitor serving businesses within the Coastal Zone are concentrated along Samoa Boulevard and Seventh Street, and consist of gas stations, four restaurants, and a neighborhood shopping center. None of these centers are coastal or water related. A Use Permit has been issued for a Recreational Vehicle Park on South "I" Street, however this project has not been built as of January 1987.

Proposed Park and Recreation Facilities

The Park, Recreation, and Open Space Master Plan

The City of Arcata is currently operating under a proposed Parks, Recreation, and Open Space Master Plan which was adopted in 1979. The Plan consists of several elements, including recommendations for the acquisition and development of various park and recreation sites within the City of Arcata, provisions for the operation and maintenance of existing and proposed parks, and a number of policies which pertain to miscellaneous recreational developments, the operation of the City Parks and Recreation Department, and budgeting of the Department and recommendations for a new "parkland dedication policy" for land development.

Three proposed parks, the Greenview Park, the McDaniel Slough Linear Park, and the Community Park fall within the Coastal Zone.

The Community Park

The Master Plan contains a proposal to establish Arcata Community Park in the 30-acre area bounded by 7th Street, Highway 101, Samoa Boulevard, and Union Street. Included in the proposal are suggestions for both public and commercial facilities.

Public

1 Cultural Arts Center
1 Concession Stand
2 Parking Lots
1 Picnic Shelter
6 Picnic Tables
2 Football/Soccer Fields
3 Softball Fields
10 Tennis Courts
1 Maintenance Structure
1 Barbecue (group size)
1 Restroom Facility
1 Baseball Field

Commercial

Handball Courts
Racquetball (8-10 courts)
Roller Skating Rink
Miniature Golf
Tennis Pro Shop
Pacific Arts Center
Skateboard Park

Old barns on the site would be restored to serve as a community cultural center. This park would draw users from the expanding apartment complexes nearby, from Arcata in general, and from out of town.

The McDaniel Slough Linear Park

Both the Master Plan and the current City General Plan propose a linear park along McDaniel Slough. The park would act as a passive use greenbelt, and an unpaved hiking trail.

The Greenview Park

The Park Master Plan has designated a 4-acre site west of the Greenview Subdivision. This site would serve as a multi-purpose active use park.

The Humboldt County Trails Plan

The Humboldt County Trails Plan, which was prepared by the County Public Works Department and proposes a network of trails throughout the County, describes a route through Arcata called the Bayview Levee Trail. This trail would follow dikes around the edge of Arcata Bay and then enter the National Wildlife Refuge south of Arcata's oxidation pond. Recommendations in the Trails Plan environmental impact report consist, in part, of raising the trail on a wooden boardwalk where it crosses the marshland. This design is favored by the U.S. Fish and Wildlife Service, and would serve to protect sensitive marsh habitat. Specific design features are not available as this trail is still in the planning stage and has not been built as of 1986.

POLICY RECOMMENDATIONS

B-1 The City shall maintain the Natural Resource Protection designation on all tidelands and water areas of Arcata Bay, and identify these areas as passive use recreational areas. The Arcata Bay tidelands shall also be designated Natural Resource Protection.

B-2 The City shall designate the area encompassed by the Arcata Marsh and Wildlife Sanctuary as Natural Resource Protection, and identify the recreational component of the project as a passive use recreational area.

B-3 The City shall encourage the continued use of the tideland for scientific and educational studies.

B-4 The City shall maintain the existing facilities of the Arcata Marsh and Wildlife Sanctuary and construct new facilites consistent with the plan developed by the Marsh Task Force or its equivalent and adopted by the City Council.

B-5 The City shall develop the community park area bounded by Highway 101, Samoa Boulevard, 7th Street, and Union Street as an active use recreational area.

B-6 The City shall designate the floodplain along McDaniel Slough north of Samoa Boulevard and south of 11th Street as park land and identify this area as a passive use recreational area.

B-7 The City shall encourage the retention and expansion of commercial visitor serving facilities along Samoa Boulevard within the General Commercial zoning district, and along South "G" Street and South "I" Street in the Industrial Commercial zoning district.

B-8 The City shall identify Samoa Boulevard, a State Highway, as a community entry way and seek funding to develop a specific public improvement program between the highway overpass and "K" Street that provides for consistent landscaping, street furniture, and directional signing.

B-9 The City shall maintain the Boat Basin at its current design level of use.

B-10 The City shall seek funding to establish interpretative sites along the Arcata Bay shore including a Nature Centera and Wildlife Center to serve as an educational focal point for Arcata's natural resource areas.

Appendix C

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

HOUSING

This Appendix is no longer required by the California Coastal Act of 1976 as ammended February 1986 as per Section 30500.1 which states: "No local coastal program shall be required to include housing policies and programs." This Appendix on Housing was deleted in January 1987.

Appendix D

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

WATER AND MARINE RESOURCES

30121. "Wetland" means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.

30230. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained, and where feasible, restored through, among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

30233. (a) The diking filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible, mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for such boating facility, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities, and placement of structural pilings for public recreational piers that provide public access and recreational oportunities.

(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource-dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California" shall be limited to very minor incidental public facilities, restorative measures, nature study ...

(d) Erosion control and flood control facilities constructed on water courses can impede the movement of sediment and nutrients which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be places at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal permit for such purposes are the placement, time of year of placement, and sensitivity of the placement area.

30236. Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

30607.1 Where any dike and fill development is permitted in wetlands in conformity with this division, mitigation measures shall include, at a minimum, either acquisition of equivalent areas to tidal action; provided, however, that if no appropriate restoration site is available, an in-lieu fee sufficient to provide an area of equivalent productive value or surface areas shall be dedicated to an appropriate public agency, or such replacement site shall be purchased before the dike or fill development may proceed. Such mitigation measure shall not be required for temporary or short-term fill or diking: provided, that a bond or other evidence of financial responsibility is provided to assure that restoration will be accomplished in the shortest feasible time.

30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.

OBJECTIVES

Determine to what extent further development along or near creeks and related sensitive habitats along or near creeks and related sensitive habitats will aggravate siltation problems and the loss of riparian habitat.

Determine what type of maintenance program of the City's creeks and related sensitive habitats would cause the least disturbance to fish and wildlife values.

EXISTING CONDITIONS

Stream Channels

Jacoby Creek

Jacoby Creek is an important habitat for several fish species, including the commercially valuable silver salmon (Oncorhynchus kisutch) and steelhead trout (Salmo gairdneri), as well as cutthroat trout (S. clarki). The riparian vegetation provides habitat for numerous small mammals and birds. The section within Arcata's City Limits is not used for spawning by anadromous fishes, but serves as a route for access to the upstream spawning grounds. The streambed is in fair condition throughout the section, with unsedimented gravels, except in slow water areas where fine sediments are deposited. The immediate source of fine sediments is banks damaged by cattle. Caving, cracking, and sloughing of banks is common, particularly along the north bank. The area 350-400 meters upstream from Highway 101 is the most severely degraded by livestock. The remnant of a fish weir and fry trap that may aggravate bank erosion is also located in this area.

Fences and log debris jams pose problems for upstream fish migration. The most significant barriers within Arcata's City Limits are located upstream from Highway 101. Riparian vegetation is dense along most of the lower portions of the river and is dominated by willow, alder, and berry vines. The shading and cover provided by this vegetation is important to both aquatic and terrestrial organisms.

Jolly Giant Creek

The Jolly Giant Creek watershed covers approximately 1,000 acres. Its headwaters are located east of Humboldt State University in the Arcata Community Forest. As with the other "urban" streams in Arcata (Janes, Campbell, Grotzman, and Beith Creeks), it serves as storm drain collecting runoff and drainage principally from downtown Arcata west of Highway 101, and transporting it to the Bay.

Between Fifth and "H" Streets, and 11th and "N" Streets, the creek moves in and out of culverts, rarely remaining visible for more than 20 meters. The creek is visible at the following locations:

Between 6th and 7th Streets for approximately 20 meters;

At 9th and J Streets for 10 meters;

At 9th and K Streets for 15-20 meters;

At Seely and Titlow Warehouse on 10th Street for 10 meters.

The creek surfaces at 11th and N Streets where it parallels the railroad tracks for most of the remaining portion up to Highway 101 and is culverted once again under the highway. Culverts on Jolly Giant Creek are passable to anadromous fish under intermediate flow conditions, but prevent passage at low flows because of a lack of water, and possibly at high flows because of high water velocity.

Immediately downstream from Alliance Road, Jolly Giant Creek has been channeled and the banks are sparsely vegetated. The stream parallel to the Arcata High School field is quite narrow, well vegetated with rushes, grasses, and sedges. In both sections, there are some temporary obstructions caused by tires, boards, etc.

Jolly Giant Creek is a key element in the City of Arcata's anadromous salmonid restoration programs and serves as the homestream for returning salmon, steelhead trout, and cutthroat trout. A fish trap located at the undeveloped "Shay Park" site near Foster Avenue and Alliance Road serves to capture returning salmonids for rearing purposes and also marks the upper end of anadromous fish migration on this creek.

Several stream restoration and enhancement projects have been carried out on this creek by the City in order to improve drainage, reduce or streamline maintenance, and provide spawning and rearing habitat for various fish species. Many of the programs began as experiments by Humboldt State University faculty and students, and when successful,

were made a part of the creek's management. Spawning gravel and gravel retention structures have been placed on the creek immediately downstream of the trap entrance. Rearing habitat has been created by placing pool scouring structures in the creek between Alliance Road and 11th Street and at various locations along the recently restored portion of Butcher's Slough. Most importantly, rearing habitat has been improved by the creation of sediment traps at "H" Street, immediately upstream of Alliance Road, and immediately upstream of the fish trap. These sediment traps divert the majority of the bedload into the sediment trap where it settles out and can easiy be removed without disturbing the remainder of the creek. The sediment trap immediately upstream of the fish trap has annually collected approximately 50 cubic yards of sediment, thus protecting the spawning habitat downstream.

The major restoration work on Jolly Giant Creek occurred during 1985-86 when the tidally influenced portion of the creek (Butcher's Slough) was lengthened and widened with funds from the California Coastal Conservancy. The City removed most of the remains of two abandoned lumber mills and returned the slough to a meandering, more natural course.

Janes Creek

The Janes Creek watershed covers approximately 5,000 acres and drains north Arcata, including the Aldergrove industrial area and also drains Arcata west of Jolly Giant Creek. A tidegate at McDaniel Slough, functioning as a flood control measure, prevents saline intrusion into lower Janes Creek. This gate also inhibits most upstream movement of fishes from the Bay into Janes Creek. The two fish species common to lower Janes Creek, are stickleback and cutthroat trout, although silver salmon have also been recorded. Several bird species and mammals, including river otter and rails, are to be found in this area.

The lower stream section prior to entering McDaniel Slough has a low gradient, meanders widely, and has a streambed composed of very fine sediments. Livestock are pastured in this area, but some riparian vegetation, mainly grasses, sedges, and rushes remain. The streamflow is sluggish and the channel is clogged in places with duckweed and Ranunculus.

The stream crosses under 11th Street about 1 kilometer from the mouth. Cattle access is unrestricted in this section. Pampas grass has been planted along one bank for a short distance near 11th Street. Human access is restricted by fences in this area, but the stream channel is in a semi-natural state. One hundred meters further upstream, the creek crosses under Haeger Avenue, then parallels Zehndner Avenue where it is channelized. The creek flows under a barn at Arcata Creamline Dairy where debris and organic material from livestock may be a problem. Banks in this area are eroded and vegetation is in poor condition.

Near Foster Avenue, about 1.4 kilometers from the mouth, dense willow and alder thickets clog the channel and trap debris. Near Heather Lane,

about 1.5 kilometers from the mouth, the creek is lined by berry vines and transplanted conifers up to Alliance Road. This vegetation restricts human access.

A debris dam in front of a concrete culvert at 1.7 kilometers may cause fish passage and flooding problems. Both the stream banks and channel are well vegetated in this area.

The banks of the stream crossing under Hilfiker Drive at 1.9 kilometers are excessively eroded because of livestock grazing and watering. Fine sediments line the creek channel, and anaerobic conditions prevail.

A fence at 2.2 kilometers just downstream from St. Louis Road crosses the channel and could become clogged with debris. At 2.5 kilometers, the creek goes under the railroad and Highway 101.

Campbell, Beith, and Grotzman Creeks

These creeks drain the southeastern portion of the City which includes the communities of Bayside and Sunnybrae. Campbell Creek also drains the residential and forested portion of the City that is north of Seventh Street and east of Highway 101. These creeks flow separately through the agricultural land between Old Arcata Road and Highway 101 until they meet immediately east of Highway 101 and collectively form Gannon Slough. Gannon Slough is controlled by a tidegate on the east side of Highway 101 then flows west under Highway 101 and into Arcata Bay. Electrofishing has indicated that the tidegate is not a complete barrier to anadromous fish migration as evidenced by the capture of juvenile silver salmon from Campbell Creek below Seventh Street.

All three creeks are completely channelized through the agricultural land and suffer from bank erosion and siltation due to uncontrolled cattle grazing. As part of the Community Park planning and permitting process, that portion of Campbell Creek that flows between Seventh Street and Samoa Boulevard (Highway 255) now has a retoration plan that would eliminate cattle grazing and add a sediment trap, small fishing pond, and spawning and rearing habitat primarily for coastal cutthroat trout. As a part of permit requirements, this stream restoration will be the first phase of Community Park development.

Sensitive Habitats

Humboldt Bay and its immediate environs provide important habitat for birds migrating along the Pacific Flyway as well as for resident species fish, birds, and other wildlife. The value of the Bay to wildlife is magnified by its proximity to agricultural marsh lands, as well as some riparian habitat along tributary streams and the nearness of the forested hillsides. Tidelands and marshlands are among the most limited habitat types since, except for freshwater marsh, they are found only in estuarine areas, and are subject to adverse influences from a wide range of land and water management practices.

Tidal Flats

Tidelands within Arcata City Limits were granted to the City by the California State Lands Commission in 1913, with additional tidal and submerged lands being granted in 1917. These tidelands, which are mostly mudflats, play an essential role in the food web of marine-associated organisms, producing vast numbers of invertebrates; alternating submersion and exposure distributes nutrients and creates an environment requiring specific adaptation for the resident organisms.

While all tideflats contribute significantly to local fish and bird populations, upper tidal mudflats in north Arcata Bay are even more heavily used by feeding shorebirds than other such areas (Furniss 1968, Gerstenberg 1972, May 1973). On these mudflats, effluent from Arcata's oxidation pond contributes nutrients to the food web. Gerstenberg (1972) found that upper tidal mudflats here were used by feeding shorebirds at three times the rate of moderate elevation flats and at nearly ten times the rate of lower tidal flats.

Arcata Bay contains numerous oyster, clam, and eelgrass beds, as well as a double-breasted cormorant rookery and Caspian tern nesting site, and two harbor seal hauling areas. Not all of these occur on City tidelands, however, all are part of the same complex estuarine environment and are subject to the same influences.

All of the North Arcata Bay tidelands are designated as wildlife conservation areas in the Arcata General Plan, Conservation Element. Eelgrass beds are included in the vegetation conservation map.

Marshlands

Marshlands bordering Humboldt Bay have been reduced by diking and filling, to about 10 percent of the original 6,500 acres of wetlands in the area, or about 600 acres of salt marsh and 85 acres of freshwater marsh. Freshwater marsh in the Arcata area occurs on the flats east of the Bay, the bottomlands between Arcata and the Mad River Slough, and adjacent to McDaniel Slough. While permanent freshwater marshes are small, they are swollen considerably by flooding of lowlands during the wet season. The freshwater marshes of the Arcata Marsh and Wildlife Sanctuary built by the City more than doubled the total for Humboldt Bay.

Most of the present agricultural lands in the Arcata Bottoms and East Bay Plain were originally salt marsh. The largest tract of salt marsh remaining within Arcata's City Limits is the 25 acres included in the National Wildlife Refuge between Brainard's Cut and the oxidation pond. Another 27 acres have been restored by the City on two other parcels: one along Butcher's Slough and the other immeditely north of the oxidation pond. Most of the perimeter of Arcata Bay is salt marsh located on the Bay's north shore. The scattered marshes total approximately 127 acres.

These marshlands are highly productive. One acre of healthy wetland produces up to ten tons of nutrients per year, several times more food than an average wheat field (Odum 1961). Because this high productivity

is based on abundant nutrients supplied by stream flow through the marshes, and on the mixing effect of tidal action, marsh habitats are exceedingly sensitive to changes in water quality and quantity. Traffic across marshlands is a greater problem than for more natural terrestrial environments in that the fine marsh soils are highly susceptible to compaction, and the constant movement of water complicates the effects of disturbance to plant cover. Erosion and channeling may result from such disturbance.

Marshes bordering Arcata Bay provide habitat for several rare birds including the peregrine falcon and brown pelican.

Several rare and/or endemic plants also occur in these marshes. Orthocarpus castillyoides var. humboldtiensis is listed in the Inventory of Rare and Endangered Species (California Native Plant Society 1974) and is found in several areas bordering Arcata Bay. Grindelia stricta spp. Blakei is noted by Ferris (1960) to occur only in salt marshes bordering Humboldt Bay.

All of the salt marsh is included in the vegetation, wildlife, and hydrology conservation areas noted in the Conservation Element of the Arcata General Plan. Freshwater marshes in low-lying agricultural lands are included in wildlife and hydrology conservation areas, but not in the vegetation conservation areas.

Maintenance Program

Maintenance programs for Arcata's creeks, marshes, and tidelands are minimal. Dredging of creeks is the primary maintenance activity at present; the City routinely obtains a five-year permit to dredge Janes Creek above 11th Street, and to dredge all of Jolly Giant Creek. In actual practice, only certain stretches of Janes Creek within the urban areas are dredged. Debris is routinely removed from both creeks. Because of the inclusion of sediment traps along Jolly Giant Creek, dredging is far less frequent than in the past. However, annual removal of sediment from these traps has become routine maintenance. No routine dredging is done at present in Arcata Bay.

The three freshwater marshes of the Arcata Marsh and Wildlife Sanctuary are managed for water quality as well as for wildlife enhancement. These marshes receive treated wastewater as part of Arcata's wastewater treatment process and are, therefore, managed and maintained by treatment plant personnel.

The remaining wetlands and streams are managed and maintained by the City's Public Works Department with recommendations and input from the Marsh Task Force. The Task Force, originally formed in 1979 and then again reformed in 1983, is a citizen and agency advisory group charged with the planning of future wetland restoration projects and making wetland management recommendations to the City.

Land Use

Streams

North of 11th Street, Janes Creek flows through both County and City

areas. This portion is largely developed, and the current zoning and General Plan designations reflect that development. This area is predominantly low density residential; with one large agricultural area south of Foster Avenue and some industrial uses north of Foster Avenue.

South of 11th Street, Janes Creek flows through agricultural land to the Bay. With one exception, the General Plan designates this area Agriculture, with Parkland adjacent to the creek. One area north of Samoa Boulevard is designated Industrial on the General Plan and is zoned Light Industrial by the County.

Jolly Giant Creek flows entirely through the urban area of Arcata and, with the exception of the High School athletic field, and the Natural Resource and Public Facility Zoning along Butcher's Slough is bounded by high density residential and industrial zoning.

Jacoby Creek is zoned Agriculture Exclusive within Arcata City Limits and Agriculture for most of its length outside the City.

Gannon Slough west of Highway 101 is zoned Natural Resource Protection. East of Highway 101 Campbell, Beith and Grotzman Creeks are zoned Agriculture Exclusive up to Samoa Boulevard and Old Arcata Road. Beith and Grotzman also pass through Medium High Residential and General Commercial zonings before leaving the eastern coastal zone boundary. Campbell Creek between Samoa Boulevard (Highway 255) and 7th Street is zoned Public Facility (Park), along with the rest of the planned community park site.

Marshlands

Salt marsh within the City and on the perimeter of the Bay is zoned Natural Resource Protection as well as the entire Arcata Marsh and Wildlife Sanctuary. Along McDaniel Slough, the County zoning is Agriculture General while the Arcata General Plan indicates Parkland for the immediate vicinity of the Slough. Freshwater and saltwater marsh in the East Bay area and on the Arcata Bottoms are Agriculture Exclusive in both County and City zoning.

Tidelands

Tidelands within Arcata City Limits are zoned Natural Resource Protection.

EXISTING GENERAL PLAN POLICIES AND DESIGNATIONS

The existing Arcata General Plan policies and land use designations should seek to minimize additional siltation problems and forestall loss of riparian habitat. Existing policies indicate that:

Rivers, streams and adjacent areas, and marshes should remain in a natural condition;

Development along creeks should be subject to a setback requirement of at least 25 feet on either side of the creek center line.

All the large, undeveloped areas adjacent to the streams are designated as either Agriculture or Parkland on the existing General Plan Map. Consequently, no larger developments that could aggravate siltation problems or destroy riparian habitat are anticipated.

POLICY RECOMMENDATIONS

D-1 To protect riparian habitats and to minimize erosion, runoff, and interference with surface water flow, the City shall establish Riparian Buffer Areas along all streams within the Coastal Zone. The City shall add a new section, Riparian Buffer Areas, to Article 3 of the City's Land Use and Development Guide. This new section will formalize the City commitment to protection of riparian habitat by defining and identifying such habitat and by applying the following regulations within the buffer areas:

(a) New developments and redevelopments shall maintain or restore a natural vegetation buffer strip along all designated streams. This buffer strip shall be subject to the following definitions:

Distinct Riparian Vegetation - 100 feet from the outer edge of the existing riparian corridor, all of Jacoby Creek. Existing riparian corridor shall include those areas adjacent to the creek that are presently dominated by trees and other vegetation characteristic of streamside habitat;

Channeled Creeks - 25 feet from the center line of the creek, all of Grotzman Creek, Lower Beith Creek, all of Campbell Creek, Jolly Giant Creek above Butcher Slough, and Janes Creek above McDaniel Slough;

Sloughs - 25 feet from the outer edge of the slough area, McDaniel Slough, Gannon Slough, and Butcher Slough.

(b) Indigenous vegetation shall be retained in the buffer areas.

(c) Fencing that crosses a stream channel, acts as a barrier to anadromous fish, or acts as a collector for debris shall not be permitted.

(d) Where opportunities arise, the City shall require fencing along channels to prevent further bank erosion by livestock.

D-2 The City shall seek funding to develop a comprehensive stream maintenance program for streams within its jurisdiction. This program shall provide for stream rehabilitation projects designed to improve flow capacity, minimize channel erosion, and enhance riparian habitat; annual channel inspection to identify and remove barriers to anadromous fish, debris dams, and obsolete flood control or scientific study facilities.

D-3 The City shall seek funding to provide for restoration of the following degraded resources:

(a) Jolly Giant Creek from Butcher Slough north to Highway 101.

(b) Janes Creek between 11th Street and Alliance Road.

(c) Campbell Creek from Samoa Boulevard (Highway 255) to 7th Street in conjunction with Arcata Community Park development.

(d) Beith and Grotzman Creeks east of Highway 101 and west of Old Arcata Road.

(e) Campbell Creek from Samoa Boulevard (Hwy. 255) to Gannon Slough.

(f) Gannon Slough.

D-4 The City shall seek assistance and ultimately develop a plan that identifies storm drain pollution sources; educates the public and businesses on the nature of waste treatment and its importance to Arcata's creeks and requires pre-treatment of waste by the identified pollution sources.

D-5 If land divisions are allowed creating new parcels mapped as wetlands on the adopted Coastal Wetlands Map, such divisions shall require the recordation of deed restrictions providing that no filling would be allowed on the wetland portion of the parcel in connection with new development other than that permitted under Section 30233 of the Coastal Act or the Coastal Wetlands Development Standards, and that the use of the newly created parcel would be limited to grazing or similar agricultural uses consistent with the Coastal Agricultural Exclusive zoning district.

D-6 The City shall adopt a Coastal Wetlands Map showing the location of wetlands, riparian corridors and uplands within the Coastal Zone. All development within the areas identified on the map as wetland or riparian corridor shall require a Coastal Wetlands Development Standards.

The City shall establish a Wetlands Buffer Area to protect the areas shown as wetlands on the Coastal Wetlands Map. All development within the buffer areas shall comply with the Wetlands Buffer Area Development Standards of the Coastal Land Use and Development Guide.

The City shall designate and zone all areas shown as wetlands or riparian corridor on the Coastal Wetlands Map as either Coastal Agriculture Exclusive, Coastal Natural Resource Protection, or Coastal Public Facility.

D-7 Development in the Heavy Industrial area bounded by Samoa Boulevard, Butcher's Slough and Gannon Slough should include local native plant landscaping, screening and other mitigations to ensure compatibility with the educational, recreational and wildlife uses of the Humboldt Bay National Wildlife Refuge and the Arcata Marsh and Wildlife Sanctuary.

APPENDIX E

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

DIKING, DREDGING, FILLING, AND SHORELINE STRUCTURES

30233. (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1) New or expanded port, energy, and coastal dependent industrial facilities, inlcuding commercial fishing facilities.

(2) Maintaining existing or restoring previously dredged depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetlands, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilties, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for such boating facility, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25% of the degraded wetland.

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(5) Incidental public service purposes, including, but not limited to, burying cables and pipes for inspection of piers and maintenance of existing intake and outfall lines.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource-dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or

estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study ... .

(d) Erosion control and flood control facilities constructed on water courses can impede the movement of sediment and nutrients which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be places at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal permit for such pruposes are the placement, time of year of placement, and sensitivity of the placement area.

30235. Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

30607.1 Where any dike and fill development is permitted in wetlands in conformity with this division, mitigation measures shall include, at a minimum, either acquisition of equivalent areas of equal or greater biological productivity or opening up equivalent areas to tidal action; provided, however, that if no appropriate restoration site is available, an in-lieu fee sufficient to provide an area of equivalent productive value or surface areas shall be dedicated to an appropriate public agency, or such replacement site shall be dedicated to an appropriate public agency, or such replacement site shall be purchased before the dike or fill development may proceed. Such mitigation measure shall not be required for temporary or short-term fill or diking: provided, that a bond or other evidence of financial responsibility is provided to assure that restoration will be accomplished in the shortest feasible time.

OBJECTIVES

Determine what General Plan policies and regulations the City should establish in order to comply with the Coastal Act policies.

EXISTING CONDITIONS

Dikes

Much of the floodplain areas adjacent to Arcata Bay are at lower elevations than high tide water levels. Originally, salt marsh covered most of the Arcata Bottoms and East Bay plain. Progressive diking has allowed conversion of these lands to farming uses, however, seasonal flooding still occurs.

Levees have been built along the perimeter of the Bay and the lower reaches of Gannon Slough, Jacoby Creek, and McDaniel Slough. Reclamation District No. 768 constructed the perimeter dikes along McDaniel Slough in the early 1900s. This district is still in existence and is responsible for maintenance of the dikes. Levees along Gannon Slough and Jacoby Creek are not maintained and are in poor condition. The most effective barriers to flooding are the Eureka Southern Railway grade and U.S. Highway 101 south of Arcata. In 1960, a dike was constructed on the mudflats south of town to enclose a landfill dump which was then closed in 1974. This dike now surrounds the Franklin R. Klopp Recrational Lake portion of the Arcata Marsh and Wildlife Sanctuary.

Dredging and Filling

A sizeable portion of south Arcata's residential and industrial lands are built on filled wetlands. Lots along South "G" Street, Samoa Boulevard, and Bayside Road, and sites such as the City Corporation yard and the upland portions of the Arcata Marsha and Wildlife Sanctuary have received varying amounts of fill, as is evident from the low wet nature of adjacent lands.

The City routinely applies for a Corps of Engineers permit for maintenance dredging of Janes Creek above 11th Street and all of Jolly Giant Creek. In practice, most dredging occurs in the urban sections of Janes Creek. Approximately $15,000 a year is spent by the City on Creek dredging operations.

Large scale dredging occurred in conjunction with construction of Arcata's boat launching facility in 1971. A 5,000 foot channel was dredged to a depth of minus 4 feet below mean lower-low water. The channel has not been dredged since that time and has silted up to an elevation of approximately 0 feet mean lower low water.

The landfill dump was used by the County until problems occurred with high leachate levels in nearby Butcher's Slough. In 1974, the dump was sealed with three feet of impervious bay mud dredged from the tideflat previously enclosed by the dike. This left a relatively barren raised area and a 17-acre basin of sterile blue clay sediment. The basin and the landfill are now restored to integral parts of the Arcata Marsh and Wildlife Sanctuary.

The most extensive future dredging and filling activities will be associated with the proposed restoration of 438 acres of land west of

McDaniel's Slough in conjunction with a county-sponsored wetland mitigation bank program. Other minor dredging includes periodic removal of silt from the boat ramp and channel immediately west of the ramp.

A proposal to expand the Janes Creek Maintenance District for purposes of flood control has been discussed by agencies involved in the District. Expansion plans include the following proposed projects:

- Excavation of a channel from the southwest side of the Greenview Area Subdivision, west to Liscomb Slough.

- Some channeling and removal of silt and aquatic growth in Janes Creek/McDaniel Slough, Jolly Giant Creek, Grotzman Creek, and Beith Creek.

This proposal has not been adopted by any of the agencies involved in the District.

Shoreline Structures

The only existing shoreline structures other than dikes within the Coastal Zone are tide gates and the Arcata boat launching ramp. Tide gates are located at the mouth of McDaniel Slough, and on Gannon Slough. The boat launching facility was constructed in 1971 and includes a ramp and parking area.

Proposed shoreline structures are included in the expansion of Janes Creek Maintenance District. The maintenance district expansion plans call for replacing the wooden tidegates on McDaniel Slough with 100-foot wide concrete gates. The purpose of this project is to allow a greater volume of water to escape at low tide during and immediately after a storm. The proposed wetland mitigation bank deals with the flooding problem by moving or removing the tidegates. Both proposals have not been adopted by any agency.

Another structure planned is a fish ladder at the Klopp Lake outlet to allow migrating coastal cutthroat trout that were spawned or planted in the lake access to and from the Bay. A fish ladder is also proposed for the treatment plant discharge in Butcher's Slough that would allow migrating salmon and steelhead reared in wastewater to return to the hatchery. In order to monitor straying from the proposed return facility at the treatment plant, a fish trap is planned as part of the sediment trap on Butchers Slough at H Street. Various instream structures (to improve fish habitat) have also been planned for placement in Butchers Slough.

An interpretive center that would serve as an educational focal point for all to the natural resources of Arcata Bay and possibly include a wildlife care center is presently in the planning stages. The most likely location of this proposed center is a parcel north of the treatment plant on the west side of South "G" Street.

POLICY RECOMMENDATIONS

E-1 Diking, filling, or dredging of Bay waters, wetlands, and estuaries shall be permitted, where feasible mitigation measures have been provided to minimize adverse environmental effects, for the following limited uses:

(a) For incidental public service purposes, including, but not limited to, burying cables and pipes, and maintenance of existing dikes and public facilities.

(b) To maintain a channel adequate to serve the boat ramp at current levels of use.

(c) Resource restoration purposes.

(d) Nature study, aquaculture, or similar resource dependent activities.

(e) Agriculture within existing wetlands, but not including the expansion thereof.

E-2 The City shall permit shoreline structures (such as dikes or tidegates) that may alter the natural shoreline only to protect existing development, only when no other feasible less environmentally damaging alternative is available, and only when not located within a wetland, unless the wetland will be the primary beneficiary of the structure.

E-3 The City shall not permit disposal of dredge spoils on existing wetlands unless such disposal is necessary for a resource restoration project or the maintenance of existing agricultural operations in farmed wetlands. Fill will be allowed for aquaculture projects if it can be shown that it is necessary for the project and is required to be located within the wetland and there is no other feasible less environmentally damaging alternative.

E-4 The City shall require a Use Permit and/or Nature Area Permit for any activity or development proposed in the Natural Resources Protection Zone.

E-5 The City shall adopt a Coastal Wetlands Map showing the location of wetlands, riparian corridors and uplands within the Coastal Zone. All development within the areas identified on the map as wetland or riparian corridor shall require compliance with the Coastal Wetlands Development Standards of the Coastal Land Use and Development Guide.

E-6 Where wetlands are seasonally farmed, continued agricultural use of the wetlands is allowed. Expanding farming operations into non-farmed wetlands by diking or otherwise altering the functional capacity of the wetland is not permitted. Farm-related structures (including barns, sheds, and farm-owner occupied housing) necessary for the continuance of the existing operation of the farmed wetlands may be located on an existing farmed wetland parcel, only if no alternative upland location is viable for such purpose and the structures are sited and designed to

minimize the adverse environmental effects on the farmed wetland. Clustering and other construction techniques to minimize both the land area covered by such structures and the amount of fill necessary to protect such structures will be required. The location of the wetlands shall be determined by use of the adopted Coastal Wetlands Map.

E-7 The City shall establish a Wetlands Buffer Area to protect the areas shown as wetlands on the Coastal Wetlands Map. All development within the buffer areas shall comply with the Wetlands Buffer Area Development Standards of the Coastal Land Use and Development Guide.

The City shall designate and zone all areas shown as wetlands or riparian corridor on the Coastal Wetlands Map as either Coastal Agriculture Exclusive, Coastal Natural Resource Protection, or Coastal Public Facility.

Appendix F

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

COMMERCIAL FISHING AND RECREATIONAL BOATING

COASTAL ACT POLICIES (As amended February 1986)

30224. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

30234. Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

30255. Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.

OBJECTIVE

Determine what policies are needed to encourage and protect aquaculture in the Bay.

EXISTING CONDITIONS

The importance of commercial and sport fisheries to Humboldt County has been documented through numerous biological, economic, and recreation reports on the area. A recent survey, "An Economic Development Action Plan and Strategy for Humboldt County," by QRC Research Corporation, 1978, emphasized that the sport and commercial fish industries, including shellfish, were second only to the timber industry in economic value in Humboldt County. In 1979 the commercial industry currently circulated an estimated $35 million annually in the Humboldt Bay area; sport fishing, based only on salmon and steelhead caught, may be an additional $5-10 million per year.

In general, it is believed that the commercial and sport industries are not yet fully developed, that opportunity exists for expansion in a number of ways. These include simply increasing existing finfish landings and enhancing the existing oyster industry, as well as creation of new industries, such as developing a market for Hake, or establishing a fish by-products processing plant.

Many recommendations for expansion have involved enlisting some new, innovative aquaculture programs, all of which are centered in Humboldt Bay. Among these is the culture of oysters for sale on the half-shell, mussel farming, crab farming, nori (seaweed) culture, and ocean ranching of

anadromous fishes. The specific aquaculture projects in North Bay are the current oyster industry in which Pacific oysters are grown and harvested on mudflats in central North Bay, and in the Mad River Slough.

Shellfish Growing

North Humboldt Bay is one of the areas of oyster production in California. Currently, the harvest and sale of oysters from Humboldt Bay generates over $1,000,000 annually. The industry has been in Humboldt County for 30 years and offers the equivalent of direct, full-time employment for 40 persons. Giant Pacific Oysters are the main product grown in north Humboldt Bay and Mad River Slough although interest in reviving native oyster culture is increasing. Expansion could involve a need for additional growing areas, such as Arcata's tidelands, as well as new grading and distribution facilities.

Oyster farming in Humboldt Bay has been the center of considerable controversy in recent years. This controversy has focused on coliform loading of Humboldt Bay during and after periods of heavy rainfall. Past sources of the coliform loading have been identified as runoff from pastures, increased contaminated discharges or spills from sewage treatment plants disposing into the Bay, septic tank leachate, and some urban runoff. The largest contributor was the runoff from pastures, a non-point source of pollution for which there was little chance of control. However, the sources of most concern, in the past and those for which the transmission of disease is possible, were the discharge of unchlorinated sewage into Humboldt Bay, most notably from the sewage treatment plants in Eureka, (FDA 1978), and septic tank leachate. However, as of 1986, all wastewater treatment plants discharging into Humboldt Bay have been renovated, upgraded, replaced or eliminated to the point that unchlornated sewage effluent "spills" into the bay have been virtually eliminated. In addition many communities around the bay previously on septic tanks have now been sewered thereby reducing a portion of the non point coliform loading to the Bay. Non-point sources, while still the biggest contributor of coliform to the Bay, have been further reduced by a number of stream restoration and enhancement projects that have reduced erosion, siltation and in some cases, excluded cattle from a number of stream sections.

The shellfish industry is regulated by both the California Department of Health and the U.S. Food and Drug Administration. At this time, regulations require that no oysters be harvested from water having a total coliform count of 70MPN/100ml or greater, and that the fecal coliform count for oysters harvested shall not exceed 230MPN/100ml. These conditions are met most of the time in Humboldt Bay except following periods of intense (0.5" per 24 hrs.) rainfall. For this reason, commercial harvesting of shellfish in Humboldt Bay is prohibited for five days following each major winter storm. The improvements in treating point and non point sources of coliforms has led to the planning of a new study of coliform levels in the bay. This study will most likely be carried out during the winter of 1986/87 and will probably not relieve the oyster industry of some type of closure but may reduce the length of the closure, thereby allowing longer harvest periods.

Salmon Fishery Restoration Program

The City of Arcata has supported research in salmon fishery restoration for

about 17 years. This program, directed by Dr. George Allen of Humboldt State University, has involved the construction of salmon rearing ponds adjacent to the City's sewage treatment plant oxidation pond, and the subsequent raising of juvenile salmon to smolt stage in a mixture of wastewater and Bay water. Overall returns have been as good or better than those in local state hatcheries and the county hatchery.

The main goal of the program has been to restore self sustaining runs of salmon (silver and king), steelhead trout and cutthroat trout to Humboldt Bay tributaries. Various other freshwater species of fish and invertebrates are currently being studied for their commercial aquaculture importance. These include native oysters, Sacramento Blackfish and softshell clams. The facility could, providing that environmental and political concerns were satisfied, someday expand into a commercial salmon ranching facility. This salmon ranch is not envisioned as a full-scale capital and labor intensive industry, but rather as a small testing facility which could engage in the commercial sale of the excess salmon that were not needed to meet the primary goal of stream and fishery restoration.

The potential impacts of a this type of salmon ranching project are discussed in detail in the Arcata Wastewater Pilot Project Environmental Impact Report. Those which can be significant include genetic dilution of native stocks in Jacoby Creek, transmission of disease to healthy populations, and overloading the carrying capacity of Humbolt Bay.

Presently, the City's aquacluture program provides salmon that are caught in the local commercial fishery. The program also provides trout that are stocked in the Arcata Marsh and Wildlife Sanctuary's fishing lake (Klopp Lake). It has been suggested that Arcata's aquaculture program contributes to the health of the local piscivorous (fish-eating) bird populations, such as cormorants, pelicans and herons, and helps to attract them to the Sanctuary area. Birdwatchers from all over the United States come to Arcata because of the diversity of bird species in this area, and in so doing contribute to the region's tourist economy.

POLICY RECOMMENDATIONS

F-1 To protect aquaculture in Arcata Bay, the City shall:

(a) Ensure that its wastewater discharge does not aggravate existing coliform loading problems in Arcata Bay;

(b) As part of the stream maintenance program take measures to reduce coliform loading of perennial streams within its jurisdiction. These measures shall include controlling identified sources of coliform loading such as septic tank leachate and run-off from agricultural operations.

F-2 To encourage additional aquaculture in Humboldt Bay, the City shall continue the development of:

(a) The integrated wetland enhancement, wastewater treatment and salmon ranching program.

(b) The tidelands for commercial and sports oyster production.

Appendix G

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

AGRICULTURE

30241. The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the area's agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:

(a) By establishing stable boundaries separating urban and rural areas, including, where necessary, clearly defined buffer areas to minimize conflicts between agricultural and urban land uses.

(b) By limiting conversions of agricultural lands around the periphery of urban areas to the lands where the viability of existing agricultural use is already severely limited by conflicts with urban uses and where the conversion of the lands would complete a logical and viable neighborhood and contribute to the establishment of a stable limit to urban development.

(c) By permitting the conversion of agriculture land surrounded by urban uses where the conversion of the land would be consistent with Section 30250.

(d) By developing available lands not suited for agriculture prior to the conversion of agriculture lands.

(e) By assuring that public service and facility expansions and nonagricultural development do not impair agricultural viability, either through increased costs or degraded air and water quality.

(f) By assuring that all divisions of prime agricultural lands, except those conversions approved pursuant to subdivision (b) of this section, and all development adjacent to prime agricultural lands shall not diminish the productivity of such prime agricultural lands.

30241.5 (a) If the viability of existing agricultural uses is an issue pursuant to subdivision (b) of Section 30241 as to any local coastal program or amendment to any certified local coastal program submitted for review and approval under this division, the determination of "viability" shall include, but not be limited to, consideration of an economic feasibility evaluation containing at least both of the following elements:

(1) An analysis of the gross revenue from the agricultural products grown in the area for five years immediately preceding the date of the filing of a proposed local coastal program or an amendment to any local coastal program.

(2) An analysis of the operational expenses, excluding the cost of land, associated with the prodiction of the agricultural products grown in the area for the five years immediately preceding the date of the filing of a proposed local coastal program or amendment to any local coastal program.

For purposes of this subdivision, "area" means a geographic area of sufficient size to provide an accurate evaluation of the economic feasibility of agricultural uses for those lands included in the local coastal program or in the proposed amendment to a certified local coastal program.

(b) The economic feasibility evaluation required by subdivision (a) shall be submitted to the commission, by local government, as part of its submittal of a local coastal program or an amendment to any local coastal program. If the local government determines that it does not have the staff with the necessary expertise to conduct the economic feasibility evaluation, the evaluation may be conducted under agreement with the local government by a consultant selected jointly by local government and the executive director of the commission.

30242. All other lands suitable for agricultural use shall not be converted to non-agricultural uses unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.

OBJECTIVES

Determine what minimum lot size and policies are needed to preserve agriculturual lands as defined in the Coastal Act.

Determine when recreational use of agricultural land is consistent with Coastal Act policies.

EXISTING CONDITIONS

Definitions

In the Open Space Element of the Arcata General Plan, a definition of agricultural land is quoted from the California State Supplement to Laws Relating to Conservation and Planning:

> "Agricultural land - land actively used for the purpose of producing an agricultural commodity for commercial purposes. Land may be considered to be actively used notwithstanding the fact that in the course of good agricultural practice it is permitted to lie idle for a period of up to one year."

According to the California Coastal Plan Manual "Prime Agricultural Land" (per California Government Code Section 51201 (c)) means:

1. All land which qualifies for rating as Class I or Class II in the Soil Conservation Service land use capability classifications;

2. Land which qualifies for rating 80 through 100 in the Storie Index Rating;

3. Land which supports livestock used for the production of food and fiber and which has an annual capacity equivalent to at least one animal unit per acre as defined by the U.S. Department of Agriculture;

4. Land planted with fruit or nut bearing trees, vines, bushes, or crops which have a non-bearing period of less than five yars and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than $200 per acre;

5. Land which has returned from the production of unprocessed agricultural plant products on an annual gross value of not less than $200 per acre for three of the five previous years.

"Non-prime agricultural land" means other coastal agricultural lands that are now in use for crops or grazing, or that are suitable for agriculture.

Land Use

At various times during the past 100 years, agricultural land in the Arcata area has produced raspberries, strawberries, lilies, daffodils, potatoes, corn, artichokes, hay, forage for cattle, plus a number of shallow-rooted cool weather vegetables. In recent years, a narrowing of the agricultural base has occurred; at present, the two major uses of Arcata's agricultural land are the production of daffodils and lily bulbs, and the raising of dairy and beef cattle. Within the Arcata planning area about 4,300 acres are in dry farm pasture, 3,180 acres are in irrigated pasture, between 200 and 300 acres are in intensive crops, and 10 acres are irrigated idle crop land (adjusted from the California Department of Water Resources Survey, 1968).

There are 800 acres of agricultural land lying within Arcata City Limits and the Coastal Zone. All of this is zoned Agricultural Exclusive, with a minimum parcel size of 20 acres, except for the area west of Greenview Subdivision which is zoned Residential-Agricultural. All of this land is rated "prime agricultural" according to one or more of the parameters listed on the previous page. Roughly 3/4 of Arcata's agricultural land occupies the East Bay Plain, while the remainder lies to the south and west of the City in the Arcata Bottoms.

Arcata Bottoms

This 7,000 acre alluvial plain lying between the Mad River and Humboldt Bay is one of the three major agricultural production areas in northern Humboldt County. The highest quality soils, rated 60 or better on the Storie Index, lie directly to the north and west of the Arcata urban area. Here the soil is lighter and drainage is better than at locations nearer the Bay. In the Conservation Element of the Arcata General Plan, soil Grades I and II are designated highly suitable for agriculture. The planning area contains some of the largest areas of Grades I and II soils in northern Humboldt County.

Dense soils south of Samoa Boulevard provide grazing for beef cattle. Between Samoa Boulevard and Lanphere Road dairy herds are supported at a rate

of 2 acres per cow; north of Lanphere Road to the Mad River 1 1/2 to 1 3/4 acres are required per animal (University of California Agricultural Extension 1979).

At one time, dairy farmers used the less productive land adjacent to Humboldt Bay as well as land farther inland; however, as overhead expenses have increased, this land has proven too marginal to be profitable. Dairies have retreated to higher ground, leaving the low-lying areas to beef herds which can be maintained on poor quality and smaller amounts of feed.

Dairying is a growing industry in the area for a number of reasons. The land and climate are well suited to production of grasses and clover; green feed is available in the fields year-round, whereas in many other California dairy areas, the fields dry up in summer months. A well-developed marketing system exists for dairy products, both for local sales and exports. Of the 1,587,000 hundred weights of milk production in Humboldt County in 1977, 15 to 17 percent came from dairies in the Arcata Bottoms (University of California Agricultural Extension 1979).

It is estimated by the University of California Agricultural Extension Service that approximately 60 cows are required to support a family on $16,000 to $18,000 per year (1980 dollars). In the Arcata Bottoms, this size herd can be kept on 90 to 160 acres depending on location and land management practices.

Urban encroachment onto agricultural land west of Arcata has displaced dairy farms in several locations. The 50 to 60 acre area west of Greenview Subdivision is part of a Grade A dairy farm owned by Windy Acres Co.; this parcel is zoned Residential/Agricultural, with a minimum lot size of 2 1/2 acres. Originally, the subdivision area was part of this dairy. The remaining land is seeded in grasses, clover, or silage corn and irrigated with well water. One dairy cow can be supported here on 1 3/4 acres.

Sun Valley Bulb Farms occupies 209 acres, of which only 65 acres lie within the Arcata City Limits and within the Coastal Zone, on land zoned Agricultural Exclusive. To combat pests and maintain productivity, it is necessary to rotate crops and allow land to lie fallow, which increases the amount of acreage needed in a bulb farm operation. According to a representative of Sun Valley, 100 acres is the minimum feasible size for a commercial bulb farm in the Arcata area.

Agricultural land south of Samoa Boulevard and west of "I" Street is zoned Agricultural Exclusive and is presently used for grazing beef cattle. The drainage at this location is better than areas to the west along the Bay's perimeter, and is comparable in quality to the grazing lands adjacent to Bayside Road.

Open space between South "G" Street and Highway 101, zoned Agricultural Exclusive, is leased by the Ford family from Brizards. This land supports beef cattle at a rate of one animal per 1 3/4 to 2 acres.

Unincorporated interest areas in west Arcata include some agricultural land. The section north of Samoa Boulevard, between "V" Street and the railroad tracks contains industrial sites as well as two agricultural parcels. The area west of Janes Road and north of Greenview Subdivision slices through

three agricultural parcels. All of these are suitable for the maintenance of dairy animals at roughly two acres per cow, or for beef herds at 1 1/2 acres per animal.

East Bay Plain

This area is zoned Agricultural Exclusive and is used primarily for the grazing of beef cattle. Most of the low-lying land is reclaimed marsh, and while the soil is high in organic content, it is characterized by poor drainage, salt in the subsoil, and high compaction potential. The land is mostly Grade II and III on the Storie Index, and is highly flood prone. Under good management this land will support a beef cow on 2 to 2 1/2 acres; though it is not as high quality as lands in the Arcata bottoms, it is still considered prime in that it can produce over $200 an acre in hay, with greatest yields occurring on the higher lands along Old Arcata Road (University of California Agricultural Extension 1979). These lands are all seasonal in use, with stock being moved to other areas during wet periods.

Unincorporated interest areas along the Old Arcata Road are primarily residential, with one large agricultural holding north of Jacoby Creek. This is the only land on the East Bay Plain rated above 80 on the Storie Index.

Agricultural Parcel Sites

With few exceptions, agricultural lands within the City Limits and the Coastal Zone are in holdings larger than 60 acres. The East Bay Tidal Plain is divided among four ownerships, and the land west of Greenview Acres comprises two parcels totaling 50 acres under the ownership of a dairy farm. Areas that have been converted to smaller parcels are located north of Greenview Acres and west of Janes Road, and north of Samoa Boulevard along McDaniel Slough and Old Arcata Road.

Recreation

Hunting and Wildlife Observation

Much of Arcata's agricultural land is also superior bird habitat, particularly those areas in the East Bay flood plain and lands which border the Bay and its tributary streams. Arcata Bay and environs are widely acclaimed as prime territory for both hunters and bird watchers. These consumptive and non-consumptive recreational activites are concentrated along the Bay margin, at Mad River Slough, however,Gannon Slough, Jacoby Creek, and many low, wet areas throughout the Arcata Bottoms and the East Bay area provide nesting, feeding, and resting territory for myriads of bird species.

Much of the land containing the above habitats is agricultural. At present, access is limited to certain areas along the Bay shore (see Access section). According to Coastal Act policies, recreational development generally does not have priority over agricultural uses.

30222. The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public

opportunities for coastal recreation shall have priority over residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.

Also included under "Recreation and Visitor Serving Facilities" are the following policies:

30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

30223. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.

Observation and hunting of coastal wildlife cannot be pursued at inland water areas. Many coastal bird species do not occur in upland areas. According to the policies stated above, recreational hunting and observation, as well as agriculture are important land uses in the Coastal Zone.

Policies intended to preserve agricultural lands stress that land "shall be maintained in agricultural production" and that "lands suitable for agricultural use shall not be converted to non-agricultural uses." The recreational activities of hunting and nature study do not require conversion of agricultural lands as they are managed in the Arcata area. In this light, recreational uses that do not require permanent structures are compatible with agriculture in the Coastal Zone.

Other Recreational Activities

Local Little League baseball groups have obtained a Coastal Zone permit to develop playing fields in the East Bay Plain just south of Samoa Boulevard.

Coastal policies may allow the conversion of agricultural land where: the proposed facility or activity is necessary and is consistent with other Coastal policies; there is no alternative location that would meet the same need with less environmental damage; and such facilities are sited and designed to minimize adverse impacts on the agricultural resource. The keys to permitting the conversion of non-prime agricultural land to recreational use may lie in determining if the conversion is irrevocable, and if the conversion does not interfere with adjacent agricultural uses.

Coastal Conservancy Projects

The Coastal Conservancy can assist in the preservation of agricultural lands by:

The selective acquisition of prime agricultural lands proposed for conversion to non-agricultural use to prevent urban intrusions into agricultural areas, to protect lands not now in agricultural production but needed to meet long-term food needs, and to assemble lands into parcels of economic size.

There are currently no agricultural areas in Arcata's Coastal Zone that would qualify for Coastal Conservancy protection.

POLICY RECOMMENDATIONS

G-1 The City shall apply Coastal Agricultural Exclusive zoning to all areas designated for agriculture on the Local Coastal Plan Map.

G-2 The minimum lot size in the Coastal Agricultural Exclusive zone shall be increased to 60 acres.

G-3 The Coastal Agricultural Exclusive zone shall include the following:

(a) The "Permitted Uses" section shall include: "Agricultural Structures - includes greenhouses or other nursery structures erected over exposed soil."

(b) The "Conditionally Permitted Uses" section shall include: "Greenhouses or other nursery structures erected on concrete perimeter foundations may be permitted if no less environmentally damaging alternate is available."

(c) Commercial greenhouses will not be allowed to locate within a wetland.

G-4 Where wetlands are seasonally farmed, continued agricultural use of the wetlands is allowed. Expanding farming operations into non-farmed wetlands by diking or otherwise altering the functional capacity of the wetland is not permitted. Farm-related structures (including barns, sheds, and farm-owner occupied housing) necessary for the continuance of the existing operation of the farmed wetlands may be located on an existing farmed wetland parcel, only if no alternative upland location is viable for such purpose and the structures are sited and designed to minimize the adverse environmental effects on the farmed wetland. Clustering and other construction techniques to minimize both the land area covered by such structures and the amount of fill necessary to protect such structures will be required. The location of the wetlands shall be determined by use of the adopted Coastal Wetlands Map.

G-5 Private and public non-vehicular recreational activities such as hiking, riding, fishing, hunting, and other recreational activities which do not require premanent structures, facilities, or foundations may be permitted in the Agricultural Exclusive zone if they do not interfere with adjacent agricultural uses or limit potential of the site to return to agricultural use or significantly displace the wildlife utilizing the area, especially in seasonal wetlands. This recommendation shall be implemented in the Coastal Land Use and Development Guide.

Appendix H

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

HAZARD AREAS

COASTAL ACT POLICIES

30253. New Development shall:

1. Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

2. Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

OBJECTIVES

Determine if the policies and standards in the Seismic Safety and Public Safety Elements are sufficient to ensure appropriate development in the Coastal Zone.

Determine what mitigation actions are needed to protect existing businesses in the flood prone lands around South "G" Street.

EXISTING CONDITIONS

The City of Arcata has adopted Seismic Safety and Public Safety Elements of its General Plan. These elements, adopted in December of 1975, included an analysis of the Arcata Coastal Zone. Because of significant new developments in the understanding of local geology, including mapping by the state of a "Special Studies Zone" where surface fault rupture is suspected, the City is preparing a new Seismic Safety Element. The following is a summary of relevant data from the adopted elements and the new draft. The Uniform Building Code and the State of California construction code requirements implement portions of the Seismic Safety Element of the General Plan.

Geologic Hazards

The Arcata Coastal Zone is located in a seismically active area. The effects of earthquakes on a number of regional faults will be felt in the Coastal Zone. The primary source of local earthquakes is expected to be the Mad River Fault Zone including the Trinidad, McKinleyville, Mad River and Fickle Hill faults. In the Arcata Coastal Zone, the effect of earthquake ground shaking from the Mad River Fault Zone faults is expected to be as great or greater than the effect of earthquakes from more distant faults, including the San Andreas, Mendocino, and Deep Seismic Fault Zones and the Little River Fault.

Current theory leads geologist to believe that the maximum credible earthquake in the Mad River Fault Zone is between 7.7 and 8.3 on the Richter Scale. Expected peak acceleration values range from 0.74 g and 0.95 g, with repeatable accelerations ranging from 0.48 g and 0.62 g. (1.0 g is equal to the force of gravity). The entire Coastal Zone in Arcata is subject to high groundshaking, and buildings should be designed to withstand the expected earthquake accelerations.

Liquefaction is a major seismic hazard in the Arcata area. The flatlands to the west and south of town are underlain by alluvial deposits and former bay muds, and are classified as having a high liquefaction potential. Soil borings are required as a part of any project environmental impact report in this area, and special engineering consideration is required to compensate for any liquefaction potential found. The Arcata General Plan states that critical facilities should not be located in an area of high liquefaction potential. The entire Coastal zone in Arcata is an area of potentially high liquefaction. To date, no deep soil borings have discovered the existence of liquefaction potential which would require special design.

The following public and private critical facilities in the Coastal Zone are presently located in an area of high liquefaction potential.

A. The City of Arcata's Corporation Yard and Sewage Disposal Facility.

B. California Highway Patrol Office.

C. U.S. Highway 101 and the Samoa Boulevard overpass.

D. Bloomfield School, Jacoby Creek School, St. Mary's School, and Equinox School.

E. Humboldt Bay Municipal Water District water main.

F. Radio Station KATA.

Surface fault rupture is another major potential geologic hazard in the Arcata Coastal Zone. A portion of the area in the Coastal Zone has been identified by the state Division of Mines and Geology as being in an Alquist-Priolo Act "Special Studies Zone" because of suspected high potential for surface fault rupture. This area is in the vicinity of the intersections of Seventh and Union Streets and Bayside Road. The area extends approximately 700 feet west, 500 feet south and 1600 feet east of this intersection. Development in this area will require a special geologic study as required by the Alquist-Priolo Act and City ordinance.

The potential for tsunamis, landsliding, and erosion is very low within the Coastal Zone. There are no bluffs or cliffs located in this portion of the Coastal Zone.

Flood Hazard

Flooding is a major hazard over most of the Coastal Zone in Arcata. Nearly all of the agricultural land and some of the industrial and residential land in the zone is within the 100 year flood plain.

The southern portion of the area in the "Q" Street to Buttermilk Lane section of the Coastal Zone is subject to flooding. The City changed the zoning on a 100-acre parcel west of U.S. Highway 101 from industrial to agricultural because of flooding and other environmental problems. The remaining problem area is along South "G" Street. A number of small industrial firms have developed along South "G" Street and have flooded several times in the past. A substantial portion of the vacant parcel between U.S. Highway 101 and Union

Street is in the 100-year flood plain; however, this appears to be primarily a solvable drainage problem.

The City's response to flooding problems has been to minimize development in the flood zone through its land use planning and to regulate construction methods to minimize damage from flooding. The amount of vacant land designated for urban development in the flood plain is minimal. A Natural Hazards Combining Zone has been applied on all lands subject to inundation by the anticipated 100 year flood as shown on the Flood Insurance Rate Maps dated May 2, 1983 that were prepared by the Federal Emergency Management Agency. This zone requires that the ground floor level of all buildings, building enlargements, or building extensions must be at least one foot above the level of the 100-year flood plain. All construction methods and practices must be designed to minimize flood damage.

Fire Hazard

Fire hazard classifications in the Coastal Zone range from No Natural Fire Hazard to Low Natural Fire Hazard. These classifications do not represent significant potential hazards.

POLICY RECOMENDATIONS

H-1 Land Use Designations. Since a significant portion of the developed area of the City of Arcata lies within the high liquefaction potential zone, alteration of the existing land use patterns in the City would not be physically nor economically possible. Present General Plan Land Use Designations and Policies are adequate to insure proper development in the Coastal Zone and need not be altered for Hazard purposes.

H-2 The City shall regulate land use in areas of significant natural hazards in the following manner:

(a) New Critical Facilities - No new critical facilities shall be permitted to locate in areas of potential liquefaction or within the 100-year flood plain (See Table 1 for a list of critical facilities).

(b) Existing Critical Facilities - Existing critical facilities located in areas of potential liquefaction shall not be permitted to expand beyond a cost of $50,000 (as of December 1980) with allowances for inflation without requiring a detailed site investigation which addresses the potential for liquefaction and settlement, and develops adequate mitigations satisfactory to the City and to a registered geologist, a professional civil engineer, or a certified engineering geologist who supervises the study. Replacement of existing facilities or structures will not require further site investigation as outlined above. Existing critical facilities located in the 100-year flood plain shall be permitted to expand only if adequate flood control measures are provided and if the expansion cannot be provided for elsewhere due to the nature of the facility.

(c) Non-Critical Facilities - Non-critical facilities shall be permitted to locate or expand in areas of potential liquefaction. Non-critical facilities shall be permitted to locate or expand in the 100-year flood plain only if flood proofing measures which meet flood insurance criteria and which are satisfactory to the City are provided, and if it can be shown that such development would not cause additional flooding and/or drainage problems in other areas.

TABLE 1. CRITICAL FACILITIES

Critical facilities include: power plants, large dams, civil defense headquarters, major electrical facilities, power and communication substations, hospitals, schools, fire stations, police stations, radio stations, television stations, microwave stations, major public buildings, sewage treatment plants, and water works.

H-3 For non-critical facilities the City may require site-by-site soils and geologic engineering studies when the Director of Community Development determines that public health and safety could be affected. These studies shall be done by a registered geologist, a registered civil engineer with expertise in soils, or a certified engineering geologist in areas of potential liquefaction and settlement. Potential hazards shall be evaluated using the ground shaking parameters presented in the Seismic Safety Element. The study should show that the proposed project minimizes the potential hazard to life and health.

H-4 To protect structures and critical facilities in the Coastal Zone, and to provide protection of existing habitat values, the City shall encourage and promote flood protection practices which manage flooding problems on a watershed basis.

(a) The City shall encourage the expansion of Janes Creek Flood Control District to include the watersheds of Janes, Jolly Giant, Grotzman, and Beith Creeks, or shall otherwise coordinate with the County to alleviate existing flooding problems.

(b) The newly formed district or designated agency shall evaluate alternate flood control measures and select a flood control plan that improves drainage and minimizes potential hazards in the Coastal Zone.

(c) In evaluating alternates, emphasis shall be placed on improvement of drainage. However, enlarging of existing tidegates, dredging of

presently undredged sections of creek, or construction of new structures shall be allowed only when no less environmentally damaging alternate is feasible, and only when adequate mitigation is provided and only when not located within a wetland. If mitigation for said development is provided in the form of a fully approved restoration project such development may be permitted in a wetland.

(d) The City shall seek funding to develop a comprehensive stream maintenance program for streams within its jurisdiction. This project shall provide for stream rehabilitation projects designed to improve flow capacity, minimize channel erosion, and enhance riparian habitat; annual channel inspection to identify and remove barriers to anadromous fish, debris dams, and obsolete flood control or scientific study facilities.

H-5 The City shall seek funds to establish a hazard inspection and abatement program to reduce the risk associated with hazardous structures to an acceptable level.

Appendix J

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

LOCATING AND PLANNING NEW DEVELOPMENT

30244. Where development would adversely impact achaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

30250. (a) New development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land division, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50% of the usable parcels in the area have been developed and created parcels would be no smaller than the average size of surrounding parcels.

(b) Where feasible, new hazardous industrial development shall be located away from existing developed areas.

(c) Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.

30252. The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize the use of coastal access roads, (3) providing non-automobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high intensity uses such as high-rise office buildings, and by (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.

30253. New development shall:

(1) Minimize risks to life and property in areas of high geologic, flood and fire hazard.

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs or cliffs.

(3) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development.

(4) Minimize energy consumption and vehicle miles traveled.

(5) Where appropriate, protect special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for receational use.

OBJECTIVE

Develop a rural/urban boundary and identify actions necessary to maintain the boundary.

EXISTING CONDITIONS

Sewer

Sewage Collections and Treatment

The City of Arcata provides sewer service within the City limits. The present wastewater treatment facility provides advanced secondary to tertiary treatment with an outfall into Arcata Bay.

Prior to 1949, the City discharged directly into the Bay through a 24-inch outfall sewer. In 1949, a primary treatment plant was constructed which included a pumping station, a pre-aeration unit, primary clarifier, digester, and sludge drying beds. In 1956, a 55-acre oxidation pond was added, which was presumed to enable the plant to treat sewage for a population of about 20,000 people.

In 1966, the City added a chlorine contact basin and chlorinator unit, and in 1971, additional improvements included enlarged headworks capacity, another clarifier, and an aeration pond. In 1974, the City enlarged the chlorine contact basin and chlorination facilities, and a dechlorination unit was added.

Improvements completed in 1979 included a pump in the headworks to reduce the surcharge of water entering the facility, and modifications to the chlorinator. These modifications increased the capacity and detention time and additional pumps maintained discharge at a constant rate and eliminated tidal control of water flow. These additions increased plant capacity to 3 1/2 million gallons per day dry weather flow, and 10 million gallons per day peak hourly wet weather flow.

Faced with the stringent clean water regulations of the 1970s and the economic and environmental problems associated with the development of a proposed regional wastewater treatment plant, Arcata pursued an innovative treatment technology using wetlands. The wetlands have been made to polish the effluent to a higher standard and then use the effluent to enhance the productivity of restored freshwater marshes. The most recent treatment plant upgrade, completed in 1986, increased the plant capacity to 5 million gallons per day through the headworks, and 16.5 million gallons per day peak wet weather flow. New headworks, chlorine contact facility, renovated digestors and the addition of "treatment marshes" within the oxidation pond are the major changes to the treatment plant. As part of current treatment plant management, up to 2.3 million gallons per day of treated wastewater is routed

through the three freshwater marshes of the Arcata Marsh and Wildlife Sanctuary, then returned to the treatment plant for disinfection before discharge into Arcata Bay.

Communities in west Arcata are served by a major sewer transmission line which roughly parallels the City Limits. The line is 24-inches in diameter at the treatment plant and proceeds in incremental reductions to 12-inches in the north part of the City. All areas to the east of this line are provided with adequate sewage disposal for urbanization up to General Plan limits. The system relies on gravity flow except for lift stations on Samoa Boulevard, Bayside Road and several pumps along Old Arcata Road.

Water Service

The City of Arcata buys water from Humboldt Bay Municipal Water District which obtains its supply from the Mad River. The city provides water to users in Arcata, to a Simpson and Louisiana Pacific Mill, and to several areas outside the City including Pacific Manor and Jacoby Creek. Monthly water consumption ranges between 42 million and 56 million gallons. Water use is increasing at a rate roughly paralleling population growth. The main pumping station is located at Alliance Road north of Westwood Shopping Center; the system is controlled from the Water Department in the City corporation yard.

Water consumption within the City is variable. The housing mix and distribution of commercial areas further complicates patterns of water use. However, it is apparent that areas of mixed, predominantly residential development demand the least water. The one exception, as exemplified by Westwood 2, is low density residential housing with lawns and landscaping. Water demand for Westwood 2 is about 1 1/2 - 2 times that for mixed residential areas. Water demand by industrial areas and the University is about 2 - 3 times that for mixed commercial, and about 5 - 6 times that for mixed residential areas.

Most of the urban areas in the Coastal Zone are served by 6- and 8-inch looped lines. Water service distribution is similar to that for sewage; the water line conforms roughly to the western City Limit and is adequate for urban development to the east. Development to the west would require new water lines, except for the area adjacent to the Greenview Subdivision. No significant alterations to the existing General Plan have been proposed. Since the capacities of the urban service systems are adequate to service existing General Plan development, no special allocation of service system capacity is required for coastal development.

Transportation

U.S. Highway 101 and State Route 255/Samoa Boulevard are the major through routes for vehicular traffic in the Coastal Zone. The average daily traffic count (ADT) on Highway 101 near Samoa Boulevard in 1985 was approximately 22,800 vehicles. Samoa Boulevard east of Highway 101 had an ADT in 1985 of 8,400 vehicles.

Circulation within the urbanized portion of the Coastal Zone is provided by a system of local arterial and collector streets, the major ones being "K",

"H", "G", Union, and Seventh Streets. Existing traffic flow is relatively smooth throughout the Coastal Zone, and the streets are generally below capacity with no significant traffic problems apparent.

Public transportation is provided by the Arcata and Mad River Transit System (A&MRTS). Since its inception in 1975, this community-owned bus system has seen an fluctuation in ridership levels over the years and had 107,000 riders in 1985.

The City of Arcata has adopted both Bicycle and Pedestrian Master Plans. These plans identify major bicycle and pedestrian routes and provide improvement and implementation schedules.

POLICY RECOMMENDATIONS

J-1 Locating and Planning New Development shall serve as the focus for coastal land use designations and policies. Recommendations developed in the Technical Reports shall be collated into a Coastal Land Use Element which shall be adopted as an Element of the City's General Plan. The Coastal Land Use Element shall contain the following sections:

I. Urban Services Boundary
II. Coastal Land Use Map
III. Environmental Constraints
IV. Developmental Constraints
V. Urban Development
VI. Public Facilities
VII. Technical Appendices

J-2 The City shall, with concurrence from Humboldt County, designate a Urban Services Boundary line as shown on the map in Appendix J of the Arcata General Plan.

J-3 The City shall not provide urban services, nor approve urban developments outside the Urban Services Boundary. The following land designations are the only designations that shall be considered appropriate for land uses outside the Boundary:

- Coastal Agriculture Exclusive
- Coastal Natural Resource Protection
- Coastal Public Facility
- Coastal Public Facility (Parks)

J-4 Areas inside the Urban Services Boundary but outside the present City Limits shall not be approved for urban development until after they have annexed to the City.

J-5 The City shall retain discretion to extend domestic water and/or sewer services to existing residential units outside the Urban Services Boundary subject to the following guidelines:

(a) The extension must be an emergency response to a failure of existing water and/or sewage disposal systems.

(b) The capacity of the extension shall be limited to a size adequate to meet the existing residential requirements. No extension of trunk lines or oversized lines shall be permitted.

(c) No new or additional uses may be permitted to have access to the extension.

(d) No extension shall be permitted to serve uses that are clearly inconsistent with adopted Land Use Plans and Policies.

(e) An annexation agreement shall be provided by the property owner.

(f) The City may extend sewer and water service to serve intensive agricultural uses beyond the City limits and Urban Services Boundary subject to the following guidelines:

(1) The extension shall be only to serve the domestic needs of employees of an agricultural use.

(2) No new or additional uses may be permitted to have access to the extension.

(3) No agricultural chemicals or wastes may be discharged into the extension.

(4) The capacity of the extension shall be limited to a size adequate to meet the needs of the specific agricultural operation and shall be a pressurized system.

(5) In the event that the agricultural operation for which an extension is made ceases operation, the extension shall be disconnected from the City system and capped.

J-6 The City shall adopt the following Coastal Land Use Designations which shall serve as the basis for develping specific zoning districts. These are the same designations as used in the existing General Plan.

Residential

. Coastal Rural Residential	(0 to 12 p/na)
. Coastal Low Density Residential	(6.1 to 24 p/na)
. Coastal Medium Density Residential	(24.1 to 45 p/na)
. Coastal Medium-High Density Residential	(45.1 to 75 p/na)
. Coastal High Density Residential	(75.1 to 115 p/na)

p/na = persons per net acre

Commercial

. Coastal General Commercial
. Coastal Central Business District (CBD)
. Coastal Thoroughfare Commercial

Industrial

- Coastal Industrial Commercial
- Coastal Heavy Industrial

Public and Quasi-Public

- Coastal Public Facility
- Coastal Public Facility (Parks)
- Coastal Natural Resource Protection

Agricultural

- Coastal Agriculture Exclusive (60 acre minimum parcel size)

J-7 The City shall encourage the use of Planned Development zoning as a means of providing a variety of housing types, land uses, and sufficient usable open space through innovative design. The Planned Development District should allow diversification in the relationship of buildings, structures, and open spaces while insuring substantial compliance to the base district regulations.

Appendix K

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

COASTAL VISUAL RESOURCES AND SPECIAL COMMUNITIES

COASTAL ACT POLICIES (As amended February 1986)

30251. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

30253. New development shall: (5) Where appropriate, protect special communities and neighborhoods which, because of the unique characteristics, are popular visitor destination points for recreational uses.

"Special Communities and Neighborhoods" include the following:

1. Areas characterized by a particular cultural, historical, or architectural heritage that is distinctive in the Coastal Zone;

2. Areas presently recognized as important visitor destination centers on the coastline;

3. Areas with limited automobile traffic that provide opportunities for pedestrian and bicycle access for visitors to the coast;

4. Areas that add to the visual attractiveness of the coast.

"Highly Scenic Areas" generally include:

1. Landscape preservation projects designated by the State Department of Parks and Recreation in the California Coastline Preservation and Recreation Plan;

2. Open areas of particular value in preserving natural land forms and significant vegetation, or in providing attractive transitions between natural and urbanized areas;

3. Other scenic areas and historical districts designated by Cities and Counties.

OBJECTIVES

Determine if there are any viewsheds which ought to be protected, and if so, determine what mitigation measures ought to be required of development in the Coastal zone to preserve the City viewshed.

EXISTING CONDITIONS

Visual Resources

In defining what is meant by a visual resource, there is no escaping the use of some subjective criteria. In the context of the Coastal Act, "visual resources" refers primarily to natural scenery, unaltered or only minimally altered by human activities. Two areas within Arcata City Limits and the Coastal Zone conform to this definition. These are the Bay and its environs, and the agricultural lands to the south and west of the City.

Arcata has no waterfront community like that found in Eureka, yet the Bay plays an important role in the aesthetic character of the City. It can be seen from many points within the City Limits, and is the most noticeable natural feature visible from Highway 101, which serves as the southern entrance to Arcata.

In the Humboldt County Local Coastal Program: Visual technical study, one issue is identified in the Humboldt Bay area which is also pertinent to Arcata's concerns:

> "Billboarding, as practiced along Highway 101, is almost certainly in conflict with Coastal Act policies."

The study refers to "billboarding as currently practiced, which can result in a too-random and distracting distribution of signs in highly scenic areas." While Arcata Bay is not one of the highly scenic areas designated for preservation in the California Preservation and Recreation Plan, it is one of the most important elements in Arcata's visual character.

The City's Land Use and Development Guide, effective December 20, 1985, permits signs designed to be read from any State expressway only in the Thoroughfare Commercial, Industrial Commercial and Heavy Industrial zones. The billboards along Arcata Bay are legal non-conforming uses and may remain indefinitely. The state is no longer granting permits for billboards along highways.

Agricultural land is the other dominant visual feature south and west of Arcata. Much of this pasture land was originally salt marsh; as a result of diking, the land is kept dry enough for agricultural uses, and is prevented from making the transition from grasses to brush and trees by the action of grazing. These two effects are the main human influence on the land, and produce pleasant rural views throughout most of the Coastal Zone.

Along South "I" Street and South "G" Street, there is some agricultural land visible. However,in the past the visual attractiveness of the area was severely reduced by the presence of scattered industrial debris. At the end of "I" Street, the old Arcata dump site transformed a scenic bayside recreation area into a wasteland. However, since 1979, Arcata has restored and enhanced approximately 120 acres of this degraded industrial land into productive, scenic and publically accessable wetlands and associated uplands.

Special Communities

Arcata contains two features which are covered under the Coastal Act definitions of "Special Communities and Neighborhoods."

Definition -

(1) Areas characterized by a particular cultural, historical, or architectural heritage that is distinctive in the Coastal Zone.

Following recommendations in the Arcata General Plan, the City conducted a Historic Resources Inventory. In the Inventory, structures are classified either as Potential National Register Sites, or as Other Sites. The latter classification indicates that a building is of historic significance to the community although not of National Register importance. Seven houses in the Coastal Zone are listed as Potential National Register sites, and three houses are listed as Other Sites. All but one of these are located between Seventh Street, Fifth Street, "F" Street, and "J" Street.

The General Plan recommends that areas containing a significant number of structures worthy of preservation should be designated Neighborhood Preservation areas.

Definition -

(2) Areas presently recognized as important visitor designation centers on the coastline.

The Arcata Marsh and Wildlife Sanctuary attracts birdwatchers from throughout California. The Sanctuary provides a large freshwater habitat near a predominantly marine environment, and contributes abundant nutrients to the local food web. For these reasons, birds congregate here in unusual numbers with more than 190 species being recorded in the vicinity. The Sanctuary is visited by students from HSU and College of the Redwoods, local grade schools and high schools, by naturalists who travel to the area specifically to observe birds, and by local nature enthusiasts. The Sanctuary presently encompasses over 170 acres and includes a trail network over 4.5 miles long. A portion of the Sanctuary is also of great interest to engineers and water planners as it contains one of the first wetlands developed and used for full scale wastewater treatment in the country.

The value of the pond is enhanced by its proximity to the Jacoby Creek Unit of the National Wildlife Refuge, a 65-acre expanse of high tidal flat and marsh between the Bay and a railroad right-of-way. Because of access problems, this refuge is used primarily by study groups, but plans are being developed to make the area more accessible to the public. The refuge provides food and resting opportunities for many bird species, including the rare California peregrine falcon. Once access problems are solved, the refuge will gain value as a visitor destination center.

Humboldt Bay is an important migratory bird hunting area being one of the major stops in Northern California for birds traveling the Pacific Flyway. Arcata Bay attracts as many hunters as South Bay, except for those seeking the Pacific Black Brandt which congregates in South Bay. Hunters throughout the state visit Arcata Bay, making it an important visitor destination center.

Scenic Highway Element

In the Appendix K of the Arcata General Plan, 22 scenic routes in and around

Arcata are listed and their scenic features described. Three of these lie entirely within the Coastal Zone, and three are partially included in it (Table 1).

While most of these routes are described as passing through agricultural land and open space, it is also possible to see the Bay from many points along the roads. Commercial and residential structures along these scenic routes generally have not exceeded one story in areas where the view of the Bay would be obscured.

The Scenic Highway Element is consistent with the Coastal Act's desire to protect the scenic and visual qualities of coastal areas.

TABLE 1. SCENIC ROUTES WITHIN THE COASTAL ZONE

Old Arcata Road from the Seventh Street Overcrossing to Crescent Drive.	Pasture land, eucalyptus trees, all density development, curving roads.	Development on the Southside of Old Arcata Road should be limited to single family homes and structures of low elevation which would not block the view. Eucalyptus trees lining Old Arcata Road should be retained.
Bayside Cut-off from Highway 101 to Old Arcata Road.	Pasture land.	Maintain agricultural.
Fourth Street (Samoa Boulevard) from Sunnybrae area north to town.	Pasture land.	Maintain agricultural to the Southwest.
Highway 255 from "V" Street to Manila.	Agriculture, dunes and view of the Bay.	Maintain agricultural.
Janes Road from 11th Street to Simpson Mill.	Pasture land, pleasing view of homes.	Maintain agricultural to the west and residential to the east.
Highway 101 from Bayside Cut-off to the Mad River.	Landscaping.	Utilize natural vegetation for landscaping. Encourage billboard removal and keep the area between the highway and the Bay open.

TABLE 1 (CONTINUED)

South "I" Street, south of Eureka Southern Railroad Crossing.	Various wetland types, pasture land.	Maintain Natural Resource Protection and agricultural to west.
South "G" Street south of "H" Street.	Wetland, wooded area west and south of South "G" Street.	Maintain Public Facility and Natural Resource Protection.

POLICY RECOMMENDATIONS

K-1 The City shall identify the following areas as Coastal Scenic Areas:

(a) Arcata Bay tideland and water areas:

(b) All land designated as Natural Resources Protection on the Land Use Map;

(c) All land between Highway 101 and Old Arcata Road designated Agriculture Exclusive on the Land Use Map;

(d) All land on the western Arcata plain designated Agriculture Exclusive on the Land Use Map.

K-2 The City shall follow the Environmental Impact Review procedures established in the Land Use and Development Guide for any proposed use in the Coastal Scenic Areas. An initial study that takes visual resources as consideration shall be prepared to determine the appropriate environmental document. If it is determined that the proposed use would significantly alter the appearance of natural landforms or would significantly block views from existing public thoroughfares to the Bay, then no permit shall be issued unless it can be shown that the proposed use will serve to restore or enhance a visually degraded area.

K-3 The City shall establish a landscaped screen along the northern and eastern perimeters of the existing filled portion of the Corporation yard.

K-4 The City shall require that new development or redevelopment in the industrial area surrounding South "G" Street provide dense landscaped screens along all perimeter lot lines visible from Highway 101.

K-5 The City shall designate the following routes as Scenic Routes and shall establish guidelines to retain their scenic features: Old Arcata Road from the Seventh Street Overcrossing to Crescent Drive; Bayside Cut-off from Highway 101 to Old Arcata Road; Samoa Boulevard (State Highway 255)

from Sunny Brae to Manila; Janes Road from 11th Street to Simpson Mill; Highway 101 from Bayside Cut-off to Mad River; South "I" Street from Samoa Boulevard south, and South "G" Street from "H" Street to Highway 101.

K-6 Billboards and off-site signs designed to be read from any State freeway or highway shall not be permitted in the Coastal Zone.

K-7 It is the policy of the City to prevent the additional planting of landscaping along Highway 101 that would interrupt the scenic views from Highway 101 to the bay or eastward across the agricultural lands. It is further the policy of the City to work with Caltrans, Humboldt County, and the Commission to enhance scenic views along Highway 101.

Appendix L

TECHNICAL REPORT AND POLICY RECOMMENDATIONS

PUBLIC WORKS

COASTAL ACT POLICIES (As amended February 1986)

30254. New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the Coastal Zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not include new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal-dependent land uses, essential public services, and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

OBJECTIVES

Determine if flood control measures, both existing and proposed, will damage natural environmental values in the creek habitat.

Determine the potential impacts of removing the McDaniel Slough tidegates and constructing dikes to allow natural tidal action.

Determine of the Arcata Wastewater Reclamation and Aquaculture project is consistent with Coastal Act policies regarding public works.

Determine if the present site of the Arcata Corporation yard is consistent with Coastal Act goals and if future expansion will be possible at the site.

EXISTING CONDITIONS

Flood Control

Lands south and west of Arcata, as well as most of the East Bay plain, were originally salt marsh. Through diking and filling, these areas have been converted to agricultural, commercial, and residential uses. However, because of low elevations and high water table, flooding still occurs.

Dikes have been constructed along the perimeter of the Bay and the banks of Janes Creek/McDaniel Slough, Gannon Slough, and Jacoby Creek. The major work on these dikes was done in the early 1900s with minimal maintenance being provided by the City and members of Reclamation District 768 in subsequent years.

The City is maintains permits to dredge Janes Creek north of 11th Street and all of Jolly Giant Creek. Most dredging occurs in the urban sections of Janes Creek. No dredging takes place on Jacoby Creek, which is allowed to flood adjacent agricultural lands.

Changes in the City's flood control practices have been proposed, and are discussed in a report titled "Initial Study for the Proposed Expansion of the

Janes Creek Maintenance District and Related Projects." The report, prepared by the Humboldt County Natural Resources Division, deals with the proposal to expand Janes Creek Flood Control District to include the watersheds of Janes, Jolly Giant, Grotzman, and Beith Creeks. The plan includes the following projects.

- Construct new and larger tidegates on McDaniel Slough where it empties into Humboldt Bay.

- Install a 10' x 7' concrete box culvert under 11th Street replacing the existing 6' arch culvert.

- Install a 72-inch culvert under 17th Street, and excavate a channel from Jolly Giant Creek to McDaniel Slough to divert peak flows from Jolly Giant Creek to McDaniel Slough.

- Excavate a channel from the southwest side of the Greenview Area Subdivision, west of Liscomb Slough.

- Annual maintenance of Janes Creek/McDaniel Slough, Jolly Giant Creek, Grotzman Creek, and Beith Creek has been estimated at $30,000 per year. It involves maintaining channels by removal of silt and aquatic growth within the streams.

The purpose of the expansion proposal is to give the Janes Creek Storm Maintenance District the authority and the tax base to finance storm maintenance projects within the watershed. The projects listed above are intended to speed storm waters through the City and adjacent areas with a minimum of damage to property, and to reduce the necessity for emergency flood control measures.

Expansion of the flood control district to control flooding on a watershed basis is environmentally sound and not in conflict with the Coastal Act. However, some of the proposed projects associated with the expansion could severely alter wildlife habitat along McDaniel Slough.

Of the proposed projects, those likely to have the greatest effect on the natural environment are (1) enlarging of the tidegates on McDaniel Slough and (2) dredging of presently undredged stretches of creek. McDaniel Slough between the tidegates and Samoa Boulevard was flanked by freshwater marsh which fluctuates in size according to rainfall and stream flow. This marsh provides a nesting and feeding area for waterfowl. Enlarging the tidegates would reduce seasonal flooding in this area, and thereby reduce the extent of the marsh habitat.

Dredging is proposed for the lower reaches of McDaniel Slough. According to the Natural Resources Division analysis, this would change the existing view of a freshwater marsh to one of a meandering slough. Dredging Janes Creek along Arlington Way is not expected to change existing views significantly.

Removing the tidegates at the mouth of McDaniel Slough was also discussed in this report, as well as the proposed county mitigation bank restoration proposed for the site. The following effects may occur if the tidegates are removed:

- The freshwater marsh would become an estuary.

COASTAL ACT POLICIES (As amended February 1986)

30255. Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal related developments should be accomodated within a reasonable proximity to the coastal-dependent uses they support

30260. Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Section 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.

OBJECTIVES

Determine what types of industrial uses are compatible with coastal policies regarding coastal visual resources, adjacent natural areas, hazards, and other coastal concerns, and whether designated industrial areas are suitable for the identified uses.

EXISTING CONDITIONS

Industrial land lying within Arcata City Limits and the Coastal Zone occurs in the southern part of the City, and forms an industrial corridor extending from South "G" Street north to 16th Street. This area includes 275 acres of industrial zoned land; about 238 of these acres fall within the Coastal Zone. One industrial area located within the Coastal Zone but not within City Limits is the 22-acre parcel at the intersection of "V" Street and Samoa Boulevard. Half of this 22 acres is occupied by Humboldt Redwood Products; the other 11 acres is undeveloped.

Most of the industries within the Coastal Zone rely on the forestry industry for raw materials. Located here are Harris Pine Mills, Pacific Clears Inc., Beaver Lumber Company, and Johnson Industries. Industrial Electric Service Company is the only other large industry in the Coastal Zone not dependent on forest products. A number of commercial uses are located in the industrial zone along South "G" Street and Samoa Boulevard.

Industrial firms within the Coastal Zone are distributed over a large area, with much intervening land. Most of this land is presently being used for industrial purposes while other sites have supported milling, barrel manufacturing, and storage operations in the past. Where signs of these industries remain, the land presents a littered appearance.

According to figures included on the 1986 vacant lands maps prepared by the

City of Arcata, about 37 of the 238 acres within the Coastal Zone are undeveloped. Most of this land is owned by the companies occupying parcels adjacent to the undeveloped areas. An additional 11 acres of undeveloped land is located outside the City Limits.

TABLE 1: UNDEVELOPED INDUSTRIAL LAND IN THE COASTAL ZONE

Within City

Owner	Acreage
Mary Schmidbauer	10
Beaver Lumber Company	20
Schmidbauer Lumber Company	7
Total	56

Outside of City

R. G. Grant	11
Total	67

Current Zoning

Industrial land south of Samoa Boulevard is flanked by agricultural land to the west, by agricultural and residential to the east, and by marsh to the south. The marsh is zoned Natural Resource Protection.

Between Samoa Boulevard and the Coastal Zone boundary, industrial land borders agricultural zoning to the west and commercial zoning to the east. The industrial area outside City Limits and within the Coastal Zone is surrounded by agricultural land on three sides and residential land on the north.

Industrial zoned land within the Coastal Zone and the City Limits is in the Industrial Commercial or Haevy Industrial Zoning Districts. Industrial Commercial zoning district permits general manufacturing, research and development, and wholesale/warehousing uses. Agricultural, commercial, heavy industrial, and public uses may also be permitted in this zone upon the granting of a conditional use permit. All industrial uses must conform to a series of Performance Standards that deal with noise, lights, airborne emissions, water quality, traffic, vibrations, electronic interference, and flammable materials. The Heavy Industrial district does not allow commercial use but does allow lumber milling and other heavy industrial uses with a Use Permit.

The 22-acre parcel located within the Coastal Zone but not within the City limits is zoned Limited Industrial or M-L by Humboldt County. The County's M-L Zone is intended to apply to areas in which light manufacturing and heavy commercial uses of the non-nuisance type and large administrative facilities are the desirable predominant uses.

Coastal Dependent Developments

Coastal dependent developements are those that require shoreline locations to be functional. Such uses as fishing, aquaculture, and port or marina facilities are coastal dependent. Coastal dependent industries which may come under the City's influence are commercial aquaculture activities.

Oysters for the fresh seafood market are currently raised in the Mad River Slough west of Arcata. Of the 1,500 acres of tidelands under Arcata's control, two small plots are currently leased for oyster growing. However, there has been no activity on these leases to date mainly due to past water quality problems. Over the past 5 years, numerous changes have occurred around Arcata Bay that were aimed at improving the Bay's water quality. These changes have ranged from eliminating septic tanks in some areas, stream restoration and erosion control, to the upgrading of Arcata's wastewater treatment plant. It is suspected that these improvements will not change the "conditional" status of Arcata Bay, but will shorten the time that oyster growers cannot harvest. If this in fact happens, north Arcata Bay will be viable for oyster culture expansion.

The City of Arcata has experimented with various freshwater and marine species of fish and invertebrates, in cooperation with Humboldt State University to explore aquaculture products that may be commercially viable around the bay. Of the species tested, Pacific salmon and trout have been the main focus and have met with the greatest success. Using a mixture of wastewater and seawater to rear salmon juveniles at a lower than traditional costs, salmon, steelhead, and cutthroat trout have been produced in an effort to successfully help return self-sustaining runs of these fish back to the tributaries of Arcata Bay. The facility could, providing that environmental and political concerns were satisfied, some day expand into a commercial salmon ranching mode. This salmon ranch is not envisioned as a full-scale capital and labor intensive industry, but rather as a small testing facility which would engage in the commercial sale of salmon that would be excess to the stream and fishery restoration goals.

Compatibility with Coastal Act Policies

With the exception of Section 1-0220.2 (c), the City's Industrial Zoning District and District Regulations are compatible with Coastal Policy.

Section 1-0220.2 (c) provides that the following uses may occur upon the granting of a Conditional Use Permit:

1-0220.2 (c) Industrial Uses - Heavy Manufacturing—Animal products processing plants, drilling for oil or gas, lumber milling, log decks, salvage yards, and smelting and reduction of metallic ores. Manufacturing, refining, and storage of petroleum products, acids, cement, concrete,

pottery, asphaltic paving products, lime, explosives, fireworks, gas, glue, gypsum, plaster of paris, and inflammable fluids or gases.

These uses, if not properly designed, may be inconsistent with the following Coastal Act Policies:

Hazard and Safety Considerations

Section 30253 which rquires that new development minimize risks to life and property in areas of high geologic and flood hazard.

Section 30263 which prohibits the construction or expansion of refineries or petrochemical facilities in seismically hazardous areas.

Section 30250 (b) which requires that new hazardous industrial development be located away from existing developed areas.

All of the industrially zoned land within the Coastal Zone is located in a potential liquefaction area, and is contiguous to the developed area of the City. Most of the heavy manufacturing uses deal with products that could be hazardous to life and property in the event of a natural catastrohpy.

Visual Considerations

Section 30251 which requires that development be sited to protect views to and along the coast, and requires that development be visually compatible with surrounding areas.

Most of the heavy manufacturing uses require large facilities that would be out of scale with existing development. Many of the uses could also emit large volumes of smoke and dust that would degrade the view of the coast.

Lumber milling and log decks are a fundamental aspect of the north coastal economy and viewshed. Restrictions beyond those normally required by City Use Permit conditions, Performance Standards and the Land Use and Development Guide Standards are not recommended.

POLICY RECOMMENDATIONS

M-1 The City shall issue Conditional Use Permits in industrial zoned areas for the following heavy manufacturing uses in the Coastal Zone only when no feasible less environmentally damaging alternative is available, and only when adequate mitigation has been demonstrated: Salvage yards, drilling for gas or oil, the smelting and reduction of metallic ores, manufacturing, refining, and storage of petroleum products, acids, cement, concrete, pottery, asphaltic paving products, lime, explosives, fireworks, gas, glue, gypsum, plaster of paris, and inflammable fluids or gases. Conditions for approval shall include, as a minimum, the following criteria:

- Assurance to the satisfaction of a registered geologist, a

registered civil engineer with expertise in soils, or a certified engineering geologist of adequate protection from groundshaking.

- No significant adverse impacts on aquatic habitat.

- Adequate protection from flooding.

- Assurance to the satisfaction of the Design Assistance Committee that visual resources will not be degraded.

M-2 The City shall issue conditional use permits in industrial zoned areas for animal processing plants within the Coastal Zone only for coastal dependent industries. Conditions of approval shall include, as a minimum:

- Assurance to the satisfaction of a registered geologist, a registered civil engineer with expertise in soils, or a certified engineering geologist of adequate protection from groundshaking.

- No significant adverse impacts on aquatic habitat.

- Adequate protection from flooding.

- Assurance to the satisfaction of the Design Assistance Committee that visual resources will not be degraded.

Appendix N

TECHNICAL REPORT

COASTAL WETLANDS MAP

COASTAL ACT POLICIES (As amended February 1986)

Please see the Coastal Act Policies cited in Appendix D, Water and Marine Resources.

OBJECTIVE

The objective of the Coastal Wetlands Map is to establish a boundary line between wetlands and uplands in the Coastal Zone area of the City of Arcata. The Coastal Wetlands Map is to be used to determine whether or not a particular project is located in a wetland or wetland buffer area and therefore subject to certain development restrictions as set forth in the California Coastal Act, the Coastal Land Use Element and the Coastal Land Use and Development Guide.

The map is developed for land use planning purposes and is not intended to be interpreted as a highly accurate biological habitat map. Other considerations were used in the preparation of the map. In addition to those Methodologies described below, California Coastal Commission policy with regard to commercial and industrial development in the South "G" Street area, and General Plan land use designations and zoning have been used to create definable wetlands boundaries.

AMENDMENTS TO THE COASTAL WETLANDS MAP

The location of the boundary line between wetlands and uplands may be changed with the approval of the City of Arcata and the California Coastal Commission upon the presentation of substantial evidence that the boundary line should be revised. Before changing the boundary line, the City should consult with responsible and interested agencies, and with interested groups and individuals.

METHODOLOGY FOR DETERMINING THE WETLAND/UPLAND BOUNDARY

I. Objective

The objective of this map is to show the planning boundaries between wetlands and uplands in the Coastal Zone within the Arcata Planning Area. This map is to be used as part of the City of Arcata's Local Coastal Program.

It was not feasible to field map the entire Coastal Zone in order to determine the wetland/upland boundary. Similarly, no single map existed for the area that had delineated the entire boundary. Therefore, to successfully construct this map, several wetlands criteria and source maps were sought to clarify the physical boundaries between wetlands and uplands. All of these sources, in tandem, contributed to the preliminary wetland/upland boundary. Their specific applications are explained in Part III.

II. Criteria

A. The following criteria are used by the U.S. Fish and Wildlife Service to define wetlands:

1. At least periodically, the land supports predominantly hydrophytes.

2. The substrate is predominantly undrained hydric soil.

3. The substrate is nonsoil and is saturated with water or covered by water at some time during the growing season.

B. In the California Coastal Act, wetlands are defined as lands which may be covered periodically or permanently with shallow water and include saltwater marshes, open or closed brackish water marshes, swamps, mudflats and fens.

C. Humboldt County's Bay Area Plan, a part of the County's Local Coastal Program, has defined transitional agricultural land as a wetland that has been altered for production of crops, including pasture, hay, or other forage, but where hydrophytes typical of non-farmed wetlands will predominate if farming is discontinued.

To determine the upland boundary of transitional agricultural land the following criteria are used:

(a) Either the boundary of a clearly defined slough which is periodically covered with standing water;

(b) The boundary of the area which would be below tidal elevations [plus five (+5) feet above mean sea level] if tidegates, dikes, or other drainage works were not in place; or

(c) As determined pursuant to the requirements for Transitional Agricultural Land Boundary Adjustment.

D. Finally, a rough index for determining hydric souls was derived from The Soils of Western Humboldt County. All pertinent soils descriptions were examined for drainage characteristics. Those soils that had a drainage factor (X) of 65 or less (100 = excellent drainage) were considered poorly or imperfectly drained. Herb Pierce of the California Department of Fish and Game concurred with this assessment. The drainage factor was used to locate hydric soils in the Coastal Zone where needed.

III. Preliminary Mapping

Preliminary boundaries were mapped on blue line print paper at a scale of 1" = 1000'. Map accuracy is +/- 50 feet. For a greater level of accuracy in actual boundary determinations for individual properties, site specific evaluations will be needed.

A. To determine the wetland/upland boundary in areas outside the City limits but within the Planning Area, Humboldt County's approved Bay Area

Plan (LCP) maps were used (scale: 1" = 2000'). These areas include the land west of Mad River Road and Liscomb Slough (the West Arcata Bottoms) and the farmland south of Jacoby Creek and west of Old Arcata Road.

B. The City of Arcata's Public Works Departmant provided contour elevation maps for selected areas at a scale of 1" = 500'. Areas that were below +5 feet above mean sea level were mapped using this source. Those areas covered by the elevation maps are located north of Samoa Blvd. areas covered by the elevation maps are located north of Samoa Blvd. between Highway 101 and Union St., between Union St. and Crescent Way, south of Samoa Blvd., and east of Highway 101, most of the South "G" Street area and approximately 1200' south of Samoa Blvd. and just west of the railroad tracks, trending north towards Samoa Blvd. and "V" St.

C. Where the above sources did not delineate wetland/upland boundaries in the Coastal Zone, soil drainage characteristics were used. These areas are located north of Samoa Blvd. and east of Union St., west of Old Arcata Road and east of Highway 101 and the Jacoby Creek area within the coastal zone.

D. Specific projects within the City provided some localized wetlands maps. A Coastal Zone Permit Application Map from the Arcata Community Park Master Plan mapped the wetlands associated with Campbell Creek (north of Samoa Blvd., between Highway 101 and Union St.) The Butcher Slough Restoration Project (just west of South "G" Street) provided a wetlands map. A project west of South "I" Street and east of the railroad tracks (The Bay Shores Recreational Vehicle Park) includes a small wetlands as part of the plot plan and was used to determine a wetland boundary.

E. Riparian corridors within the Coastal Zone were also delineated, in accordance with Arcata's General plan. Riparian buffer areas include a 25 foot corridor from the centerline of the creek, 25 feet from the outer edge of the slough, and 100 feet from the edge of a riparian corridor.

F. The U.S. Fish and Wildlife Service' draft air photo maps (scale: 1" = 2000') provided additional wetland/upland boundaries for areas not covered by Humboldt County's LCP. These tentative boundaries were used as an approximate line to aid in the final wetland/upland determination. Because the Fish and Wildlife Service maps are general in nature and because most of the mapped wetlands are not field checked, their wetland/upland boundaries were used as a preliminary determination only. Subsequent sources and consultations resulted in an amended and more accurate wetland/upland boundary. No part of the wetland/upland boundary is directly attributable to these maps.

G. Aerial photographs of the Planning Area, also provided by the City of Arcata's Public Works Department, showed several clearly defined sloughs and open bodies of water (scale: 1' = 500'). All of these areas are either within the preliminary wetland boundary or are part of a riparian corridor. The air photos were primarily used as a check against the other map sources.

IV. Field Checking

On July 16, 1986 Herb Pierce of the California Department of Fish and Game and Dave Hull of the Arcata Marsh Project were consulted about the preliminary wetland/upland boundary as determined by the above methods. The boundary was examined in detail and discussions ensued over its accuracy. Herb Pierce made several suggestions towards improving boundary accuracy, and this resulted in an agreed wetland/upland boundary in all but two areas: two parcels east of South "F" Street and farmland west of the railroad tracks that are west of South "I" Street. Those areas were field checked and their status (and subsequent boundaries) were determined. They are identified as follows: South "F" Street properties are Assessor's Parcel (A.P.)# 21-121-05, 21-121-36 and 503-225-02; farmland west of the railroad tracks is A.P. # 503-251-11. Their staus is as follows: A.P. #503-251-11 and #21-121-05 are wetlands. A.P. #21-121-36 and #503-225-02 are uplands. This was the preliminary agreement in the field with the City of Arcata and Herb Pierce of the California Department of Fish and Game.

V. Summary

From the methods described above, a wetland/upland boundary was established, and riparian corridors were included in the Coastal Zone in accordance with the City's General Plan. Field work resolved all boundaries in dispute except for A.P. # 21-121-05. Herb Pierce has designated the parcel as a wetland and Arcata's Community Development Department has designated it as upland. It is designated upland on the draft map. The California Coastal Commision, in a report dated Aug. 29, 1986, has concluded that the eastern property line of the farmland east of South "F" Street can be used as an identifiable boundary between wetlands and uplands (Permit #1-86-83).

The boundary was mapped on blueline, with a scale of 1' = 1000'. This is the Final Draft map, as approved by Arcata Community Development Director Steve Patek and was submitted to Linda Locklin of the California Coastal Commission and Herb Pierce of California Department of Fish and Game for comment.

VI. Addendum

After the draft Coastal Wetlands Map was prepared, the City of Arcata received a set of newly published maps titled the "National Wetlands Inventory" maps, prepared by the United States Department of the Interior, Fish and Wildlife Service. The City's draft map was compared with the federal maps by overlaying the wetlands/uplands boundary lines on a single map. It appeared that there was a great deal of correlation between the City's map and the federal map in most areas except for the unincorporated areas to the west of the City.

Community Development Department staff consulted with Andrea Pickart, the preparer of the federal maps, and with David Hull of the Arcata Public Works Department. They also reviewed comments received from the local chapter of the California Native Plant Society and from a member of the local chapter of the Audubon Society. Minor changes to correct mapping errors were made to the location of the wetlands/uplands boundary line in the Coastal Zone area within the City limits.

Because of the great difference between the location of the wetlands/uplands boundary line on the Humboldt County "Humboldt Bay Area Plan" maps and the location of the boundary line on the federal "National Wetlands Inventory" maps, and because the Coastal Commission has already adopted the County's boundary line, the City staff determined to leave the boundary line unmapped in the unincorporated area to the west of the City. If future annexations occur in this area the City should consult both the county and federal maps to establish the location of the wetlands/uplands boundary line within its jurisdiction.

REFERENCES

* 1983. Draft Aerial Photographs of the Arcata Planning Area. U.S. Fish and Wildlife Service. Portland, Oregon. Wetland definitions, criteria and maps.

* 1982. Humboldt Bay Area Plan. Humboldt County Local Coastal Program. Natural Resources Map.

* 1982. Humboldt County Coastal Zoning Ordinance. Transitional agricultural land definitions and boundary determination. Section A312-3.

* 1976. California Coastal Act. Wetlands definition. Section PRC 30,000.

* 1965. Soils of Western Humboldt County. McLaughlin and Harradine. Soils descriptions and drainage characteristics.

* 1967. Contour Elevation Maps. City of Arcata Public Works Dept.

* 1984. Aerial Photographs. City of Arcata Public Works Dept.

* 1984. Arcata Community Park Master Plan. Rising Sun, Environmental Planners. Final EIR. Wetlands restoration plan for Campbell Creek.

* 1984. Butcher's Slough Wetlands Restoration Project. City of Arcata. Final EIR. Wetlands restoration plan for Butcher's Slough.

* 1986. Personal communication. Herb Pierce, California Department of Fish and Game.

* 1986. Personal communication. Dave Hull, Arcata Public Works Dept.

* 1987 National Wetlands Inventory

* 1987 Andrea Pickart

REFERENCES

Allen, George H. 1977. Report on Sabbatical Year, 1975-76. Humboldt State University. 7 p. + Appendix: Highlights of FAO Technical Conference on Aquaculture, Kyoto, Japan. 21 p.

Allen, G. H. and R. A. Gearheart. 1977. Expected Deactivation of Human Pathogens in Proposed Arcata Wastewater Treatment and Reclamation System. Presented to California State Water Resources Control Board hearing, September 12, 1977. Sacramento, CA 38 p.

Allen, G. H. and R. A. Gearheart. 1978. Arcata Integrated Wastewater Treatment, Reclamation, and Salmon Ranching Project. Paper No. 78-5543 presented to American Society of Agricultural Engineers, Winter Meeting, December 18-20, 1978, Chicago. 71 p.

Arcata, City of. 1972. Arcata general plan, conservation, and open space elements. Interim report. 110 p.

Arcata, City of. 1975. General plan. Duncan & Jones. 50 p. + Appendices.

Arcata, City of. 1977. Wastewater treatment, water reclamation, and ocean ranching. 21 p. + Appendices.

Arcata, City of. 1977. Planning Department. Industrial Zoning Maps.

Arcata, City of. 1978. State of the City Report. 45 p.

Arcata, City of. 1978. Historic Sites Inventory Map.

Arcata, City of. 1979. State of the City Report. 37 p.

Arcata, City of. 1979. Historic Resources Inventory.

Baruth and Yoder. 1971. Mid-Humboldt County Urban Planning Program, general plan 2020, land use guide for water, wastewater, and drainage engineering studies. 212 p. + Appendices.

California Department of Fish and Game. 1973. The Natural Resources of Humboldt Bay. 160 p. + Appendices.

California Native Plant Society. 1974. Inventory of rare and endangered vascular plants of California. W. R. Powell (Ed.). Special publication No. 1. 32 p. + Appendices.

California Department of Parks and Recreation. 1974. California Coastline Preservation and Recreation Plan.

California Coastal Zone Conservation Commission. 1975. California Coastal Plan. 443 p.

California Coastal Zone Conservation Commission. 1977. Local Coastal Program Manual. 131 p. + Appendices.

California Department of Fish and Game. 1977. California Marine Fish Landings for 1975. Fish Bull. 168. 55 p.

California Coastal Zone Conservation Commission, North Coast Regional Commission. (no date). Coastal Land Environment.

Childs, Robin. 1979. A Brief Agricultural History of Humboldt County. Agriculture Development Project. 11 p.

Community Development Block Grant, Application. Pre-application 1978-79. Final Application. Approved 1978.

Environmental Analysts, Inc. (EAI). 1979. Arcata Wastewater Pilot Project Environmental Impact Report.

Environmental Analysts, Inc. (EAI). 1979. California Coastal Conservancy and City of Arcata Marsh Enhancement Project Feasibility Study. 137 p.

Environmental Analysts, Inc. (EAI). 1979. Draft Environmental Impact Report for Humboldt County Trails Plan. 35+ p.

Environmental Research Consultants (ERC). 1977. Report on environmental assessment of pesticides, regional programs, Humboldt County component. California Department of Food and AGriculture. 75 p. + Appendices.

Ferris, R. and L. Abrams. 1960. Illustrated Flora of the Pacific States. Stanford University Press. Vol. 4. 732 p.

Furniss, S. 1968. Observations of shorebirds, north Humboldt Bay. Unpublished report. Humboldt State University, Department of Wildlife. 12 p.

Gerstenberg, R. H. 1972. A study of shorebirds in Humboldt Bay. M.S. Thesis. Humboldt State University. 207 p.

Humboldt, County of. Planning Department. 1978. Draft Humboldt County Trails Plan. 80 p. + Appendices.

Humboldt, County of. 1979. Local Coastal Program Technical Study. 47 p.

Humboldt, County of. Assessor's Office. Assessor's Role.

Koebig & Koebig, Inc. 1974. Humboldt Bay Master Plan. 153 p. + Appendices.

May, R. D. 1973. The number of marbled godwits on Arcata Bay. Unpublished report. Humboldt State University, Department of Wildlife. 7 p.

Miyamoto, J., D. Chang, P. Purfido, N. Swirhum, and D. Huffman. 1978. Stream rehabilitation and enhancement, Jolly Giant Creek. Humboldt State University Fisheries Seminar. 49 p.

Odum, E. P. 1961. The role of tidal marshes in estuarine production. New York State Conservation Department.

QRC Research Corporation. 1978. An Economic Development Action Plan and Strategy for Humboldt County, CA 282 p. + Appendices.

Saito/Sullivan, Inc. 1978. Preliminary Draft. Parks, Recreation, and Open Space Master Plan. 2nd draft. 123 p.

U.S. Public Health Service, FDA. 1978. Sanitary Survey of Shellfish Waters, Arcata Bay, CA. February 1978. 63 p. + Appendices.

University of California, Davis, and County of Humboldt. 1965. Soils of Western Humboldt County. 84 p.

Winzler & Kelly. 1970. Humboldt County Water Requirements and Water Resources, Phase II. 138 p.