# APPENDIX H:
# HUMBOLDT COUNTY FIRE SAFE REGULATIONS CHECKLIST

# County SRA Fire Safe Regulations Checklist (Building Permit)

APPLICANT: _____ DATE___/___/___ REF #_____

LOCATION: _____ APN: _____-_____-_____

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NOTE:
These regulations apply to all new construction and development in State Responsibility Areas (SRA) in Humboldt County effective January 1, 1992. These regulations are not retroactive to existing structures and facilities, unless a new use or occupancy is applied for. The following is a summary of the minimum standards for building permit issuance. It is provided for informational purposes only. Reference to the specific adopted language should be made before construction or development plans are prepared.

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**Road Standards**

[ ] Roadway surface provides unobstructed access to conventional drive vehicles including sedans and fire engines using County Road Category 2 standard for surfacing type.

[ ] Roadway turnouts (where required) are 10' wide and 80' long and tapered 25 feet from both ends.

[ ] Roadway structures (bridges and culverts) built to carry minimum load as required in Cal. Vehicle Code Sec. 35550 (40,000 lbs.) and complies with the following standards:
  - [ ] Minimum 15' vertical clearances and designed in conformance with the County Roadway Design Manual.
  - [ ] Signing reflects capability of each bridge for weight, clearance, single lane access, or other limitations, unless signing waived by the Director of Public Works per Section 3112-9 of H.C.C.
  - [ ] One lane bridge has unobstructed visibility from both ends and intervisible turnouts at each end.
  - [ ] "Flatcar" bridge has roadway surface of not less than 9' and meets visibility requirements of one lane bridge.

**Driveways and Gates**

[ ] Driveways meet minimum road standards described above.

[ ] Driveways less than 1320' long are 10' wide and have 15' minimum vertical clearance and are built to County Road Category 1 standard.

[ ] Driveways longer than 1320' are 10'-12' wide and have 15' minimum vertical clearance with intervisible turnouts and are built to County Road Category 2 standard.

[ ] Driveways exceeding 150' in length but less than 800' have a turnout near the midpoint; driveways longer than 800' have turnouts at intervisible locations at approximately 400' intervals.

[ ] Driveways have maximum grade meeting standard for County Road Category 1: 7%-12% (normal); 11%-18% (tolerable). Grades in excess of 16% must demonstrate conformance with County Roadway Design Manual.

[ ] Driveways have minimum curve radius meeting standard for County Road Category 1: 120' (normal); 50' (tolerable). Curve radius less than 50' must demonstrate conformance with County Roadway Design Manual.

Driveways and Gates (Continued)

[ ] All gates at least 2' wider than the lanes serving the gate and allow a vehicle to stop without blocking traffic.
  [ ] Gates providing access from a road to a driveway are located at least 30' from the roadway, except as provided below.
  [ ] Gates less than 30' from the roadway are permitted when turnouts are constructed next to the travel lanes with safe turning movements and visibility when approaching from either direction of travel.
  [ ] One-way roads accessing gates have turnaround with 40' radius minimum.

Signing and Building Numbering

[ ] Street and road signs (where required):
[ ] Visible from both directions for 100' minimum and installed prior to final acceptance.
[ ] Minimum size of letters/numbers/symbols are 3" tall, 3/8" stroke and contrasting with background color.
[ ] Reflectorized where private road travel speed is more than 30 mph or along County-maintained roads. Wooden sign material used only when reflectorized signs are not required.
[ ] Intersections of roads, streets and private lanes are signed.
[ ] Height, naming, orientation and numbering are according to County standards (H.C.C. Sec. 442-1 et seq.)
[ ] Access limitations signed at the intersection preceeding and no more than 100' from limitations.
[ ] Addresses for buildings:
  [ ] Permanently posted address located at the driveway entrance and visible from the access road.
  [ ] Minimum size of letters/numbers/symbols are 3" tall, 3/8" stroke and contrasting with background color.
  [ ] Reflectorized where access is from private road where travel speed is 30 mph or greater or from County-maintained road. Wooden sign material used only when reflectorized signs are not required.
  [ ] Posted at beginning of construction and maintained thereafter.
  [ ] Address signs along one-way roads are visible from both directions (this means "wrong way" also).
  [ ] A single post carries all addresses where multiple addresses are required at a single driveway.
  [ ] An address sign is located at the nearest road intersection where a roadway provides access soley to a single commercial or industrial business.

Fuel Modification and Setbacks

[ ] Parcels one (1) acre or larger provide at least 30' minimum setback from property lines and/or center of road, except as provided below:
  [ ] Building setback less than 30 feet from property line where open space easement recorded over adjoining parcel with adjustment no more than width of easement and no exception to zoning setbacks.
  [ ] Detached accessory building setback less than 30 feet from property line when constructed using non-combustive/fire-resistive materials and located at least 20' from all other buildings.

[ ] Parcels less than one (1) acre provide the same practical effect as above. Methods of achieving the "same practical effect" include but are not limited to the following:
  [ ] Development of a community water system.
  [ ] Create County Service Area (CSA) or other entity to provide maintenance of defensible space.
  [ ] Use of non-combustible or fire-resistive materials in construction.
  [ ] Installing residential sprinklering.

Fuel Modification and Setbacks (Continued)

[ ] Development of greenbelts in strategic locations.
[ ] Road development with travel lanes and parking lanes which exceed minimum requirements of these regulations.
[ ] Other measures found to provide defensible space.

[ ] Flammable vegetation and fuels caused by site development/construction/fuel modification are lawfully disposed of prior to final inspection.

[ ] Greenbelts proposed by developer are located strategically between structures and wildland fuels.

**Provisions for Annual Maintenance**

[ ] Annual maintenance of standards and measures secured through condition of building permit. Provisions deemed to satisfy this requirement include but are not limited to:
  [ ] Recordation of a "Notice of Requirement for Maintenance" with the County Recorder's office.
  [ ] Evidence of the property being within a County Service Area (CSA) with responsibility for annual maintenance of fire safe measures.
  [ ] A maintenance association or similar agreement between property owners which is responsible for annual maintenance of fire safe measures for the development and includes the owner's property.
  [ ] Recorded Covenants, Conditions and Restricitons (CC&R) for maintenance of individual measures which are binding and enforceable against the property.
  [ ] Other provisions acceptable to the County.

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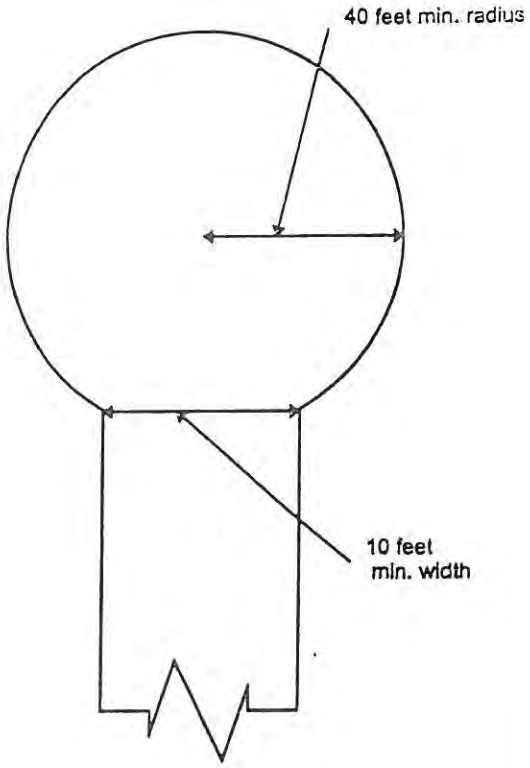
APPLICANT/OWNER'S ACKNOWLEDGEMENT

_____
Signature

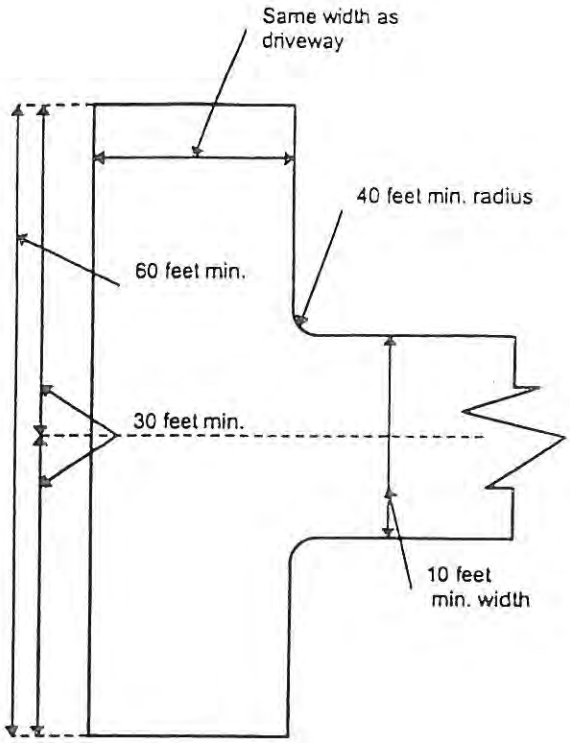
ONCE SIGNED THIS SHEET BECOMES PART OF THE BUILDING PLANS.

(Fire Safe Handout/F:\current\FSCKLST2.doc/Rev.11/3/94)

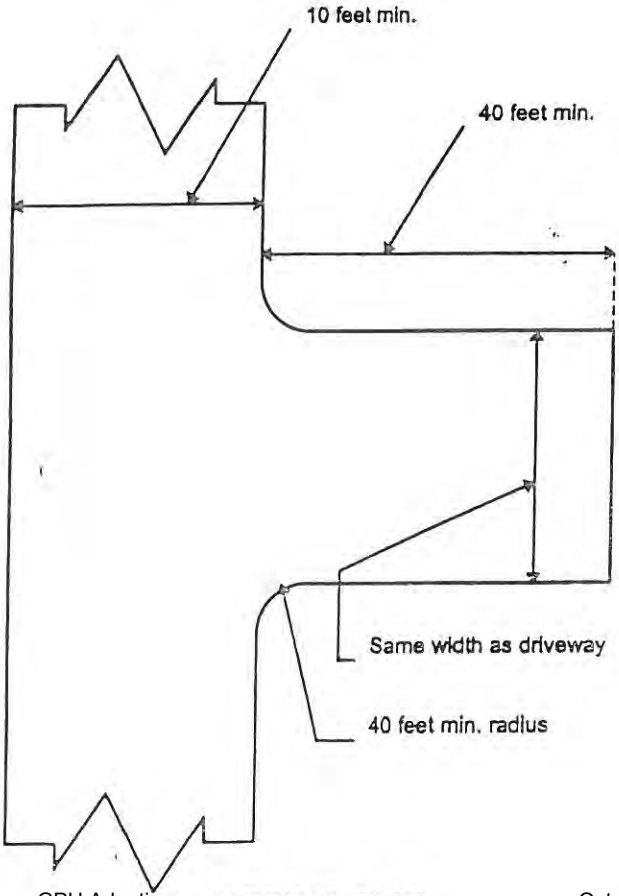
# SRA TURNOUTS AND TURNAROUNDS



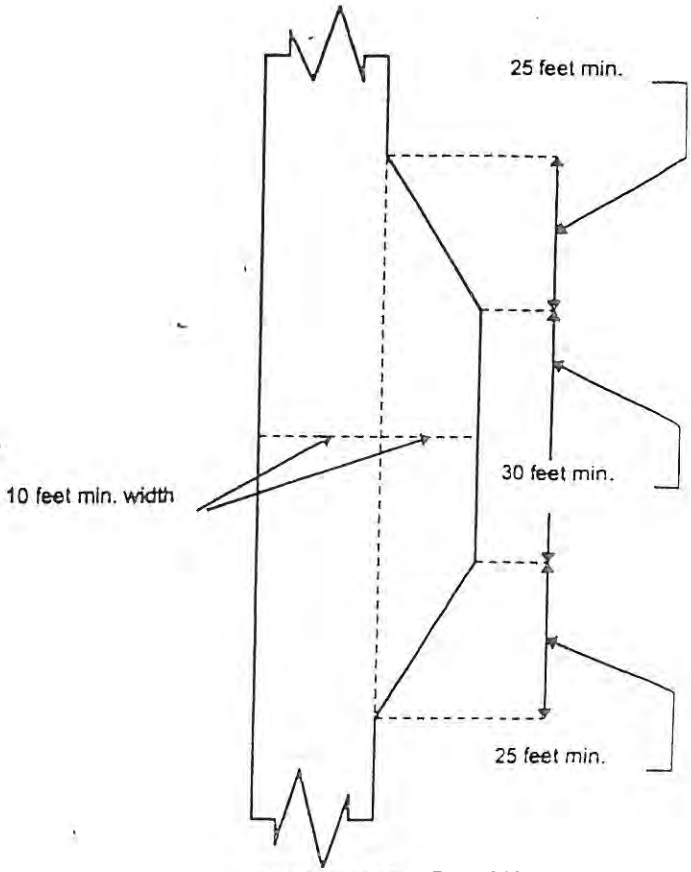

TURNAROUND




HAMMERHEAD T




LATERAL SLIP




TURNOUT

# DOMESTIC EMERGENCY WATER SUPPLY SYSTEMS
ILLUSTRATIONS ON REVERSE SIDE

1. THE MINIMUM EMERGENCY WATER STORAGE VOLUME IS 2,500 GALLONS EASILY AVAILABLE FOR FIRE USE.

2. THE EMERGENCY SUPPLY MAY BE SEPARATE FROM THE DOMESTIC SUPPLY OR IT MAY BE SHARED. WHEN SHARED, AND IF THE REFILLING SUPPLY SOURCE (WELL ETC.) CANNOT KEEP UP WITH THE DAILY DOMESTIC USE; THE AMOUNT STORED SHOULD BE INCREASED SO THAT 2,500 GALLONS ARE AVAILABLE FOR FIRE USE ANY TIME OF DAY.

3. THE WATER HYDRANT OR PLACE FOR WATER SUCTION MUST NOT BE FURTHER THAN 1/2 MILE FROM THE DWELLING, OR CLOSER THAN 50 FEET TO THE DWELLING USING ROAD MEASUREMENTS. PARCELS 10AC. OR LESS MUST HAVE THE HYDRANT/SUCTION WITHIN 500 FEET; AND IF THIS IS PHYSICALLY IMPOSSIBLE, WITHIN 1000 FEET.

4. ALL HYDRANT AND WATER SUCTION LOCATIONS MUST PROVIDE A ROAD STANDARD TURNOUT OR TURNAROUND.

5. ALL WATER SUPPLY HYDRANTS AND SUCTION LOCATIONS MUST BE IDENTIFIED WITH A 3 INCH REFLECTORIZED BLUE DOT LOCATED 3 TO 5 FEET ABOVE THE GROUND ON A POST THAT IS WITHIN 3 FEET OF THE HYDRANT. IF LOCATED OFF A DRIVEWAY, ANOTHER BLUE DOT MUST BE ATTACHED TO THE DRIVEWAY ADDRESS SIGN. ROAD SIGNS STATING "FIRE WATER" ARE AN ACCEPTABLE ALTERNATIVE.

6. ALL EXPOSED PLUMBING SHOULD HAVE FREEZE PROTECTION AND CRASH BARRIERS AS NEEDED TO PREVENT DAMAGE.

7. ALL PIPES SUPPLYING WATER TO HYDRANTS MUST BE AT LEAST 3 INCHES IN DIAMETER. SMALLER DESIGNS MUST PROVE THEMSELVES ABLE TO PROVIDE A 200 GPM FLOW FROM THE HYDRANT CONNECTION.

8. ALL HYDRANTS MUST BE 18 INCHES ABOVE GROUND, AT LEAST 8 FEET FROM FLAMMABLE VEGETATION, AT LEAST 4 FEET FROM THE PARKING SURFACE WHERE THE FIRE EQUIPMENT WILL BE WHEN USING IT AND NO MORE THAN 12 FEET FROM THE PARKING SURFACE.

9. ALL HYDRANTS MUST HAVE A 2 1/2 INCH, MALE NATIONAL HOSE CONNECTION WITH CAP.

10. ALL HYDRANTS/VALVES AND CONNECTIONS MUST BE MADE OF BRASS OR OTHER CORROSION RESISTANT MATERIAL (PYROLITE ETC.)

11. A WET HYDRANT USED WITH A GRAVITY SUPPLY OR PRESSURE SYSTEM MUST HAVE A 2 1/2 INCH VALVE.

12. A DRY HYDRANT USED FOR WATER SUCTION DOES NOT NEED A VALVE, BUT DOES REQUIRE A STRAINER (PERFORATED PIPE LENGTH) AT THE END OF THE SUCTION PIPE. THE STRAINER MUST BE AT LEAST 3 FEET LONG, (SEE THE NOTE ON BOTTOM OF OTHER SIDE.)

13. WHERE A PUMP IS RELIED UPON TO DELIVER WATER TO THE HYDRANT (NOT GRAVITY AND NOT SUCTION); IT MUST DELIVER 200 GALLONS PER MINUTE TO THE HYDRANT. IF IT IS AN ELECTRICALLY POWERED PUMP, IT MUST HAVE A FUELED ENGINE BACKUP (OR GENERATOR). ALSO, A STRAINER (SEE #12) IS REQUIRED.

14. WHERE GRAVITY IS USED TO GET THE WATER TO THE HYDRANT, THE SOURCE (TANK) MUST AT LEAST BE HIGHER THAN THE HYDRANT SO THAT ALL 2,500 GALLONS CAN DRAIN OUT WITHOUT SUCTION. ALSO, THE TANK SHOULD BE NO MORE THAN 600 FEET ABOVE THE HYDRANT; OR HAVE A PRESSURE REDUCER RESTRICTING TO 250PSI.

15. WHERE SUCTION IS NEEDED TO GET THE WATER UP OUT OF A SOURCE (BY HOSE, DRY HYDRANT OR PUMP) FROM A NATURAL POND, UNDERGROUND TANK, SWIMMING POOL, ETC., THE END OF THE HOSE OR DRY HYDRANT PIPE STRAINER MUST HAVE 2 FEET OF WATER ABOVE IT AT ALL TIMES TO PREVENT CAVITATION (A VORTEX FUNNEL THAT ALLOWS AIR TO BE SUCKED IN). ALSO, THE END OF THE SUCTION HOSE OR DRY HYDRANT PIPE STRAINER) MUST BE HELD 1 FOOT OFF THE BOTTOM OF STORAGE THAT CAN ACCUMULATE DEBRIS. THIS MEANS THAT THE BOTTOM 3 FEET OF STORAGE AT THE SUCTION POINT IS UNUSABLE AND AT LEAST 2,500 GALLONS MUST BE AVAILABLE 3 FEET ABOVE THE BOTTOM WHEN THE WATER IS AT THE LOWEST LEVEL OF THE YEAR.

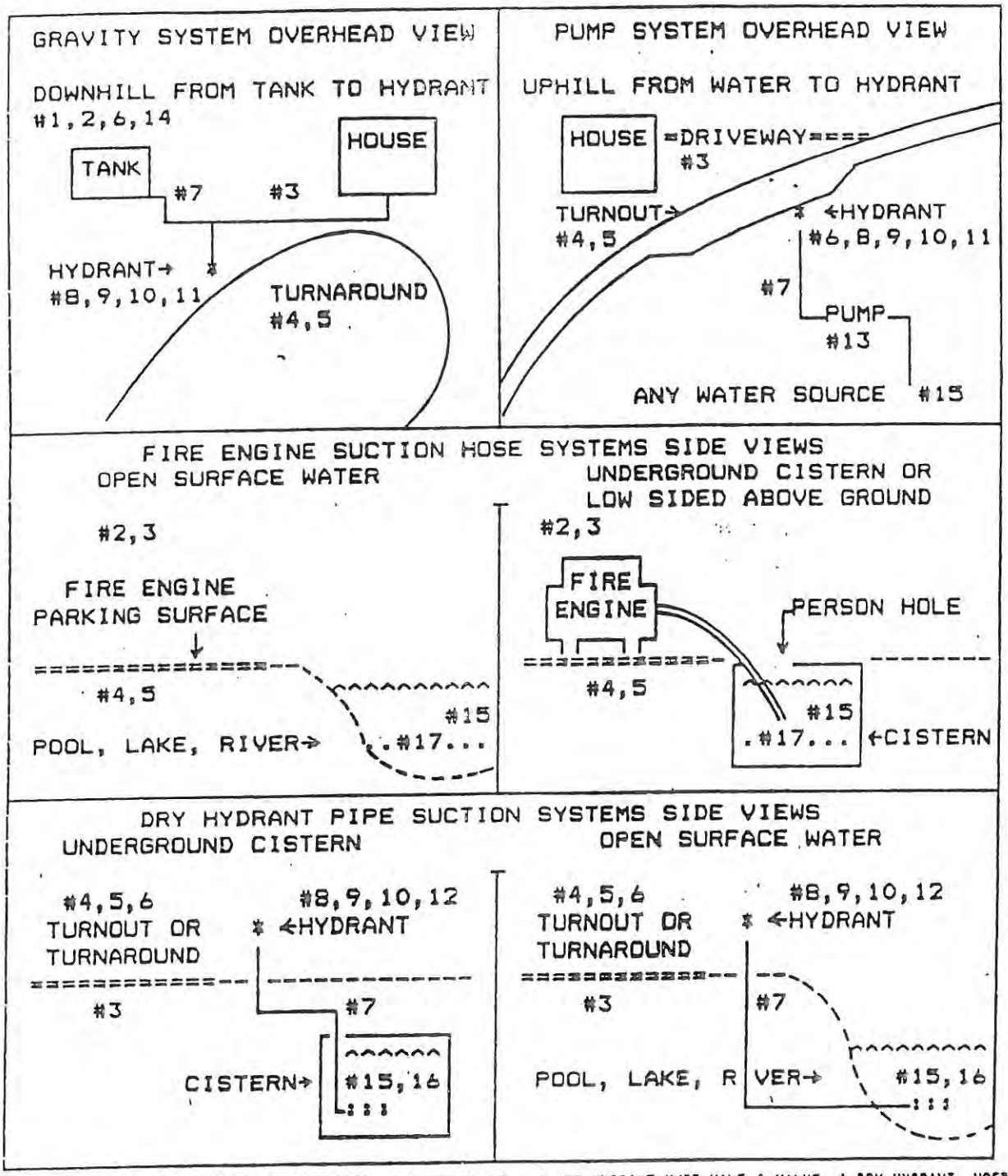
16. WHERE SUCTION THROUGH A DRY HYDRANT PIPE IS USED TO GET WATER UP TO A FIRE ENGINE, THE LEVEL WHERE THE SUCTION PIPE STRAINER IS MUST BE NO MORE THAN 15 FEET LOWER THAN THE HYDRANT CONNECTION.

17. WHERE A FIRE ENGINE SUCTION HOSE IS NEEDED TO GET WATER (NO DRY HYDRANT), THE LEVEL WHERE THE STRAINER END OF THE SUCTION HOSE MUST GO CAN BE NO MORE THAN 10 FEET LOWER THAN THE SURFACE WHERE THE ENGINE PARKS. ALSO, THE TOTAL REACH FROM THE EDGE OF THE PARKING SURFACE TO WHERE THE END OF THE SUCTION HOSE MUST BE CAN REQUIRE NO MORE THAN 15 FEET OF SUCTION HOSE AND NO SHARP BENDS. THIS MEANS THAT A TANK WITH NO DRY HYDRANT WILL HAVE TO BE BELOW THE PARKING AREA, OR HAVE A LOW SIDE WALL, BECAUSE IT COULD TAKE MORE THAN 15 FEET OF HOSE TO REACH UP TO THE TOP OF A TANK AND THEN BACK TO THE BOTTOM; AND COULD REQUIRE A VERY SHARP BEND.

September 16, 1991
CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

# SINGLE FAMILY DWELLING
# EMERGENCY WATER SUPPLY SYSTEMS

## EXPLANATIONS FOR THE NUMBERED ITEMS ON REVERSE SIDE

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September 16, 1991
CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

# APPENDIX I:
# EMERGENCY WATER SUPPLY SYSTEMS

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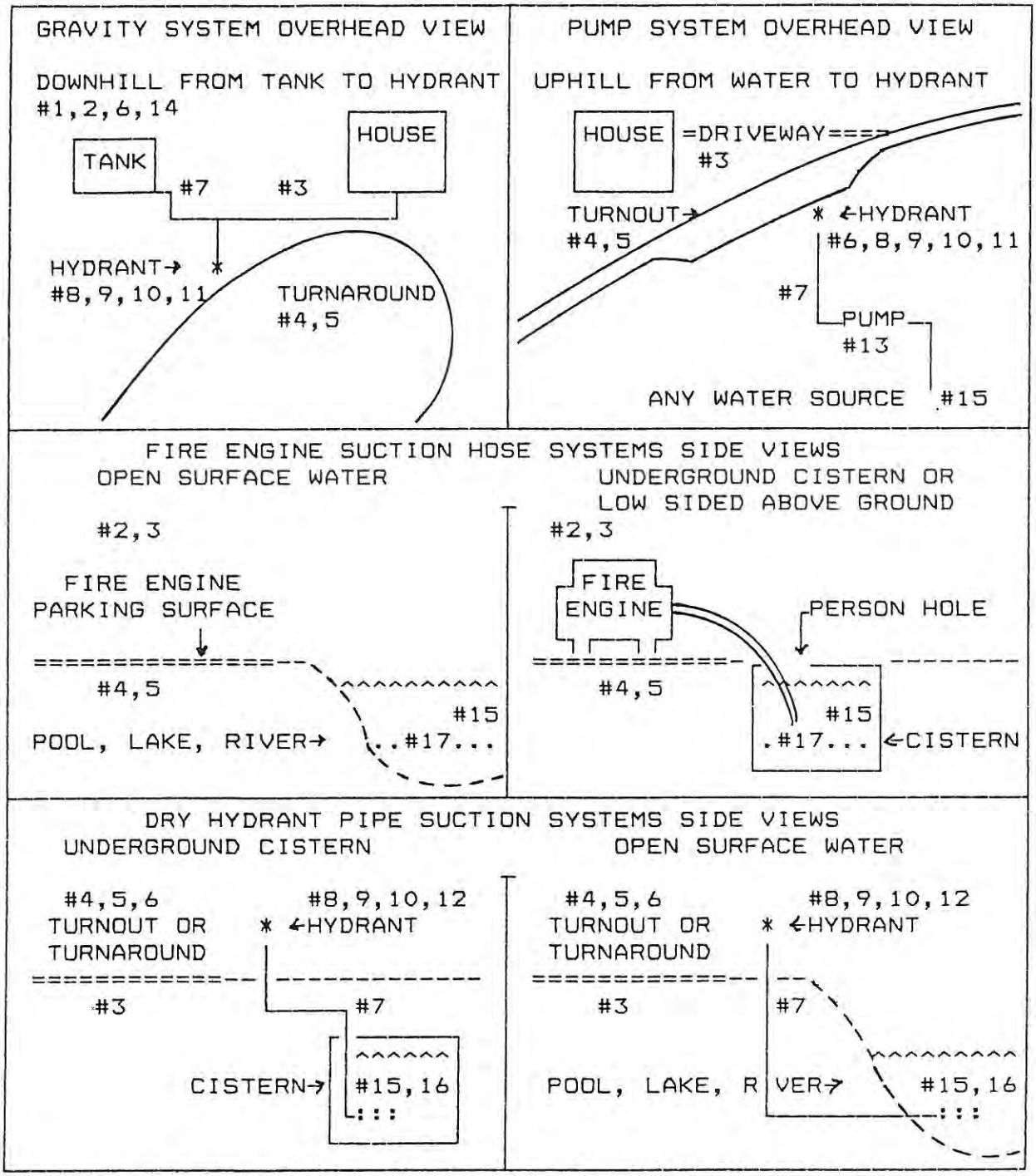


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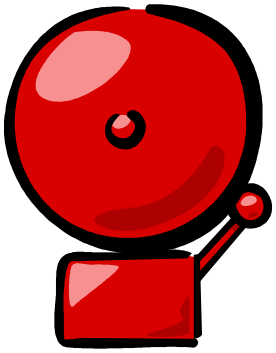
# APPENDIX J:
# CAL FIRE EVACUATION TIPS

Evacuation Tips

# Evacuation Tips



Evacuations save lives and allow responding personnel to focus on the emergency at hand.
**Please evacuate promptly when requested!**

## The Law

California law authorizes officers to restrict access to any area where a menace to public health or safety exists due to a calamity such as flood, storm, fire, earthquake, explosion, accident or other disaster. Refusal to comply is a misdemeanor. (Penal Code 409.5)

## Evacuation Orders

The terms ***Voluntary*** and ***Mandatory*** are used to describe evacuation orders. However, local jurisdictions may use other terminology such as *Precautionary* and *Immediate Threat*. These terms are used to alert you to the significance of the danger. **All evacuation instructions provided by officials should be followed immediately for your safety.**

## Long Before a Fire Threatens

Prepare an *Evacuation Checklist* and Organize:

- Critical medications.
- Important personal papers, photos.
- Essential valuables.
- Pet and livestock transport, limited amount of pet food.
- Change of clothing, toiletries.
- Cell phone.
- Critical papers and effects in a fire-proof safe.
- An Evacuation Route Map with at least two routes.*
- Drive your planned route of escape before an actual emergency.*

*During an evacuation, law enforcement/ emergency personnel may determine your route.

## If Evacuation is a Possibility

- Locate your *Evacuation Checklist* and place the items in your vehicle.
- Park your vehicle facing outward and carry your car keys with you.
- Locate your pets and keep them nearby.
- Prepare farm animals for transport.
- Place connected garden hoses and buckets full of water around the house.
- Move propane BBQ appliances away from structures.
- Cover-up. Wear long pants, long sleeve shirt, heavy shoes/boots, cap, dry bandanna for face cover, goggles or glasses. 100% cotton is preferable.
- Leave lights on in the house - door unlocked.
- Leave windows closed - air conditioning off.

# Evacuation Tips

## The Evacuation Process

1. Officials will determine the areas to be evacuated and the routes to use depending upon the fire's location, behavior, winds, terrain, etc.
2. Law enforcement agencies are typically responsible for enforcing an evacuation order. **Follow their directions promptly.**
3. You will be advised of potential evacuations as early as possible. You must take the initiative to stay informed and aware. Listen to your radio/TV for announcements from law enforcement and emergency personnel.
4. You may be directed to temporary assembly areas to await transfer to a safe location.

## If You Become Trapped

While in your vehicle:

- Stay calm.
- Park your vehicle in an area clear of vegetation.
- Close all vehicle windows and vents.
- Cover yourself with wool blanket or jacket.
- Lie on vehicle floor.
- Use your cell phone to advise officials – Call 911.

While on foot:

- Stay calm.
- Go to an area clear of vegetation, a ditch or depression if possible.
- Lie face down, cover up.
- Use your cell phone to advise officials - Call 911.

While in your home:

- Stay calm, keep your family together.
- Call 911 and inform authorities of your location.
- Fill sinks and tubs with cold water.
- Keep doors and windows closed, but unlocked.
- Stay inside your house.
- Stay away from outside walls and windows.

** Note – it will get hot in the house, but it is much hotter, and more dangerous outside.*

After the fire passes, and if it is safe, check the following areas for fire:

- The roof and house exterior.
- Under decks and inside your attic.
- Your yard for burning trees, woodpiles, etc.

## Returning Home

Fire officials will determine when it is safe for you to return to your home. This will be done as soon as possible considering safety and accessibility.

When you return home:

- Be alert for downed power lines and other hazards.
- Check propane tanks, regulators, and lines before turning gas on.
- Check your residence carefully for hidden embers or smoldering fires.

www.fire.ca.gov

# APPENDIX K:

# PUBLIC RESOURCES CODE SECTION

# APPENDIX K: PUBLIC RESOURCES CODE SECTION 4291

4291. (a) A person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall at all times do all of the following:

(1) Maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line except as provided in paragraph (2). The amount of fuel modification necessary shall take into account the flammability of the structure as affected by building material, building standards, location, and type of vegetation. Fuels shall be maintained in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure. This paragraph does not apply to single specimens of trees or other vegetation that are well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to a structure or from a structure to other nearby vegetation. The intensity of fuels management may vary within the 100-foot perimeter of the structure, the most intense being within the first 30 feet around the structure. Consistent with fuels management objectives, steps should be taken to minimize erosion. For the purposes of this paragraph, "fuel" means any combustible material, including petroleum-based products and wildland fuels.

(2) A greater distance than that required under paragraph (1) may be required by state law, local ordinance, rule, or regulation. Clearance beyond the property line may only be required if the state law, local ordinance, rule, or regulation includes findings that the clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure. Clearance on adjacent property shall only be conducted following written consent by the adjacent landowner.

(3) An insurance company that insures an occupied dwelling or occupied structure may require a greater distance than that required under paragraph (1) if a fire expert, designated by the director, provides findings that the clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure. The greater distance may not be beyond the property line unless allowed by state law, local ordinance, rule, or regulation.

(4) Remove that portion of a tree that extends within 10 feet of the outlet of a chimney or stovepipe.

(5) Maintain a tree, shrub, or other plant adjacent to or overhanging a building free of dead or dying wood.

(6) Maintain the roof of a structure free of leaves, needles, or other vegetative materials.

(7) Prior to constructing a new building or structure or rebuilding a building or structure damaged by a fire in an area subject to this section, the construction or rebuilding of which requires a building permit, the owner shall obtain a certification from the local building official that the dwelling or structure, as proposed to be built, complies with all applicable state and local building standards, including those described in subdivision (b) of Section 51189 of the Government Code, and shall provide a copy of the certification, upon request, to the insurer providing course of construction insurance coverage for the building or structure. Upon completion of the construction or rebuilding, the owner shall obtain from the local building official, a copy of the final inspection report that demonstrates that the dwelling or structure was constructed in compliance with all applicable state and local building standards, including those described in subdivision (b) of Section 51189 of the Government Code, and shall provide a copy of the report, upon request, to the property insurance carrier that insures the dwelling or structure.

(b) A person is not required under this section to manage fuels on land if that person does not have the legal right to manage fuels, nor is a person required to enter upon or to alter property that is owned by any other person without the consent of the owner of the property.

(c) (1) Except as provided in Section 18930 of the Health and

Safety Code, the director may adopt regulations exempting a structure with an exterior constructed entirely of nonflammable materials, or, conditioned upon the contents and composition of the structure, the director may vary the requirements respecting the removing or clearing away of flammable vegetation or other combustible growth with respect to the area surrounding those structures.

(2) An exemption or variance under paragraph (1) shall not apply unless and until the occupant of the structure, or if there is not an occupant, the owner of the structure, files with the department, in a form as the director shall prescribe, a written consent to the inspection of the interior and contents of the structure to ascertain whether this section and the regulations adopted under this section are complied with at all times.

(d) The director may authorize the removal of vegetation that is not consistent with the standards of this section. The director may prescribe a procedure for the removal of that vegetation and make the expense a lien upon the building, structure, or grounds, in the same manner that is applicable to a legislative body under Section 51186 of the Government Code.

(e) The Department of Forestry and Fire Protection shall develop, periodically update, and post on its Internet Web site a guidance document on fuels management pursuant to this chapter. Guidance shall include, but not be limited to, regionally appropriate vegetation management suggestions that preserve and restore native species, minimize erosion, minimize water consumption, and permit trees near homes for shade, aesthetics, and habitat; and suggestions to minimize or eliminate the risk of flammability of non-vegetative sources of combustion such as woodpiles, propane tanks, decks, and outdoor lawn furniture.

(f) As used in this section, "person" means a private individual, organization, partnership, limited liability company, or corporation.

4291.1. (a) Notwithstanding Section 4021, a violation of Section 4291 is an infraction punishable by a fine of not less than one hundred dollars ($100), nor more than five hundred dollars ($500). If a person is convicted of a second violation of Section 4291 within five years, that person shall be punished by a fine of not less than two hundred fifty dollars ($250), nor more than five hundred dollars ($500). If a person is convicted of a third violation of Section 4291 within five years, that person is guilty of a misdemeanor and shall be punished by a fine of not less than five hundred dollars ($500).

If a person is convicted of a third violation of Section 4291 within five years, the department may perform or contract for the performance of work necessary to comply with Section 4291 and may bill the person convicted for the costs incurred, in which case the person convicted, upon payment of those costs, shall not be required to pay the fine. If a person convicted of a violation of Section 4291 is granted probation, the court shall impose as a term or condition of probation, in addition to any other term or condition of probation, that the person pay at least the minimum fine prescribed in this section.

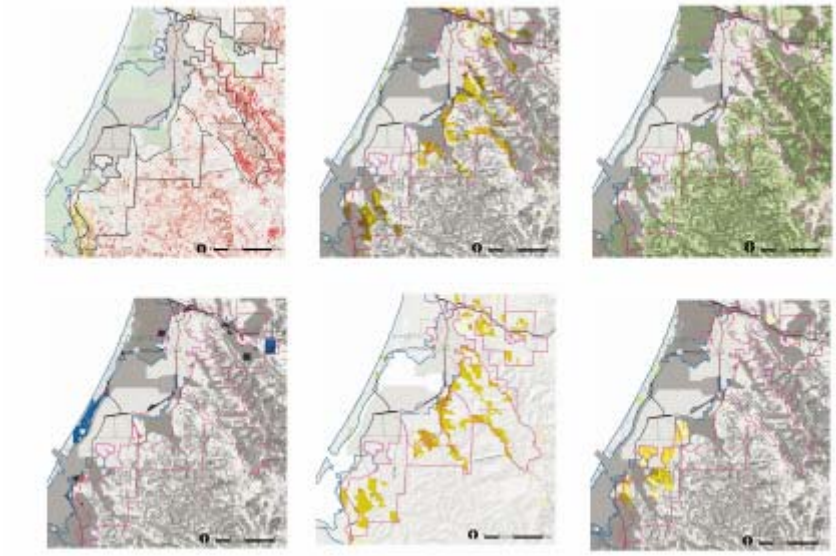
(b) If a person convicted of a violation of Section 4291 produces in court verification prior to imposition of a fine by the court, that the condition resulting in the citation no longer exists, the court may reduce the fine imposed for the violation of Section 4291 to fifty dollars ($50).

4291.3. Subject to any other applicable provision of law, a state or local fire official, at his or her discretion, may authorize an owner of property, or his or her agent, to construct a firebreak, or implement appropriate vegetation management techniques, to ensure that defensible space is adequate for the protection of a hospital, adult residential care facility, school, aboveground storage tank, hazardous materials facility, or similar facility on the property. The firebreak may be for a radius of up to 300 feet from the facility, or to the property line, whichever distance is shorter.

# Appendix J

Sketch Plan Alternatives Report

# HUMBOLDT 2025
# GENERAL PLAN UPDATE



# Sketch Plan Alternatives

**June 2004 Draft**

## A Discussion Paper for Community Workshops

***Prepared by***

**Humboldt County Department of Community Development Services**

***And***

**DYETT & BHATIA**
**Urban and Regional Planners**

# Table of Contents

# Executive Summary

What Are Sketch Plans?

The sketch plans described in this report are generalized depictions of proposed planned land uses to illustrate the various General Plan options. They present a range of alternative policy options and buildout futures for Humboldt County in a broad-stroke format for easy comparison. While they represent various themes, they contain components that can be mixed, matched and reworked to develop the best fit for drafting the County's General Plan. Sketch plan components are expected to evolve based upon public input to provide sound policy choices and buildout scenarios reflective of community values.

Sketch Plan Summary Descriptions

*Sketch Plan 1: Existing Plan Development Patterns:* SP1 focuses on continuance of existing policies contained in the 1984 Framework General Plan and the buildout provided in the existing Community Plans, Housing Element and rural development policies.

*Sketch Plan 2: Expanded Growth Patterns:* SP2 encourages a more expanded development pattern than the existing Framework Plan (SP1). SP2 provides the highest number of existing parcels that could be developed for homesites. SP2 also substantially expands water service areas beyond present boundaries, to provide more opportunities for homesites in the outlying parts of communities. Resource protection policies in SP2 continue the existing Framework Plan policies except that additional resource lands adjacent to urbanized areas are proposed for residential development conversion.

*Sketch Plan 3: Focused Growth Patterns:* SP3 promotes urban development patterns. SP3 provides higher development potential in urbanized areas with public sewer and water services. This alternative also provides for a modest expansion of existing water service areas above the existing Framework Plan. SP3 provides protection of resource production lands by directing homesite development to urbanized areas and by establishing clearer boundaries between urban and resource production areas than the existing Framework Plan.

*Sketch Plan 4: Mixed Development Patterns:* SP4 combines the expanded service areas of SP2 with the higher urban densities and resource lands protection contained in SP3. SP4 provides the highest buildout potential within Community Planning Areas of any of the alternatives with stronger resource land protection policies than the Framework Plan (SP1).

Policy Options

Key policy options are included that would modify or be added to the existing policy base. They are intended to provide sufficient description to allow understanding of the general policy direction, and to solicit public comment and opinion on whether they should be included in the

sketch alternatives. The majority of the proposed policy options would be included in SP3 and SP4, because SP1 is the existing plan and SP2 resource protection policies are a continuance of the existing plan policies. The policy options can, however, be suggested for inclusion in any of the sketch plans.

Numerous policies will be common to all sketch plan alternatives which are from the existing General Plan. These policies include Housing Element policies on density bonuses, second units, and cottage industries, etc., and geologic hazard, flood, wildland fire, noise, airport safety, sensitive habitats, and cultural resource policies, etc. These policies will be included in the full hearing draft general plan. These policies will of course be subject to public review, and will be analyzed in the EIR accompanying the plan.

## Public Review and Approval Process

Public workshops will be held to explain and to receive public input on the sketch plan alternatives. The primary purpose of the workshops is to ensure that the sketch plans reflect a reasonable range of alternatives and to select a proposed project for CEQA analysis.

The final sketch plan document will incorporate revisions based upon public input. Preferred components of each will be combined into a Proposed Project Sketch Plan (SP5). SP5 will provide the guidance for writing full draft General Plan. The remaining sketch plan alternatives will be retained for comparative analyses and CEQA review.

A full draft General Plan, together with an accompanying Environmental Impact Report (EIR) will then be prepared and released for public review. Public hearings will be held before the Humboldt County Planning Commission and Board of Supervisors. Additional public workshops may also be held to ensure full public participation in the development of the plan.

## Background

Humboldt County last revised its General Plan in 1984. In the spring of 2000, the County initiated a comprehensive General Plan Update, with a multi-phased work program. Phase I, which was completed in early 2001, focused on an extensive public outreach effort to engage the public in the General Plan effort. Through a series of over 40 public meetings, public input was received on land use issues and policy concerns. Additional public outreach efforts included development of a web site, newsletter publication, and community survey. Phase I culminated in a compilation of public concerns and issues entitled the Critical Choices Report.

Based on the issues and direction defined in the Critical Choices Report, data collection and analysis on current conditions and the identification of a range of practical policy options was completed. This step culminated in the publication of five reports: Building Communities, Natural Resources and Hazards, Moving Goods and People, Forest Resources and Agricultural

Resources Reports. Community workshops were held throughout the County to receive input regarding these reports and the policy options presented in early 2003. In addition to these efforts, a community dialogue was sponsored by the Humboldt Area Foundation to allow individuals to share views through facilitated discussions on alternative development patterns. The discussions were intended to deepen the understanding of possible alternatives and identify areas of agreement and disagreement.

This report – Sketch Plan Alternatives – represents the next key step in the process to prepare an updated General Plan for the unincorporated Humboldt County. The report describes land use alternatives for the County's future, called "Sketch Plans". These sketch plans are intended to provide alternative approaches to plan for the County's population growth and projected land demand up to the year 2025, as described in the Building Communities report, as well as to address the policy direction set forth in Critical Choices, and further refined in the five background reports. Plan designs respond to different sets of options, and no commitment to one plan approach has been made. The intent of the sketch plans is to illustrate the range of options that are consistent with the direction provided by Critical Choices. By comparing the sketch plans side by side, decisions can be made as to which components of each plan will ultimately result in a proposed plan alternative.

This report contains a simplified list of policy options for consideration during the proposed plan selection process. The County previously distributed more detailed policy option worksheets as a result of the summary findings contained within the Background Reports. Comments were received regarding these policy options (and the existing plan policies). We have not lost sight of the more detailed policy options and the comments received to date. The County will revisit the public input to these policy options during the preparation of the full General Plan and Environmental Impact Report.

# Sketch Plans
## Sketch Plan Alternatives

### Sketch Plan 1: Existing General Plan

SP1 uses policies and land use designations contained in the current 1984 Humboldt County Framework General Plan. SP1is intended to illustrate the effects of continuing existing development patterns in the County. SP1will also serve as a comparison baseline for the new proposed sketch plan alternatives.

The Framework General Plan established community planning area boundaries and called for a program of individual community planning efforts. Within each planning area, urban development and urban expansion areas are defined based on service provider capabilities and logical expansion areas. Resource production lands (agricultural and timber) have been given protection based largely on their existing zoning, with density ranges of 20 – 160 acres per unit. Similarly, other rural lands have been given density ranges of 20 – 160 acres per unit based on remoteness, natural resources, and hazard considerations.

Housing affordability is addressed by the community planning program and periodic updates of the Housing Element. Together these programs have provided a supply of residentially designated land, particularly multi-family designated land, which is a key component in meeting the required range of affordability.

Commercial and industrial areas are designated largely based on existing land use patterns, with logical areas for expansion. Community design has been addressed in individual community plans, applying local design review and landscaping requirements.

### Sketch Plan 2: Expanded Growth Patterns

SP2 proposes to increase developable parcels and densities compared to the existing Framework Plan. Land use designations were applied to accommodate increased growth. SP2 proposes a higher number of existing parcels that could be developed for homesites. It substantially expands water service areas beyond present boundaries, thus providing more opportunities for homesites in the outlying parts of communities. SP2 allows greater flexibility for market forces to determine the form and extent of new development. This will result in a more dispersed development pattern around existing communities, providing extensive opportunities for 1 – 5 acre homesites. A transition between urban and rural areas is provided through Residential Estates lands, including large lot (2 acre or greater) rural residential subdivisions, which may be converted to urban residential densities (greater than 1 dwelling unit/acre) with the extension of sewer and water service.

SP2 allows existing development patterns to continue, including auto-oriented commercial development, but would revise County development standards and subdivision ordinance language to allow developers to respond to market demand for live/work, mixed-use, or neighborhoods designed with traditional town planning principles.

Resource protection policies of the existing Framework Plan would be continued except that additional resource lands adjacent to urbanized areas are proposed for conversion to residential development. In addition, SP2 includes an Urban Fringe Timber land use designation intended to serve as a buffer between residential and resource production uses.

Housing affordability is addressed in this plan by increasing the number of parcels which could be subdivided and planned for densities that require less up-front investment for water and sewer infrastructure. SP2 largely relies on market driven forces to address housing supply and demand, and makes targeted public financing of infrastructure less of a priority. Density bonus policies of the existing Housing Element would be carried over into this (and all other) plan(s).

Performance standards and guidelines will be used to ensure that design, scale, and buffering of affordable housing projects (especially multi-family and assisted housing) retain the character of surrounding neighborhoods. Density categories are broad enough to allow for diversity of housing types; however, there would be no regulatory requirement to provide specific housing types.

Commercial and industrial areas are designated largely based on existing use patterns, with additional areas for expansion. Big box retail is accommodated at selected sites. Community design relies largely on the market and policies contained in existing community plans to determine appropriate design.

Overlay zones are proposed to ensure protection for specific environmental resources and hazards, including wetlands, steep slopes, floodplains, sensitive habitat, Alquist-Priolo zones, and landslide areas.

### Sketch Plan 3: Focused Growth Patterns

SP3 promotes urban settlement patterns. Proposed land use designations promote efficient use of public infrastructure and provide higher development potential in urban areas with full public services (most importantly public sewer and water). SP3 also provides for a modest expansion of existing water service areas above the existing Framework Plan. Within the urban areas, opportunities for higher density development, consistent with community character, are provided and minimum densities (3 dwelling units per acre) have been introduced in areas with sewer and water service to prevent inefficient use of infrastructure investments.

SP3 would provide for somewhat more compact development patterns, specifying a 3-8 unit/acre density range for the RL designation, compared to a 1-7 unit/acre density range used in Sketch Plans 1 & 2. This sketch plan would also revise County development standards and subdivision ordinance language to allow for live/work, mixed-use, or neighborhoods designed

with traditional town planning principles, and place higher emphasis on providing incentives and implementation of such measures.

A key feature of SP3 includes the Industrial Timber and Ranchland land use designations that are used to ensure that the County's premier resource production lands remain working landscapes. These designations would set the minimum parcel size at 600 acres, and housing in Industrial Timber would be allowed only by conditional use permit. While under the current zoning ordinance residential subdivisions are not allowed in Agricultural Exclusive areas, this plan would strengthen and clarify that no subdivisions or lot line adjustments would be allowed which created new building sites in Agricultural Exclusive areas. This plan would provide more protection of resource production lands by directing homesite development to the urban areas and by establishing clearer boundaries between urban and resource production areas than contained in the existing Framework Plan.

Housing affordability is addressed in this plan by increasing the potential number of parcels which could be created and planning them at densities where water and sewer infrastructure is efficiently used. A mix of housing types and densities is encouraged in new developments to promote an affordable mix of housing stock. Water and sewer service boundaries are more conservatively drawn to increase certainty associated with planned infrastructure improvements, and may increase the feasibility of public financing of needed improvements. SP3 also contains an ample supply of residential estate and rural residential opportunities to meet that housing market.

Performance standards and guidelines will be used to ensure that the design, scale, and buffering of affordable housing projects (especially multi-family and assisted housing) retains the character of surrounding neighborhoods. Incentives for infill development, mixed-uses, and other incentives (i.e. reduced fees, density bonuses, and alternative development standards) will further contribute to affordable housing.

Commercial and industrial areas are designated primarily based on existing use patterns, with additional encouragement of mixed-use designations and redevelopment of brownfield sites. Commercial land is located near community centers and not in areas with the large acreages available for big box retail uses. Further, development standards (e.g. floor area maximums) will discourage big box retail uses in the unincorporated County. Industrial performance standards would also allow more small-scale, low-impact industrial uses near established areas, and would also allow permitting of mixed uses on larger industrial sites, encouraging redevelopment of brownfield sites with the continuation of clean industrial uses.

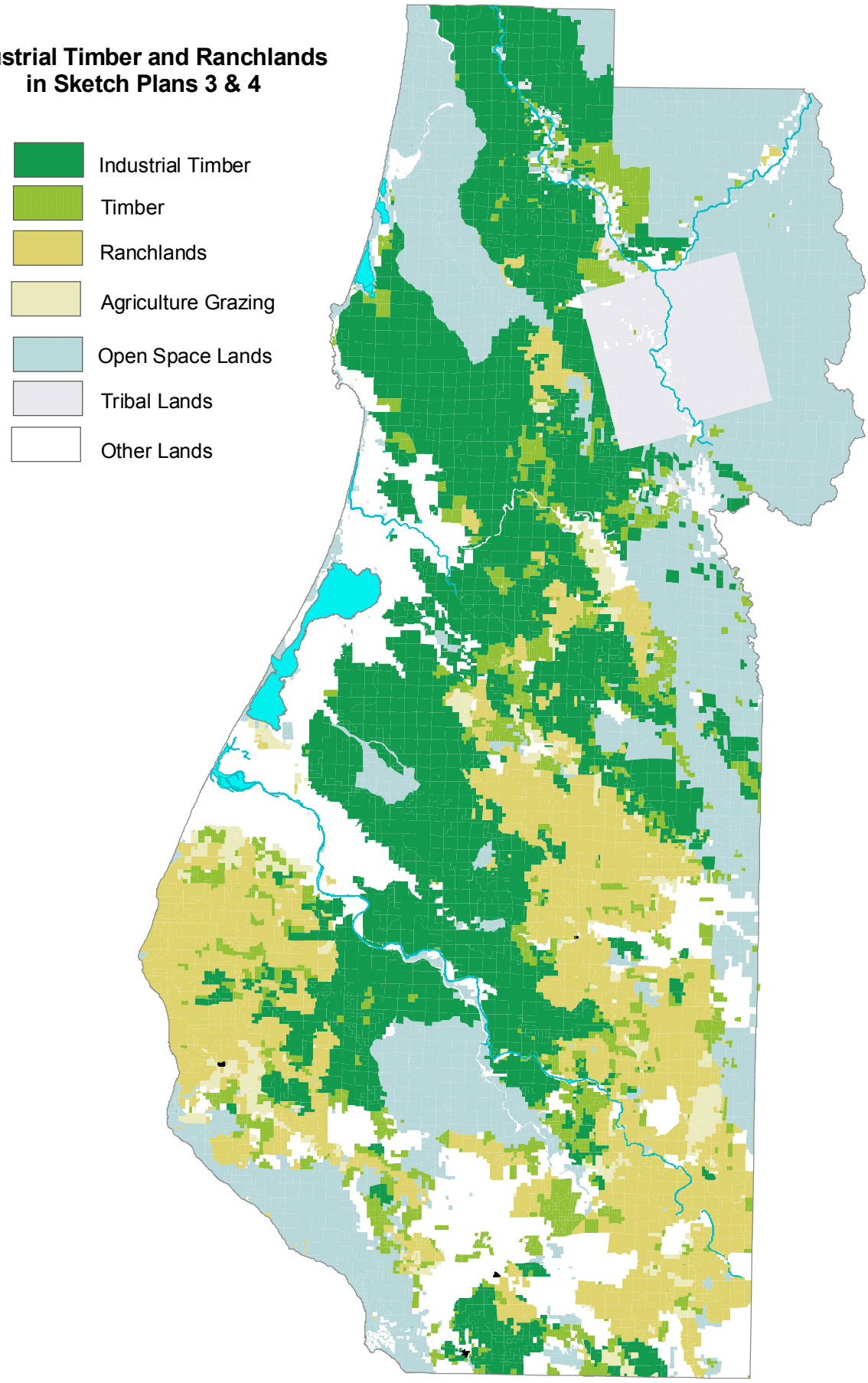
Overlay zones are proposed to ensure protection for specific environmental resources and hazards, including wetlands, steep slopes, floodplains, sensitive habitat, Alquist-Priolo zones, and landslide areas.

**Sketch Plan 4: Mixed Growth Patterns**

SP4 combines the development capacity of Sketch Plan 2 with the higher urban density allowances and resource protection policies of Sketch Plan 3. This results in the highest

potential number of building sites among the plans while still increasing resource lands protections. For this alternative, the residential and rural residential designations were taken from SP2 and SP3, whichever plan provided the higher density for a particular parcel. The Urban Fringe Timber designation is used in this sketch plan alternative. For other resource production areas, the resource production designations of Sketch Plan 3 were used.

## Industrial Timber and Ranchlands in Sketch Plans 3 & 4



## Sketch Plan Land Use Classifications

Land use classifications used in the sketch plans are somewhat generalized to assist readability and based primarily on the existing Framework Plan classifications. Proposed new classifications have been added to help define policy differences, and in some instances may only be used in one of the sketch plans. Assumed Densities are the averaged densities used for the buildout calculations. The following descriptions apply to the land use designations indicated on the sketch plan maps.

### Resource Classifications

***Timber Production (T)***
This designation classifies lands primarily suitable for the growing, harvesting and production of timber.

As mapped in SP1, includes all lands zoned TPZ and areas of mixed TPZ/AE. In SP2, includes all such lands outside of CPA's and those lands in CPA's that are industrially managed. In SP3 and SP4, includes non-industrially managed TPZ lands, and industrially managed lands in and adjacent to CPA's that may be non-contiguous with other management units or form logical boundaries in planning areas.

Density Range/Minimum Parcel Size: 20 – 160 acres
Assumed Density: 1 unit/80 acres in all Sketch Plans

***Industrial Timber (IT)***
This designation applies to lands that are industrially managed for timber production and where presence of additional homesites would likely contribute to conflict with such timber management; most of these lands are managed through a habitat conservation plan (HCP).

This designation is used in SP3 and SP4, and includes industrially managed lands primarily outside CPA's. Minor amounts of non-industrially managed land may be included to avoid fragmenting cohesive units. Residences would be allowed as conditionally permitted uses.

Homesite Density: 0; Minimum Parcel Size: 600 acres
Assumed Density: 0

***Urban Fringe Timber (UT)***
Note: In previous draft sketch alternatives these lands were called "Transitional Timber". This led to confusion over whether the lands were proposed for conversion out of timber production as oppose to being a transitional buffer between residential and resource production. The latter is intended to be the case. For lands that are currently TPZ that are expected to be converted to residential, the plans should simply plan them for the proposed residential use, leaving the TPZ zoning in place until development is contemplated.

This designation applies to lands zoned TPZ or TC inside CPA's that may be non-contiguous to industrially managed units or provide buffer areas between residential and resource production

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TPZ = Timber Production Zone, AE= Ag Exclusive, CPA = Community Planning Area

uses.

This designation is used in SP2 and SP4 and was applied to timberlands with apparent urban interface issues. These issues may suggest the need for policies relating to buffering residential uses adjacent to these areas, possible County participation in THP review to promote consistency and compatibility, and wildfire risk reduction programs.

Density Range: 20 – 40 acres/unit
Assumed Density: 40 acres/unit

***Agricultural Exclusive (AE)***
This plan designation applies primarily to bottomland farms and lands that can be irrigated. Typical uses include dairy, row crops, orchards, specialty agriculture and horticulture.

Areas mapped under this designation include the lands that support the above described agricultural uses. In SP2, some marginal areas have been re-designated to rural residential uses.

Density Range: 20 – 60 acres/unit
Assumed Density: 40 acres/unit in Sketch Plan 1 & 2; 60 ac/unit in Sketch Plan 3 & 4

***Agricultural Grazing (AG)***
This designation applies to dry land grazing areas which support primarily cattle ranching, supplemented by timber harvest activities as part of the ranching operation.

As mapped in SP1, includes lands that support the above- described agricultural uses, and TPZ land that may be inter-mixed. In SP2, some areas formerly carrying this designation have been re-designated to large lot rural residential to reflect apparent existing use or where fragmentation of ownerships has occurred to substantially below what would be necessary to support dry land grazing. In SP3 and SP4, the Ranchland designation has been applied to the identified cohesive major cattle ranching areas, with the balance of the lands in this use designated AG. In Sketch Plan 4, some areas formerly carrying the AG designation have been re-designated to large lot rural residential to reflect apparent existing use.

Density Range: 20 – 160 acres/unit
Assumed Density: 80 acres/unit in all Sketch Plans

***Ranchland (AGR)***
This designation applies to dry land grazing areas that support primarily cattle ranching, and timber as part of the ranching operation.

The AGR has been applied to identified cohesive major cattle ranching areas and includes the lands that support the above described agricultural use, as well as TPZ land that may be inter-mixed and typically considered an integral part of the ranching operations. It is used in Sketch Plans 3 and 4, with the balance of the lands in this use in smaller management units designated AG.
Density Range: 600 acres/unit
Assumed Density: 600 acres/unit

***Parks & Open Space (OS)***
This designation applies to local, state, and federal park lands and other public lands, including multiple use areas such as Six Rivers National Forest and King Range National Conservation Area, as well as dunes and other areas designated Natural Resources under current plans. The Hoopa square and the Yurok extension were designated Public Lands under the Framework General Plan, and hence are included in Sketch Plan 1 under that designation.

## Residential Classifications

***Rural Residential (RR)***
This designation applies to large lot residential uses that typically rely upon on-site water and wastewater systems. Varying densities are reflective of land capabilities and/or compatibility issues.

The variations between the sketch plans in the mapping of this designation are reflective of the theme of the sketch plan. In SP2 and SP4, more land is included (re-designated from a resource designation) and densities are slightly higher, compared to SP1 and SP3.

RR5-20 and RR20 are rural residential designations for lands with slopes generally less than 30% and served by individual water and wastewater systems and good road access. RR40, RR60, and RR160 designations are applied to more remote, steep and high hazard areas or where necessary to ensure compatibility with adjacent resource production and open space uses.

Density Range specified in designation:
RR5-20 Assumed Density: 10acres/unit
RR20 Assumed Density: 20acres/unit
RR40 Assumed Density: 40acres/unit
RR60 Assumed Density: 60acres/unit
RR160 Assumed Density: 160acres/unit

***Residential Estates (RE)***
This designation is used for lands adjacent to urban areas or rural communities and with limited public services but suitable for single-family residential use. It is also intended as a transition from urban development to rural lands. Clustering policies are suggested for SP3 to assist in buffering adjacent resource production or open space uses and to retain contiguous open space. This classification is commonly used in water-only service areas.

Density Range: 1 – 5 acres/unit where water service is or may be available; 2.5 – 5 acres/unit where individual water systems are relied on.

Assumed Density: 1 – 5 ac/unit: 2.5 acres/unit in all Sketch Plans; 2.5 – 5 ac/unit: 3.5 acres/unit in all Sketch Plan.

***Residential Low Density (RL)***
The RL designation is used for areas suitable for residential use where urban services are available or are anticipated to be available. The designation can accommodate a mix of housing types including detached single family units and common-wall clustered units. To make efficient use of services, SP3 and SP4 promote slightly higher densities in areas served by public water and sewer.

Density Range specified in designation:
RL1: Assumed Density: 1acres/unit
RL1- 4: Assumed Density: 0.5acres/unit in Plans 1 & 2; 0.4ac/unit in Plans 3 & 4.
RL1- 7: Assumed Density: 0.33acres/unit in Plans 1 & 2; 0.25ac/unit in Plans 3 & 4.
RL3- 8: Assumed Density: 0.2acres/unit in Plans 3 & 4 (Not used in 1 & 2).

***Residential Medium Density (RM)***
This classification is used in areas with full urban services and where common-walled units and apartments are appropriate. Community Design Toolkit can be used to ensure compatibility with neighborhood character.

Density Ranges:
RM - 7-30 units/acre in Sketch Plan 1 Assumed Density: 0.066acres/unit
RM7-16 units/acres in Plans 2, 3, & 4 Assumed Density: 0.1ac/unit in Plan 2;
0.083ac/unit in Plans 3 & 4

## Commercial, Industrial, Mixed-Use, & Facilities Classifications

***Commercial (CS, CG)***
The CS and CG classifications are intended to classify lands that because of their location, access, and availability of services are suitable for commercial development. This category includes retail, office and professional, warehousing, and service commercial uses, depending on the location and underlying zoning. In SP2, opportunities for large-format commercial development are provided.

*Existing General Plan Categories:* Commercial General, Commercial Service, Commercial Recreation

***Town/Neighborhood Center (Sketch Plan 3)***
This classification is intended to classify lands in central areas of urban communities where the

presence of public utilities and a sufficient population base allows the development of pedestrian-oriented, mixed-use (commercial, office, and residential) development. The Town Center designation is intended for larger areas serving an entire community. The Neighborhood Center designation in intended for larger communities that can sustain more than one center serving one or more residential neighborhoods. The maximum residential density is 16 dwelling units per acre and the maximum allowable non-residential FAR (Floor to Area Ratio) is 0.35.

***Village Center (Sketch Plan 3)***
This classification is used to classify lands in central areas of community planning areas without public utilities. The Village Center allows for small scale mixed-use development appropriate for a smaller population base. The maximum residential density is 1 dwelling unit per acre, or 2 to 4 dwelling units per acre with a package treatment plant, and the maximum allowable non-residential FAR is 0.40.

***Industrial***
This classification is used to classify lands that because of their location, access, and availability of services are suitable for industrial development. This category includes intensive production or processing but also, depending on the location, less intensive industrial or business parks. Resource-related industrial activities could also be accommodated on these lands, subject to alternative development standards.

*Existing General Plan Categories:* Industrial, Resource-Related Industrial, Coastal Dependent Industrial.

***Rural Community Center***
This classification is used for small unincorporated towns and community centers which provide a variety of community and tourist oriented goods and services, but that may not have developed identifiable commercial or residential districts. These centers may also serve a small grouping of rural residential housing, allowing limited retail and public services.

*Existing General Plan Categories:* Rural Community Center.

***Public Facilities***
This classification is used to classify lands in public ownership used for the provision of public services (governmental entities, schools, libraries, special districts, etc.)

*Existing General Plan Categories:* Public Facilities

## URBAN GROWTH AREAS

Each sketch plan uses a variety of urban growth boundaries to guide development consistent with the level of urban services. In SP1, the existing Framework General Plan, Urban Development Areas and Urban Expansion Boundaries are used together with development policies and a defined set of urban land use designations. In SP1, these areas show the water and/or sewer service areas, and do not distinguish water-only service areas.

In Sketch Plans 2, 3, and 4, water-only services areas are identified as well as sewer and water service areas. This approach helps to identify the appropriate residential densities based on service infrastructure plans.

In Sketch Plans 2 and 4, longer-term planning horizons are used for expanded service area boundaries, as identified by each community service district. These expanded boundaries are consistent with their existing or proposed spheres of influence, and primarily identify expansions of water-only service areas.

In Sketch Plan 3, shorter-term planning horizons are used, and translate to more modest expansion of service areas. This approach increases certainty associated with planned infrastructure improvements, and may increase the feasibility of public financing of needed improvements. The more compact planned buildout under this Plan has generally been shown to reduce the long-term public service costs associated with residential development.

## Comparison of Sketch Plans

The four sketch plan alternatives represent differing approaches towards accommodating growth in unincorporated Humboldt County. Likewise, the four plan alternatives would result in different impacts, not only on the future land uses, but also on the related impacts those land uses would have on community character, public services, natural resources and hazards, and the transportation network. This section highlights some of the basic differences in the potential buildout of the plans and their impact on the unincorporated County.

BUILDOUT COMPARISON

All Residential Lands

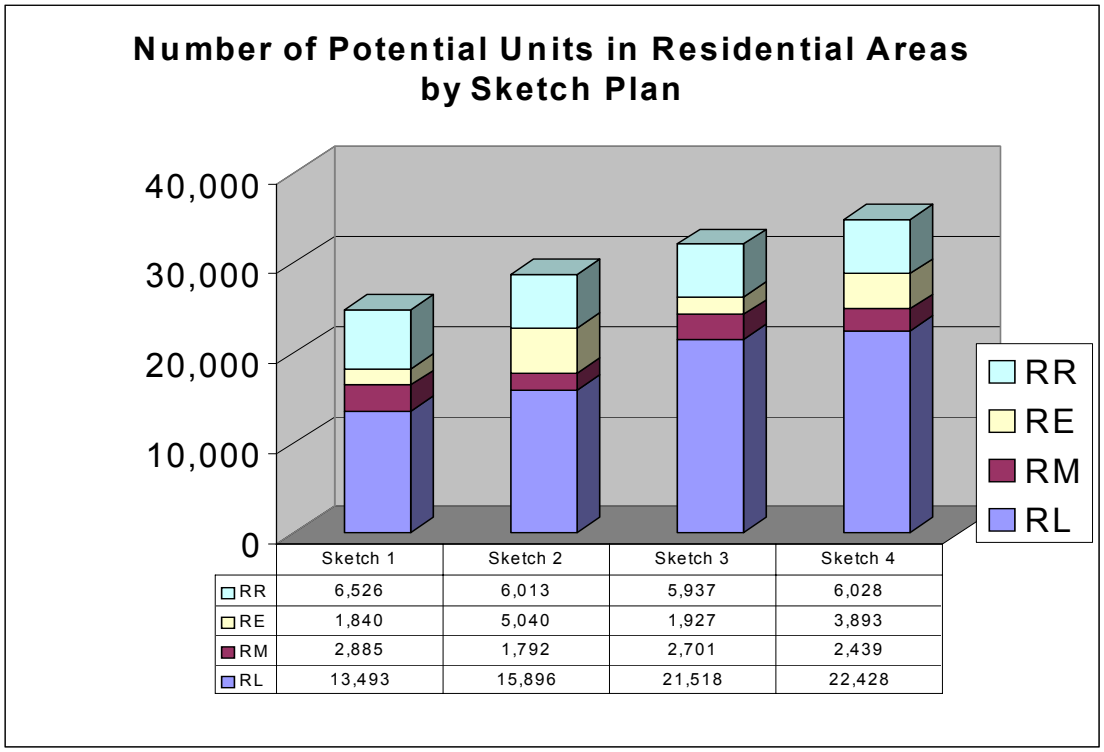
To calculate potential buildout, the sketch plan land use designations were applied to vacant and underdeveloped land. The highest totals for total residential acreage are in Sketch Plan 2, consistent with the goal of providing more land for development flexibility. Sketch Plans 3 and 4 use less acreage for residential purposes, but allow for a higher number of units, consistent with the goal of more compact communities. This is mostly due to the higher densities expected for Sketch Plans 3 and 4, consistent with the policy direction, but also with the potential for residential development as part of mixed-use town and neighborhood centers.

The bottom line, compared to the Framework Plan (Sketch Plan 1):
Sketch Plan 2 provides for 4,039 more units, planning 14,758 more acres for Residential land uses.
Sketch Plan 3 provides for 7,330 more units, planning 4,718 more acres for Residential land uses.
Sketch Plan 4 provides for 10,086 more units, planning 14,055 more acres for Residential land uses.

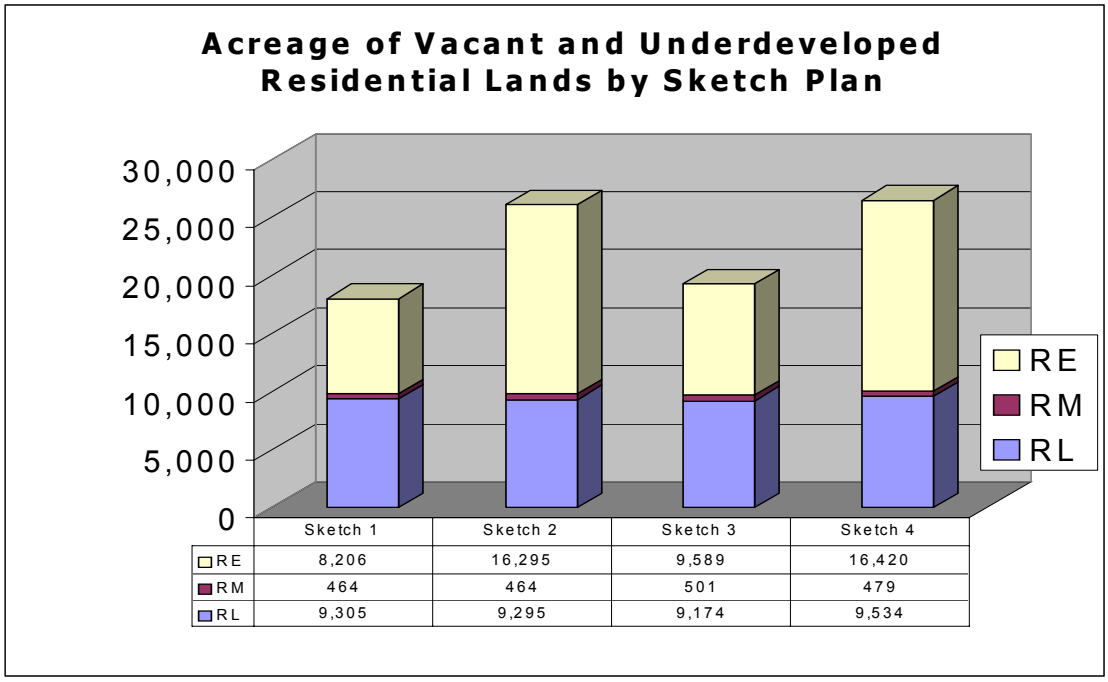
Table 1: Residential Plan Buildout by Plan Category (County-wide excluding Shelter Cove).

| | Sketch Plan 1 | | Sketch Plan 2 | | Sketch Plan 3 | | Sketch Plan 4 | |
|---|---|---|---|---|---|---|---|---|
| | Units | Acres | Units | Acres | Units | Acres | Units | Acres |
| RL | 13,493 | 9,305 | 15,896 | 9,295 | 21,518 | 9,174 | 22,428 | 9,534 |
| RM | 2,885 | 464 | 1,792 | 464 | 2,701 | 501 | 2,439 | 479 |
| RE | 1,840 | 8,206 | 5,040 | 16,295 | 1,927 | 9,589 | 3,893 | 16,420 |
| RR | 6,526 | 186,953 | 6,013 | 193,632 | 5,937 | 190,382 | 6,028 | 192,549 |
| TOTAL | 24,702 | 204,928 | 28,741 | 219,686 | 32,032 | 209,646 | 34,788 | 218,983 |

Notes: All figures are tentative and subject to change based on public input, corrections, and changes in land use. They are primarily intended for comparison between the sketch plans, rather than absolute buildout potential. Site specific constraints were not considered, but the lands are generally considered suitable for the proposed uses at planned densities.
Acreages are of vacant and underdeveloped parcels and units are the additional number of dwelling units possible at assumed densities.
"Undeveloped land" includes parcels that have structural improvements that could be further subdivided based on proposed densities.
Shelter Cove lots were excluded because they represent an unrealistically high development potential in SP1, and tended to skew the buildout estimates.




| | Sketch 1 | Sketch 2 | Sketch 3 | Sketch 4 |
|---|---|---|---|---|
| RR | 6,526 | 6,013 | 5,937 | 6,028 |
| RE | 1,840 | 5,040 | 1,927 | 3,893 |
| RM | 2,885 | 1,792 | 2,701 | 2,439 |
| RL | 13,493 | 15,896 | 21,518 | 22,428 |




| | Sketch 1 | Sketch 2 | Sketch 3 | Sketch 4 |
|---|---|---|---|---|
| RE | 8,206 | 16,295 | 9,589 | 16,420 |
| RM | 464 | 464 | 501 | 479 |
| RL | 9,305 | 9,295 | 9,174 | 9,534 |

Urban versus Rural Residential Lands

Tables 2 and 3 provide detailed breakdowns of each urban and rural residential category. Sketch Plans 1, 2, and 3 plan similar acreages for urban residential use; SP4 adds about 360 acres more than the other plans. Potential units substantially increase in SP3 and SP4 because of the RL3-8 designation and its 4 units/acre density rather than the 3 units/acre of the RL1-7 designation used in SP1 and 2.

Table 2. Urban Residential Buildout Comparison

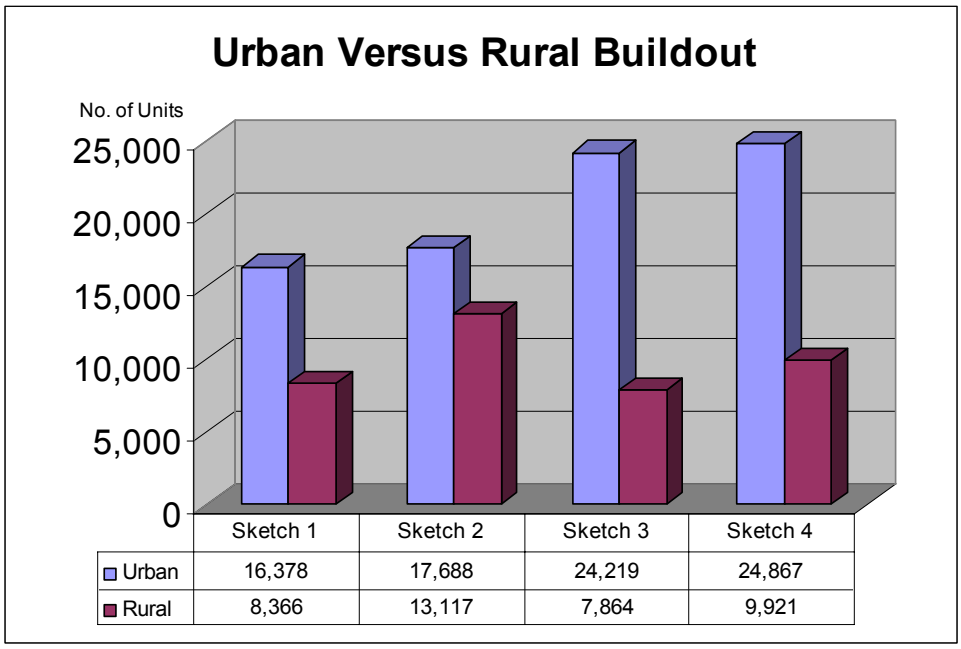
| URBAN | Sketch Plan 1 | | Sketch Plan 2 | | Sketch Plan 3 | | Sketch Plan 4 | |
|---|---|---|---|---|---|---|---|---|
| | Acres | Units | Acres | Units | Acres | Units | Acres | Units |
| RL0.5 | 645 | 577 | 639 | 510 | 35 | 40 | 35 | 40 |
| RL1 | 1,592 | 789 | 745 | 341 | 628 | 287 | 628 | 287 |
| RL1-4 | 0 | 0 | 905 | 1,370 | 1,688 | 2,659 | 1,686 | 2,655 |
| RL1-7 | 7,068 | 12,127 | 7,645 | 13,675 | 3,428 | 8,448 | 3,888 | 9,825 |
| RL3-8 | 0 | 0 | 0 | 0 | 3,395 | 10,084 | 3,297 | 9,621 |
| RM | 464 | 2,885 | 464 | 1,792 | 501 | 2,701 | 479 | 2,439 |
| TOTAL | 9,769 | 16,378 | 9,759 | 17,688 | 9, 675 | 24,219 | 10,013 | 24,867 |

Table 3. Rural Residential Buildout Comparison

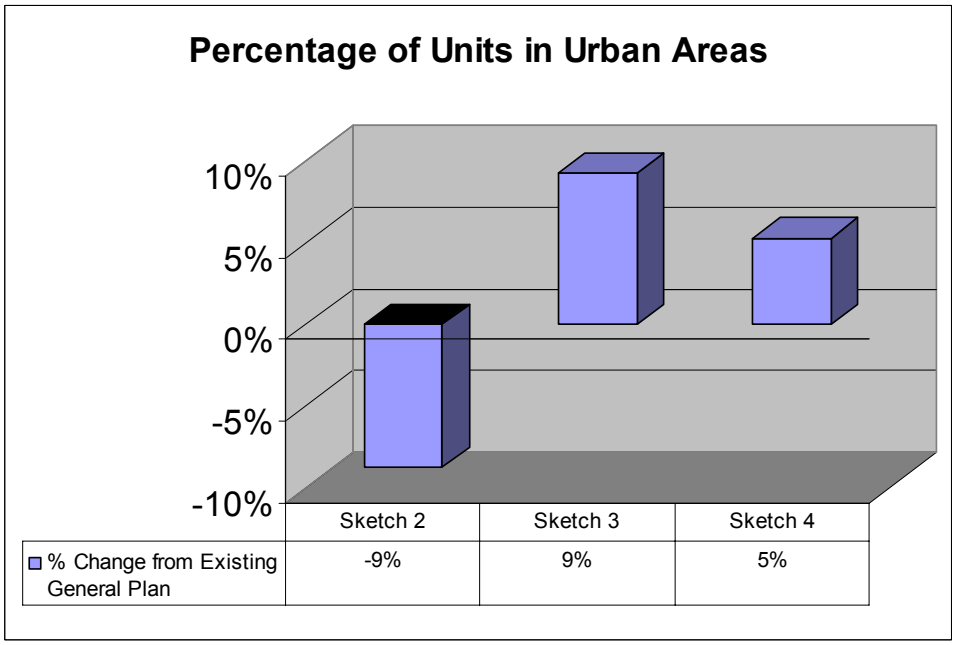
| RURAL | Sketch Plan 1 | | Sketch Plan 2 | | Sketch Plan 3 | | Sketch Plan 4 | |
|---|---|---|---|---|---|---|---|---|
| | Acres | Units | Acres | Units | Acres | Units | Acres | Units |
| RE1-5 | 8,206 | 1,840 | 13,942 | 4,751 | 6,008 | 1,490 | 14,383 | 3,646 |
| RE2.5-5 | 0 | 0 | 804 | 2,353 | 3,581 | 437 | 2,037 | 247 |
| RR160 | 5,638 | 50 | 5,490 | 49 | 5,490 | 49 | 5,490 | 49 |
| RR20 | 22,134 | 1,691 | 23,718 | 901 | 24,771 | 943 | 23,778 | 901 |
| RR40 | 118,096 | 1,855 | 121,958 | 1,925 | 118,336 | 1,855 | 121,341 | 1,913 |
| RR5-20 | 39,807 | 2,917 | 41,114 | 3,125 | 40,433 | 3,077 | 40,588 | 3,152 |
| RR60 | 1,278 | 13 | 1,352 | 13 | 1,352 | 13 | 1,352 | 13 |
| TOTAL | 195,159 | 8,366 | 208,378 | 13,117 | 199,971 | 7,864 | 208,969 | 9,921 |

The differences in the overall number of units reflect the density assumptions and the differing approaches to rural character embodied in the sketch plans.

In the rural designations, significant difference is shown in the higher numbers of acreage and units allowed in the Residential Estates categories under SP2 and 4 compared to the other sketch plans. The RE designation, seen as a transitional area that creates a 'soft' edge between urban and rural areas, is much more extensive in SP2 and 4 and more limited in SP1 and 3. The unit totals reflect these differences when the individual designations are compared. For




example, SP2 allows 56 percent more units in the Rural Residential categories than the Framework Plan (SP1) and almost 67 percent more units in this category when compared with SP3. The lower Rural Residential densities in Sketch Plan 3, when combined with clustering and rural conservation techniques, will create a greater rural/open space character than Sketch Plan 1 or 2.



Resource Lands Buildout

Consistent with the sketch plan designs, Sketch Plan 2 allows for a slightly increased number of units in resource lands (16,333 units) in comparison to the Framework Plan, whereas Sketch Plans 3 and 4 have greatly reduced the number of residential units allowed on resource lands (5,680 and 5,659 units respectively). This reduction in residential density in resource lands is primarily a result of the newly applied Ranchland and Industrial Timberlands designations that reduce the number of units allowed when compared with the existing AG or T land use designations respectively.

Table 4. Resource Lands Buildout

| | Sketch Plan 1 | | Sketch Plan 2 | | Sketch Plan 3 | | Sketch Plan 4 | |
|---|---|---|---|---|---|---|---|---|
| | Acres | Units | Acres | Units | Acres | Units | Acres | Units |
| AE | 63,331 | 1,149 | 61,879 | 1,152 | 64,772 | 987 | 62,025 | 920 |
| AE60 | 1,236 | 43 | 0 | 0 | 0 | 0 | 0 | 0 |
| AG | 443,751 | 4,945 | 431,877 | 4,800 | 53,995 | 672 | 49,794 | 605 |
| AG600 | 7,084 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ranchland | 0 | 0 | 0 | 0 | 382,144 | 1,643 | 382,083 | 1,642 |
| Subtotal | 515,402 | 6,137 | 493,756 | 5,952 | 500,911 | 3,302 | 493,902 | 3167 |
| | | | | | | | | |
| T | 856,610 | 9,887 | 837,555 | 9,899 | 195,640 | 2,378 | 168,314 | 2,005 |
| TI | 0 | 0 | 0 | 0 | 670,379 | 0 | 669,881 | 0 |
| TR | 0 | 0 | 25,226 | 482 | 0 | 0 | 25,877 | 487 |
| Subtotal | 856,610 | 9,887 | 862,781 | 10,381 | 866,019 | 2,378 | 864,072 | 2,492 |
| TOTAL | 1,372,012 | 16,024 | 1,356,537 | 16,333 | 1,366,930 | 5,680 | 1,357,974 | 5,659 |

Agricultural Lands

Both SP2 and SP4 propose conversion of some bottom land and dry grazing agricultural areas to residential uses. By using the Ranchland designation, SP4 is more protective of large ranchlands than SP1 and SP2. Although SP3 designates 14,491 less agricultural acres than SP1, almost all (14,288 acres) of these lands are designated to OS, T, TI, or PF based on ownership or management changes.

Compared to the Framework Plan:
Sketch Plan 2 has 21,646 less acres and provides for 185 less units on Agricultural Lands.
Sketch Plan 3 has 14,491 less acres and provides for 2,835 less units on Agricultural Lands.
Sketch Plan 4 has 24,667 less acres and provides for 2,970 less units on Agricultural Lands.

Timberlands

The amount of timberlands in each of the sketch plans is roughly equivalent, with the differences between the plans in the amount of residential units allowed as a consequence of the new land use designations of TI and TR:

Compared to the Framework Plan:
Sketch Plan 2 provides for 494 **more** residential units on Timberlands.
Sketch Plan 3 provides for 7,509 **less** residential units on Timberlands.
Sketch Plan 4 provides for 7,395 **less** residential units on Timberlands.

Commercial, Industrial, & Mixed Use

Sketch Plan 2, 3 and 4 provide for more non-residential acreage overall than Sketch Plan 1. However, the key difference is in the distribution of these development opportunities, not the total acreage. In SP2, more land is provided for commercial development along roadways and on larger parcels farther away from town center areas. By contrast, in SP3 and 4, there is more emphasis on mixed-use development, and on locating new commercial development on smaller parcels closer to town center areas. This is consistent with the goals of providing more pedestrian-oriented, small-scale commercial in SP3 and 4 and more opportunities for auto-oriented and large-format (big box) retail in SP2.

Table 5. Commercial, Industrial, & Mixed Use Lands

| | Sketch Plan 1 | | Sketch Plan 2 | | Sketch Plan 3 | | Sketch Plan 4 | |
|---|---|---|---|---|---|---|---|---|
| | Acres | Units | Acres | Units | Acres | Units | Acres | Units |
| Commercial & Mixed Uses | 2,066 | 5 | 2,038 | 5 | 1,959 | 858 | 1,961 | 858 |
| Industrial | 3,409 | 0 | 3,736 | 0 | 3,461 | 0 | 3,541 | 0 |
| RCC | 184 | 138 | 243 | 107 | 243 | 107 | 243 | 107 |
| Village Center | 0 | 0 | 0 | 0 | 194 | 51 | 188 | 48 |
| TOTAL | 5,659 | 143 | 6,017 | 112 | 5,857 | 1,016 | 5,933 | 1,013 |

Commercial acreages and units include the Mixed Use land use designation, which allows for much more residential under Sketch Plans 3 and 4. The Village Center land use designation also provides for increase residential units in commercial areas under Sketch Plans 3 and 4. Sketch Plan 2 has a reduced number of residential units in commercial areas, but overall has increased residential units through conversion of some resource lands to residential uses.

Overall Units Comparison (All Land Uses)

SP2 proposes about 4,600 additional residential unit capacity compared to the existing General Plan (SP1) by expanding urban boundaries and increasing densities on rural residential lands, and by continuing the policies which allow resource lands to be subdivided to as small as 40 acres. SP3 and SP4 substantially increase development potential in urban and rural residential areas, adding about 7,300 and 10,100 residential unit capacity respectively, compared to the existing General Plan (SP1). The reduction in total units in SP3 and SP4 is a result of reducing the development potential in the resource lands (timber and agricultural).

Table 6. Overall Units Comparison (All Land Uses)

| | Sketch Plan 1 | Sketch Plan 2 | Sketch Plan 3 | Sketch Plan 4 |
|---|---|---|---|---|
| | Units | Units | Units | Units |
| Residential | 24,702 | 28,741 | 32,032 | 34,788 |
| Agricultural | 6,137 | 5,952 | 3,302 | 3,167 |
| Timber | 9,887 | 10,381 | 2,378 | 2,492 |
| Commercial/ Industrial/ Mixed Use | 143 | 112 | 1,016 | 1,013 |
| TOTAL | 40,869 | 45,186 | 38,728 | 41,460 |

## Policy Options

### Policies Common to All Sketch Plans

Numerous policies will be common to all sketch plan alternatives and are from the existing Framework General Plan. These include Housing Element policies pertaining to density bonuses, second units, and cottage industries, etc., and geologic hazard, flood, wildland fire, noise, airport safety, sensitive habitats, and cultural resource policies, etc. These policies will be included and appropriately referenced in the Draft Update General Plan. All policies will be subject to public review and comment, and analyzed in the EIR accompanying the plan.

The following are key policy summaries that would modify or be added to the existing policy base. They are intended to provide sufficient description to allow understanding of the general policy direction, and to solicit public comment and opinion on whether they should be included in the sketch alternatives. The majority of these proposed policy options would be included in SP3 and SP4, because SP1 is the existing plan and SP2 states that its resource protection policies are a continuation of the existing plan. The policy options can however be suggested for inclusion in any of the sketch plans.

Forest Resource Policy Options

- Additional policies to ensure adjacent uses are compatible with industrial timber operations
- A policy to allow subdivision and lot line adjustment below minimum sizes for purposes of improving timber/natural resource management units
- A policy statement to support for long term continued timber production
- A policy statement to protect beneficial uses of sensitive watersheds and critical water supply areas
- A policy to address urban interface / timber issues in urban fringe areas.

Agricultural Resource Policy Options

- A policy that the County take a proactive approach to conservation of working resource lands landscapes.
- A policy to ensure lot line adjustments and other development are consistent with the General Plan densities notwithstanding underlying land units.
- A policy to allow flexibility for additional development at original homesite areas (similar to RCC standards) for large ranches.

- Eliminate the requirement for agricultural feasibility studies for subdivisions in areas designated as Agricultural Grazing for SP1 and SP2.

Open Space Policy Options

- A policy that supports establishment of greenbelts and agricultural buffers to insure separation of existing communities.
- A policy directing the County to take a proactive approach to conservation of open space.
- A policy that establishes an open space classification system to serve as a framework for land use planning and environmental resource management programs.

Water & Biological Resource Policy Options

- A policy to provide erosion control measures consistent with TMDL target reductions
- A policy to provide a riparian canopy retention standard in TMDL temperature impaired areas
- A policy to limit impacts of water withdrawals in impaired watersheds
- A policy to establish uniform stormwater management standards
- Update the County's water export policies
- A policy to promote conservation easements for sensitive resource areas

Cultural & Scenic Resource Policy Options

- A policy to protect "heritage landscapes"
- A policy set to provide inland scenic resource protection

Hazard Policy Options

- A policy to provide hillside development standards
- A policy which requires increased levels of geological review for certain discretionary projects.
- A policy to direct floodway and flood fringe combining zone be added to lands in the floodplain.
- A policy to direct improved flood hazard rating to secure reduced flood insurance rates.

- A policy to consider alternative fire safe standards that would allow increased development adjacent to resource areas for the Sketch Plans 1 and 2.

Mineral Resources

- A mineral resource extraction overlay to protect regionally important extraction sites from incompatible adjacent uses

Building Communities

- A policy that establishes sewer service areas and water service areas.
- A policy to require infill development prior to expanding into resource areas.
- A policy that promotes mixed uses (either by monetary incentives or non-monetary incentives)
- A policy that promotes "re-use" of brownfield sites.
- A policy prohibiting Big Box development (or in the case of #2, "Identify appropriate locations for "Big Box Development" and establish maximum building size, location, landscaping, community space and building design standards").
- A policy that supports design standards that protect neighborhood and community characteristics.
- A policy to broaden opportunities for second units.
- A policy to ensure that the size and scale of new multi-family development is compatible with community character.
- A policy that provides broader allowance of residential uses within commercial districts.
- A policy to require coordination with the service providers to ensure that adequate funding mechanisms are available for infrastructure.

Moving Goods and People

- A policy to support transportation improvements to truck routes countywide.
- A policy to ensure that planned improvements to the County's road system support improved access to port facilities.

- A policy to support the Port's efforts to attract new shippers through its facilities.
- A policy to support restoration of the NCRA rail line (Sketch Plan 2).
- A policy and implementation program to update the County trails plan.

Governance

- Make general plan amendment process more responsive and strategic. Re-focus from multi-year community planning efforts to implementation of existing plans and more rapid small-scale town plan updates.
- Amend criteria for accepting individual plans amendments to primarily consider the public interest
- Establish criteria and performance standards to provide a simplified and faster project review process.

## Conclusion

This document has outlined plan alternatives for public review. Public review at this point will provide an opportunity for course correction prior to drafting the full general plan. It is hoped that the report provides sufficient description to allow understanding of the general policy direction.

Public workshops will be held to explain and to receive public input on the sketch plan alternatives. The primary purpose of the workshops is to ensure that the sketch plans reflect a reasonable range of alternatives and to select a proposed project for CEQA analysis.

The final sketch plan document will incorporate revisions based upon public input. Preferred components of each will be combined into a Proposed Project Sketch Plan (SP5). SP5 will provide the guidance for writing full draft General Plan. The remaining sketch plan alternatives will be retained for comparative analyses and CEQA review.

A full draft General Plan, together with an accompanying Environmental Impact Report (EIR) will then be prepared and released for public review. Public hearings will be held before the Humboldt County Planning Commission and Board of Supervisors. Additional public workshops may also be held to ensure full public participation in the development of the plan.

| Sketch Plan Alternatives Maps<br>Format: 23"X 11" PDF's | |
|---|---|
| **Specific Area Maps:** | **Size** |
| - Eureka, Fields Landing, Humboldt Hill | 1 mb |
| - Fortuna, Hydesville, Loleta, Rio Dell | 1 mb |
| - Arcata, Fieldbrook, Freshwater, McKinleyville<br>- Arcata with Jacoby Creek Watershed Boundaries | 1 mb |
| - Benbow, Garberville, Miranda, Phillipsville, Redway | 1 mb |
| - Big Lagoon, Trinidad, Westhaven | 700 kb |
| - Willow Creek<br>- Willow Creek Detailed | 800 kb |
| - Ferndale, Fernbridge, Loleta | 700 kb |
| - Petrolia | 800 kb |
| - Honeydew, Ettersberg, Shelter Cove, Whitethorn | 1 mb |

# Appendix K - SB18 Consultation

COUNTY OF HUMBOLDT
PLANNING AND BUILDING DEPARTMENT
ADVANCE PLANNING DIVISION

3015 H Street Eureka CA 95501
Phone: (707) 445-7541 Fax: (707) 268-3792

October 21, 2014

Tribal Officials
Native American Tribes
Humboldt County, CA

Re: Protocol for Senate Bill 18 (SB18) Tribal Consultation

Dear Tribal Officials,

This letter follows up on a previous one sent by our office to the Tribes on September 24, 2014 to standardize our communications for consultation under SB 18 for the purpose of preserving or mitigating impacts to Cultural Places, which include Native American historic, cultural or sacred sites.

Based on comments received by Supervisor Sundberg, the County's proposed protocol for individual consultations with the Tribes has been revised to clarify how the Tribal Councils and Board of Supervisors would be involved in the consultation. The additional language is shown below in yellow highlight.

**Proposed Protocol for SB18 Consultation**
The consultation begins with the County sending a letter to the tribes on the Native American Heritage Commission's list early on in the review process notifying the tribes that an application for a general plan amendment is being reviewed, and requesting an SB 18 consultation. The letter would be specific for each SB18 consultation to help clarify and coordinate review for each project, and include all the following details:

- An explanation of the history of the County's review of the proposed project to date,
- The name and contact information for all tribal members and/or tribal staff to receive copies of notices and correspondence,
- The name and contact information for all tribal members and/or tribal staff participating in the consultation,
- The name and contact information for County staff participating in the consultation,
- The name and contact information for the County's Planning Director and Board of Supervisors,
- The consultation meeting locations.
- The proposed timeframe for the consultation (SB18 gives tribes 90 days to request consultation).
- The date, time and location of public hearings and other public meetings on the project. *Note: this notice may be mailed separately when the meetings are scheduled.* State law requires a minimum 10 calendar day notice of public hearings for general plan amendments.

# Appendix I - Humboldt County Community Wildfire Protection Plan, 2013

The initial contact letter will also confirm the SB18 consultation procedures:

- Tribal members or tribal staff will be responsible for maintaining the tribal consultation record and updating tribal contact information.
- The Tribe will identify culturally sensitive information and other shared information that shall be protected from public disclosure per various state and federal laws.
- County staff will be responsible for coordination with the tribes, including setting up meetings, providing notices of public meetings, provide requested information from the County relevant to the consultation process and maintaining the County's consultation record.
- ~~The standard procedure will coordinate consultation at the staff level.~~
- The consultation will begin at the Planning Director - Tribal staff level, where the Planning Director or designee will be communicating with the highest level planning official of the Tribe, or their designee.
- If staff-level consultation is completed to the satisfaction of both the Planning Director and the Tribal Official, the Planning Director (or designee) would report to the Board of Supervisors on the outcomes, and the Tribal planning official would report to their Tribal Council on the outcomes. A letter documenting the outcomes and notifying the Tribe that consultation is concluded will be sent by the Planning Director to the Tribal Chair.
- If agreement cannot be reached from staff-level consultation, then the Board of Supervisors shall appoint two members of the Board to an ad hoc SB18 Tribal Consultation committee, and they will meet with Tribal Council members to seek agreement on how to preserve or mitigate impacts to Cultural Places, including Native American historic, cultural or sacred sites. If an agreement is reached between all parties, then a letter documenting the agreement and the conclusion of the SB18 consultation will be sent by the County to the Tribal Chair.

For the next step of this effort, I will follow this written communication with emails or phone calls to each of the tribes to move us toward an SB18 consultation process that is helpful and clear for all.

Please let me know if you have any questions or comments.

Respectfully,

Michael Richardson, Senior Planner
Phone: (707) 268-3723
Email: mrichardson@co.humboldt.ca.us

List of Tribes Consulted

Big Lagoon Rancheria
Chairperson
PO Box 3060
Trinidad, CA. 95570

Round Valley Indian Tribes
Attention: Stephanie Boggs
77826 Covelo Road
Covelo, CA 95428

Blue Lake Rancheria
Chairperson
PO Box 428
Blue Lake, CA. 95525

Table Bluff Reservation
Chairperson
1000 Wiyot Drive
Loleta, CA. 95551

Hoopa Valley Tribe
Chairperson
PO Box 1348
Hoopa, CA. 95546

Trinidad Rancheria/Cher-Ae Heights
Chairperson
PO Box 630
Trinidad, CA 95570

Karuk Tribe of California
Chairperson
PO Box 1016
Happy Camp, CA. 96039

Yurok Tribe of California
Chairperson
PO Box 1027
Klamath, CA. 95548

Bear River Band of Rohnerville
Rancheria
Chairperson
32 Bear River Drive
Loleta, CA. 95551

Tsurai Ancestral Society
Parris Lundgren
PO Box 276
Trinidad, CA 95570

NATIVE AMERICAN
HERITAGE COMMISSION
TRIBAL CONSULTATION
915 CAPITOL MALL, ROOM 364
SACRAMENTO CA 95814

**COUNTY OF HUMBOLDT**
**PLANNING AND BUILDING DEPARTMENT**
**ADVANCE PLANNING DIVISION**

3015 H Street Eureka CA 95501
Phone: (707) 445-7541 Fax: (707) 268-3792

March 24, 2014

Tribal Officials
Native American Tribes
Humboldt County, CA

Re: SB 18 Tribal Consultation
Proposed General Plan Update

Dear Tribal Officials,

At the March 10, 2014 meeting the Board of Supervisors took straw votes on the Tribal Lands (TL) land use designation and a new designation, Tribal Trust Lands (TTL). The modified, tentatively approved wording is shown below. As you may recall, Planning staff sent the designations to representatives of each respective Tribe and asked if you wanted continued SB18 consultation on those designations. Staff welcomes the continued consultation with each of your respective Tribes, if the modified language or any other General Plan Update matter warrants further discussion.

**"TL – Tribal Lands**

The purpose of the Tribal Lands designation is to identify all lands within the boundaries of Reservations and Rancherias of Federally-recognized Native American Tribes ~~and to land outside Reservations and Rancherias that is held in trust for a Tribe or its Members by the federal government~~. At this time, the County does not have jurisdiction over land within the Reservations or Rancherias owned in fee by tribal members. The County may have jurisdiction over land owned in fee by non-tribal members within the boundaries of the Rancheria or Reservation. In the event the County has such jurisdiction, it shall ~~use~~ defer to the Tribal government's adopted land use plan as policy guidance for any land use and permit approvals relating to land owned in fee by non-tribal ~~fee land~~ members that is planned Tribal Lands. Proposed subdivisions of land planned Tribal Lands within the County's jurisdiction shall be originated with contact with the appropriate Tribal government and shall be processed in accordance with the Tribal government's adopted subdivision regulations, where applicable.

Where the County has jurisdiction and there is no adopted Tribal land use plan, the allowable use types for non-Tribal fee land designated Tribal Lands shall be determined in consultation with the Tribe. Generally, the permitted uses and allowable densities should be compatible with neighboring Tribal lands and determined according to one (1) of the following:

1) For properties zoned TPZ, the allowable use types and maximum allowable residential density shall be the same as those specified for land planned Timber. In addition, all policies relating to timber resources contained in Section 4.6, Forest Resources, shall apply.

2) For properties within or adjacent to urbanized areas of community planning areas the allowable use types shall be the same as those specified for land planned land Residential Estates, and the maximum residential density for shall be one (1) to five (5) acres per dwelling unit.

3) For properties not zoned TPZ and not within or adjacent to urbanized areas of community planning areas, the allowable use types shall be the same as those specified for land planned Rural Residential, and the maximum residential density for shall be 40 to 160 acres per dwelling unit. In addition, all policies relating to Rural Lands contained in Section 4.4, Rural Lands, shall apply."

**"Tribal Trust Lands (TTL)**

The purpose of the Tribal Trust Lands designation is to identify all lands held in trust for a Tribe or its Members by the Federal government. The County shall not assert jurisdiction over these lands once they are held in trust."

Please let me know if you have any questions or comments. I'm also available to meet with you or attend one of your meetings. I may also be able to arrange to have one or two of the Board of Supervisors attend.

Respectfully Submitted,

Robert S. Wall, AICP, Supervising Planner
Phone: (707) 268-3725
Email: rwall@co.humboldt.ca.us

List of Tribes Consulted

Big Lagoon Rancheria
Chairperson
PO Box 3060
Trinidad, CA. 95570

Round Valley Reservation/Covelo
Indian Community
President
PO Box 448
Covelo, CA. 95428

Blue Lake Rancheria
Chairperson
PO Box 428
Blue Lake, CA. 95525

Table Bluff Reservation
Chairperson
1000 Wiyot Drive
Loleta, CA. 95551

Hoopa Valley Tribe
Chairperson
PO Box 1348
Hoopa, CA. 95546

Trinidad Rancheria/Cher-Ae Heights
Chairperson
PO Box 630
Trinidad, CA 95570

Karuk Tribe of California
Chairperson
PO Box 1016
Happy Camp, CA. 96039

Yurok Tribe of California
Chairperson
PO Box 1027
Klamath, CA. 95548

Bear River Band of Rohnerville
Rancheria
Chairperson
32 Bear River Drive
Loleta, CA. 95551

Tsurai Ancestrial Society
Parris Lundgren
PO Box 276
Trinidad, CA 95570

NATIVE AMERICAN
HERITAGE COMMISSION
TRIBAL CONSULTATION
915 CAPITOL MALL, ROOM 364
SACRAMENTO CA 95814

COMMUNITY DEVELOPMENT SERVICES
PLANNING DIVISION
COUNTY OF HUMBOLDT

http://co.humboldt.ca.us/CDS/Planning

September 24, 2013

Tribal Officials
Native American Tribes
Humboldt County, CA

Re: SB 18 Tribal Consultation
Proposed TL – Tribal Lands Land Use Designation

Dear Tribal Officials,

The Humboldt County Board of Supervisors invites your comments and suggestions on the proposed new TL – Tribal Lands land use designation (enclosed). The land use designation is shown on the land use maps, and applies to all reservations, rancherias and trust lands in the County.

The land use designation will guide how the County interacts with tribal governments when reviewing development applications in those areas. The proposed designation is attempting to represent the existing relationship the County has with tribal governments.

The Board of Supervisors is scheduled to continue their review of the General Plan Update at their meeting on October 7, 2013. The meeting begins at 1:30, and will be held in the Board of Supervisors Chamber at the Humboldt County Courthouse, 825 Fifth Street, Eureka, CA 95501. The full text of the General Plan and the proposed land use maps are available for review on the Department's website www.planupdate.org.

Please let me know if you have any questions or comments.

Thanks for your help.

Sincerely,

Michael Richardson
Senior Planner

enclosure

## Proposed TL - Tribal Lands Land Use Designation

"The purpose of the Tribal Lands designation is to identify all lands within the boundaries of Reservations and Rancherias of Federally-recognized Native American Tribes and to land outside Reservations and Rancherias that is held in trust for a Tribe or its Members by the federal government. The County shall use the Tribal government's adopted land use plan as policy guidance for land use and permit approvals relating to non-Tribal fee land that is planned Tribal Lands. Proposed subdivisions of land planned Tribal Lands shall be originated with contact with the appropriate Tribal government and shall be processed in accordance with the Tribal government's adopted subdivision regulations, where applicable.

Where there is no adopted Tribal land use plan, the allowable use types for non-Tribal fee land designated Tribal Lands shall be one of the following:

1) For properties zoned TPZ, the allowable use types and maximum allowable residential density shall be the same as those specified for land planned Timber. In addition, all policies relating to timber resources contained in Section 4.6, Forest Resources, shall apply.

2)For properties within or adjacent to urbanized areas of community planning areas the allowable use types shall be the same as those specified for land planned land Residential Estates, and the maximum residential density for shall be one (1) to five (5) acres per dwelling unit.

3) For properties not zoned TPZ and not within or adjacent to urbanized areas of community planning areas, the allowable use types shall be the same as those specified for land planned Rural Residential, and the maximum residential density for shall be 40 to 160 acres per dwelling unit. In addition, all policies relating to Rural Lands contained in Section 4.4, Rural Lands, shall apply."

Big Lagoon Rancheria
Chairperson
PO Box 3060
Trinidad, CA. 95570

Table Bluff Reservation
Chairperson
1000 Wiyot Drive
Loleta, CA. 95551

Karuk Tribe of California
Chairperson
PO Box 1016
Happy Camp, CA. 96039

Tsurai Ancestrial Society
Parris Lundgren
PO Box 276
Trinidad, CA 95570

Round Valley Reservation/Covelo Indian Community
President
PO Box 448
Covelo, CA. 95428

Hoopa Valley Tribe
Chairperson
PO Box 1348
Hoopa, CA. 95546

Yurok Tribe of California
Chairperson
PO Box 1027
Klamath, CA. 95548

NATIVE AMERICAN
HERITAGE COMMISSION
TRIBAL CONSULTATION
915 CAPITOL MALL, ROOM 364
SACRAMENTO CA 95814

Blue Lake Rancheria
Chairperson
PO Box 428
Blue Lake, CA. 95525

Trinidad Rancheria/Cher-Ae Heights
Chairperson
PO Box 630
Trinidad, CA 95570

Bear River Band of Rohnerville Rancheria
Chairperson
32 Bear River Drive
Loleta, CA. 95551

# TRIBAL CONSULTATION LIST
Humboldt County
February 15, 2013

Big Lagoon Rancheria
Virgil Moorehead, Chairperson
P. O. Box 3060
Trinidad , CA 95570
vmoorehead@earthlink.net
(707) 826-2079
Yurok
Tolowa

Blue Lake Rancheria
Claudia Brundin, Chairperson
P.O. Box 428
Blue Lake , CA 95525
(707) 668-5101
Wiyot
Yurok
Tolowa

Hoopa Valley Tribe
Leonard Masten, Chairperson
P.O. Box 1348
Hoopa , CA 95546
leonardmasten@hotmail.com
(530) 625-4211
Hoopa - Hupa

Karuk Tribe
Russell Attebery, Chairperson
P.O. Box 1016
Happy Camp, CA 96039
(800) 505-2785
Karuk / Karok

Bear River Band of Rohnerville Rancheria
Leonard Bowman, Jr., Chairperson
27 Bear River Drive
Loleta , CA 95551
lbowman@bearriver.com
(707) 733-1900
Wiyot
Mattole

Round Valley Reservation/Covelo Indian Community
Kenneth Wright, President
77826 Covelo Road
Covelo , CA 95428
(707) 983-6126
Yuki ; Nomlaki
Pit River
Pomo
Concow
Wailaki; Wintun

Wiyot Tribe
Ted Hernandez, Chairperson
1000 Wiyot Drive
Loleta , CA 95551
(707) 733-5055
Wiyot

Trinidad Rancheria/Cher-Ae Heights Indian Comm.
Garth Sundberg Sr., Chairperson
P.O. Box 630
Trinidad , CA 95570
susie@trinidadrancheria.com
(707) 677-0211
Yurok
Miwok
Tolowa

Yurok Tribe of California
Thomas O'Rourke, Chairperson
PO Box 1027
Klamath , CA 95548
torourke@yuroktribe.nsn.us
(707) 482-1350
Yurok

Yurok Tribe of California THPO
Robert McConnell
HC 67 P.O. Box 196,
Hoopa , CA 95546
rmcconnell@yuroktribe.nsn.us
(707) 498-2536
(530) 625-4130 x1629
Yurok

**This list is current only as of the date of this document.**

**Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.**

**This list is applicable only for consultation with Native American tribes under Government Code Section 65352.3.**
**Visser General Plan Amendment/Zone Reclassification/Minor Subdivision Application, Humboldt County**

# TRIBAL CONSULTATION LIST

Humboldt County
February 15, 2013

Tsnungwe Council
Paul Ammon, Chairperson
P.O. Box 373 Southern Hoopa
Salyer , CA 95563
(530) 629-3356
530-629-4758 message

Yurok Tribe of California
Buffy McQuillen, NAGPRA Coordinator
PO Box 1027 Yurok
Klamath , CA 95548
buffy@yuroktribe.nsn.us
(707) 482-1350
(707) 954-5355

**This list is current only as of the date of this document.**

**Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.**

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# Appendix L

## Local Coastal Plan Issues Report

# Table of Contents

# INTRODUCTION

This report identifies key issues to consider during the update of Humboldt County's Local Coastal Plans (LCP's). These issues will help guide the revisions to the plans and proposed plan policies.

Planning staff conducted a comprehensive review of the existing plans in order to identify these issues. The revisions focused on updates due to: physical changes, regulatory changes, land use changes, out of date text, and policy clarifications and refinement. The Issue Identification Report provides a written summary that outlines these key issues in order to begin a dialog with the public to address the necessary policy revisions within the LCP's.

## BACKGROUND

The Coastal Act of 1976 required the County to have a Local Coastal Program certified by the State Coastal Commission. The Coastal Act's policies guide coastal zone conservation and development decisions to protect California's coastal resources and provide for their wise use. These state policies call for:

- Providing for maximum public access to and recreational use of the coast, consistent with private rights and environmental protection.
- Protecting marine and land resources-including wetlands, rare and endangered habitats, environmentally sensitive areas, tidepools, and stream channels.
- Maintaining productive coastal agriculture lands.
- Directing new housing and other development to urbanized areas with adequate services rather than allowing a scattered, sprawling, wasteful pattern of subdivision.
- Protecting the scenic beauty of coastal landscape.
- Locating any needed coastal energy and industrial facilities where they will have the least adverse impact.

Humboldt County's Local Coastal Plans were developed in the early 1980's with implementing regulations approved in 1985. To date, no comprehensive updates have been undertaken (the McKinleyville, Humboldt Bay and Eel River Plans were reviewed and partially updated during the preparation of the 1992 Beaches and Dunes Management Plan). The County is currently in the process of revising the inland portion of the General Plan (last revised in 1984). The Board of Supervisors and the Coastal Commission agreed that the time was ripe for integration of the coastal plans with the Framework Plan.

The County recently received a coastal planning grant in February of 2002 from the Coastal Commission to help fund the update of the LCP's. The first phase of the grant consisted of a comprehensive review of the plans in order to identify key issues. These issues would be contained in a draft report available to the public for review and comment. The final report would then be used to guide research and draft the necessary amendments to the LCP's.

## KEY ISSUES

County staff reviewed the six area plan's (Figure 1) and Coastal Zoning Regulations, analyzing potential update and amendment issues. The 14 Coastal Act policy groups in the Commission's LCP Manual were utilized as a guide for policy review, as well as other relevant Commission publications and policy rulings. County staff also met with Coastal Commission staff to help scope out the issues needing to be addressed.

The key issues identified in this report include:

- **Access inventories** for each plan need updating to reflect physical changes to the shoreline, implemented improvements, changes in State and federal land management, and changes in land use.
- A systematic program for accepting **OTD's (offers to dedicate)** of coastal accessways needs to be developed. The access issues of the Trinidad geographically disapproved area must also be addressed.
- **Visitor serving uses** and policies need to be updated to reflect recent changes in State and federal land ownership and management policies.
- Review and determine consistency with the new **non-point source regulations**, and address recent Coastal Act regulations regarding water quality.
- New **federal coastal monument regulations** must be consistent with plan policies.
- **Wetland use types** and definitions may need revision to be consistent with the State's interpretation of Coastal Act regulations.
- Review **Agricultural land conversions** to determine if these conversions have been consistent with Coastal Act policies. Also, **compatible uses**, should be reviewed to determine if plan amendments are desirable.
- **Shoreline erosion** issues must be addressed, in particular, the Shelter Cove and Big Lagoon uncertified area.
- **Visual resource and community character** policies need to be updated to reflect new public acquisitions. Amortization of billboards will also be considered.

- **Industrial and energy resource** policies need revision to reflect recent changes (in particular, the need for a referendum vote for any onshore support facilities for offshore oil & gas development).
- **New biological information and species listings** (such as snowy plover) must be reviewed and compared with current policies. Vegetated dune policies need revision.
- **Public services information** (in particular, water and sewer) must be updated in order to determine if urban limit lines and urban reserve areas are adequate**.**
- **Housing issues** identified in the 1998 and Draft 2003 Housing Elements should be reviewed and programs implemented to meet State mandated housing goals.
- Review of **vacant, unconstrained developable lands** should be conducted to determine if adequate supplies exist to meet the anticipated demand for new development

## ORGANIZATION

The report identifies ten topics for discussion. These topics included: access, recreation, water and marine resources, environmentally sensitive habitat areas (including wetlands), agricultural resources, hazards, visual resources, industrial and energy resources, available public services and housing and new development.

Each topic chapter includes the following items:

Description of the topic
Relevant Coastal Act policies
Location maps (when provided)
Summary of key issues (general)
Summary of key issues (for each planning area)

The report concludes with a section titled "Next Steps" that outlines the procedures for public involvement. The purpose of the report is not only to identify key issues, but to solicit public review and comments. These comments will be used to guide research and amendments to the plans. Ultimately, the amended plans will be presented to the decision makers for implementation.

# I. ACCESS

A broad policy goal of the Coastal Act is to maximize coastal access to all people while protecting public rights, property rights and sensitive coastal resources. The Coastal Act requires that development not interfere with the public right of access to the sea (Section 30211); provides for public access in new development projects (Section 30212); addresses the need to regulate the time, place, and manner of public access (Section 30214); and ensures protection of environmentally sensitive habitats from incompatible uses (Section 30240).

The 1978 *LCP Issue Identification Report* states "in general, existing land use throughout Humboldt County provides pedestrian access to all significant Coastal areas." Basically, this is still the case. More than twenty percent of the county land mass is protected open space, forests and recreation area, while 36% of the Coastal Zone in some sort of protected status.

The state and federal agencies have made great strides in Humboldt County during the past twenty years to expand public access to coastal resources through land acquisition and improvement of existing facilities. However, many of the entry points to these areas are unknown by both locals and tourists alike. In some cases, support facilities such as signs and improved parking could greatly enhance the access opportunities to coastal resources.

While the physical supply of access is a primary factor in assuring access opportunities, the Local Coastal Program cannot view the issue of supply in isolation of a number of other factors. These variables include the availability of transit to beaches, parking facilities, signs, and support facilities such as bathrooms and picnic areas. Impacts to any of these variables may ultimately affect the availability and use of all accessways. Therefore, managing and increasing coastal access involves not only the physical supply of access, but all of the other variables that contribute to ensuring maximum coastal access.

The Local Coastal Plans currently identify the coastal accessways and include suggested improvements. The development policies "mirror" the Coastal Act policies, with additional clarification on accessway improvements and funding. The Local Coastal Plans include regulations concerning prescriptive rights and dedication of coastal access for new developments. Also, locational maps are included at the back of each plan for identification of these accessways, along with a matrix summarizing the recommended improvements.

The access issues identified in the Issue Identification Report center around the changes in land management, land ownership, land use, bluff erosion and use by sensitive species. For many areas along the coast, the resources may be being "loved to death" by the public. Public access policies need to be reviewed to identify areas where conflicts may occur with Coastal Act

policies intended to protect sensitive species. Also, the development of a program or means of accepting offers to dedicate public access should be considered.

**Relevant Coastal Act Policies: Access**

- **Section 30210 Access; recreational opportunities; posting**
- **Section 30211 Development not to interfere with access**
- **Section 30212 New development projects**
- **Section 30214 Implementation of public access policies; legislative intent**
- **Section 30240 Environmentally sensitive habitat areas; adjacent developments**

**Summary of Access issues**

**ACCESS ISSUES: GENERAL**

1. Update access inventories for each local coastal plan to reflect changes based on physical changes to shoreline, implemented improvements and changes in land management, ownership and land use.

2. Establish a program for acceptance of offers to dedicate (OTD). Prioritize acceptance of outstanding OTD's.

3. Review access policies with respect to new information about snowy plover nesting and recovery program. Access to dune areas along the south spit and gravel bars along the Eel River may require closure if snowy plover status is listed as endangered.

4. Coordinate development of the Coastal Trail for the undeveloped areas within the County. Identify the existing trail and improvements and detail recommended improvements. Identify possible alternative routes and spurs connecting to existing trails or accessways. Explore possibilities of utilizing railroad ROW's.

5. Increase access opportunities for people with disabilities.

6. Update plans regarding use of access points for commercial and recreational off-road vehicle use.

7. The County is currently preparing a Master Plan for management of the Moonstone and Clam Beach areas. Policy review is warranted to determine consistency with Coastal Act policies prior to adoption.

8. Incorporate the Hammond Trail improvements into the Coastal Trail access inventory, (MKAP and HBAP).

## ACCESS ISSUES: NCAP

9. Update the NCAP access inventory and recommended improvements to reflect policy decisions established by the Redwood National Park General Management Plan. Identify areas where policy conflicts may occur.

10. Recreational off-road vehicles (as well as wood removal) are no longer allowed on the beach in RNSP. Commercial fisheries with direct access onto the beach is proposed to be phased out over time. Policy review is warranted.

11. Freshwater Lagoon Vista Point is currently located in RNSP boundaries, but it is unclear who actually owns this land or maintains it. The turnoff from Highway 101 poses substantial danger to those vehicles attempting to enter or exit the highway. Update improvement recommendations contained in the plan.

12. Identify possible improvements to the Coastal Trail along the levee or Hufford Road at Orick.

## ACCESS ISSUES: TAP

13. Address the access issues of the Trinidad geographically disapproved area.

14. Parking along Scenic Drive south of Trinidad has improved significantly; however, public access areas are poorly signed and need improving. Update improvement recommendations contained in the plan.

15. The 6th Avenue Trail is difficult to locate and utilize. Update improvement recommendations contained in the plan.

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## ACCESS ISSUES: MKAP

16. Incorporate the Hammond Trail improvements into the Coastal Trail access information. Coordinate with the County Public Works Department for proposed development plans for the Hammond Trail (Coastal Trail), in particular, the Widow White Creek segment of the Hammond Trail.

17. Add Mad River Bluffs Recreation Area (McKinleyville Land Trust acquisition) to access inventory.

18. Add Hiller Park (McKinleyville Community Services District) to the access inventory.

19. Delete Clam Beach Ponds (Humboldt State University) from access inventory as they are no longer open to the public.

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## ACCESS ISSUES: HBAP

20. Add Lanphere Dunes Unit of the Humboldt Bay National Wildlife Refuge to the access inventory.

21. Add Mad River Slough Wildlife Area, Fay Slough Wildlife Area, Elk River Wildlife Area, and Eel River Delta Wildlife Area, Ocean Ranch Unit (Department of Fish and Game acquisitions) to the access inventory.

22. Revise access maps to reflect recent purchase of the "Buggy Club" property by a public agency.

23. Review improvement recommendations for the access at the mouth of Jacoby Creek (Humboldt Bay National Wildlife Refuge). Extremely hazardous ingress/egress conditions exist off of Highway 101.

24. Review improvement recommendations for the Bracut wetland restoration site (Coastal Conservancy). Deeded access through an industrial yard (which is closed on Sundays) services the site, and is very problematic.

25. Add Buhne Drive recreation area in King Salmon to the access inventory.

26. Add the visitor center and the boat launch at Hookton Slough (USFWS acquisition) at the Humboldt Bay National Wildlife Refuge to the access inventory.

27. The Bureau of Land Management (BLM) has recently agreed to manage the Table Bluff Park and spit area. Policy review of interim management plan is warranted to ensure conformance with recent actions.

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## ACCESS ISSUES: ERAP

28. Add Eel River Delta Wildlife Area, Cock Robin Island Unit, (Department of Fish and Game acquisition) to the access inventory.

29. Recreational off-road vehicles are permitted on the waveslope area only on the North Spit of the Eel River. Commercial wood removal is by permit only from DFG. Access areas are closed during snowy plover nesting season. Review for closure of ORV access to allow for snowy.

30. River conditions at the Singley Hole access area has changed. Improvement recommendations should be consistent with current conditions and evidence of public use.

31. Explore the possibility of deleting the public access on the north side of Fernbridge at the County gravel yard, as the use conflicts with the removal of gravel from the site.

32. Consider the deletion of the public access site at Barber Creek as this undeveloped access poses extreme conflicts with agriculture.

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## ACCESS ISSUES: SCAP

33. Add Lost Coast Headlands Recreation Area (Bureau of Land Management acquisition) to the access inventory.

34. The four vertical access points deeded by the Zanone family in a 1978 out of court settlement between Singley Creek and McNutt Gulch are difficult to locate. The property owner has had numerous problems with trespass and has recently fenced the area and posted "No Trespassing" signs along the roadway. The plaintiffs in the 1978 agreement were responsible for posting locational signs at each of the access ways. This has not occurred to date. In order to prevent further altercations between the public and the landowner, the access ways should be identified and posted. Update improvement recommendations contained in the plan.

35. The Bureau of Land Management has acquired properties in the Shelter Cove area for public access to the beach, and improved many of the existing access points. The access inventory should be amended to reflect these changes.

36. The trail to the beach at Chemise Creek no longer exists due to hazardous geologic conditions. An alternate trail has been developed by the BLM from Wailaki Lost Coast Trail which links south to Sinkyone Wilderness State Park meets the ocean at Whale Gulch Creek.

37. BLM acted to close the Black Sands Beach area (and areas north) to vehicular use. The Coastal Commission affirmed the action with a consistency determination. Consider deleting vehicle use description for this area.

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# II. RECREATION

Along with protecting public access, the Coastal Act seeks to provide maximum recreational opportunities in coastal areas to all people while again protecting public rights, property rights and sensitive coastal resources. The Coastal Act encourages the provision of lower cost visitor and recreational facilities (Section 30213); specifies the need to protect ocean front land suitable for recreational use (Section 30221); gives priority to the use of land suitable for visitor-serving recreational facilities over certain other uses (Section 30222); requires protection of upland areas to support coastal recreation (Section 30223); and encourages recreational boating use of coastal waters (Section 30224).


Humboldt County has a wealth of outdoor recreational opportunities available in areas of incomparable value and unsurpassed beauty. More than 20% of the county's 2.3 million acres are protected open space, forests, and recreation areas. Within the county boundaries, there are four federal parks and beaches, ten state parks, sixteen county parks and beaches and over 338,000 acres of national Forestland.

Land in the Coastal Zone accounts for less than one-twentieth of the County's total unincorporated acreage, but provides a large proportion of the recreational opportunities. Approximately 113,000 acres of the 2.3 million acres in Humboldt County are located in the Coastal Zone. Of the 103,000 acres located within the unincorporated Coastal Zone boundary, approximately 46% is in either public ownership or tribal lands (Figure 8).

The natural qualities of Humboldt County attract a great many people from outside the county. The tourism industry in Humboldt County has increased 5.1% since 1992 according to the State Department of Commerce. According to the California Division of Tourism, there were 1.5 million recreational trips to Humboldt County in 1997 (*Prosperity!*, 2000).

Adequate support facilities exist within the incorporated cities; however, recreational support services are limited in the State and National Parks. The Redwood National and State Parks General Management Plan has indicated that no additional camping facilities will be provided within the State and National Park boundaries, and some existing camping facilities are proposed to be phased out over time, providing few accommodations for the over 800,000 visitors annually to the parks (2002 Redwood National Park Statistics). Additional private camping facilities have been developed in the Trinidad area since the approval of the 1984 North Coast Area Plan. However, it is not known if many of the recreational users of the north county area find adequate accommodations or must travel outside the County to find recreational support facilities.

While the County has many park and recreation resources, funding from the County General Fund had decreased steadily over the past ten years, while revenues from park attendance have

increased indicating greater use of existing parklands. Despite increases in use and demand on park facilities, the number of County park employees has remained constant. Park revenues indicate a steady increase in demand for park resources with a near doubling in park fees collected in just ten years.

Humboldt Bay is a recreational resource utilized increasingly by both local and visiting recreational boaters. "Water trails" programs are growing in popularity around the County. "Water trails" are routes that have been mapped out to provide educational and scenic experiences for recreational canoers and kayakers. Some of the trails are simple day paddles, while others stretch for hundreds of miles. There currently is little information readily available for Humboldt Bay recreational boaters about trip planning, water safety and wildlife viewing protocol. Recreational support facilities needed for water trails include small boat launches, boat ramps, shore access and overnight camping facilities.

The Local Coastal Plans currently provide a brief description of the recreational opportunities established in the Planning Areas. The land use maps identify areas near the shoreline that are prioritized for commercial and recreational activities. Visitor serving uses are considered the prinicipally permitted uses for these areas, and the Plans contain development policies identify the types of recreational uses and the findings that must be made for each type of recreational facility (recreational vehicle parks, Bed and Breakfast Establishments, etc.).

The Local Coastal Plans were written in the early 1980's. Since that time, many changes have occurred in the recreational opportunities for each of the planning areas. Recreational issues identified in the report include updating the plans to reflect changes in recreational facilities due to land acquisition and changes in land management. Review of existing facilities may warrant the need to provide additional recreationally zoned land.

**Relevant Coastal Act Policies: Visitor Serving Facilities**

- **Section 30212.5 Public facilities; distribution**
- **Section 30213 Lower cost visitor and recreational facilities; encouragement and provision; overnight room rentals (part)**
- **Section 30220 Protection of certain water-oriented activities**
- **Section 30221 Oceanfront land; protection for recreational use and development**
- **Section 30222 Private lands; priority of development purposes**
- **Section 30223 Upland areas**
- **Section 30224 Recreational boating use; encouragement; facilities**
- **Section 30250 Location; existing developed area (part)**

**Summary of Recreation issues**

## RECREATION ISSUES: GENERAL

1. Assess the need to provide addition recreationally zoned land for support services.

2. Review the Recreation Element of the existing General Plan and the Background Studies for the proposed General Plan Update to access the future needs for local and regional parks.

3. Investigate the institution of "homestays" as a compatible recreational use in the areas planned for Agriculture Exclusive.

## 2.1 RECREATION ISSUES: NCAP

4. Update the NCAP to reflect policy decisions established by the Redwood National Park General Management Plan regarding recreation facilities and demand for services. Identify areas where policy conflicts may occur.

5. Update the NCAP to reflect policy changes for the Humboldt Lagoons State Park (formerly Stone Lagoon State Park).

6. Update NCAP to reflect changes in private visitor-serving recreational facilities, in particular, the Redwood Trails RV park south of Orick.

7. Update the NCAP to reflect the ownership changes of the Redwood Creek Picnic Area and Freshwater spit.

8. Update the NCAP regarding improvements to Big Lagoon County Park.

9. Consider additional areas zoned for Commercial Recreation in the Orick area to provide overnight facilities for users of Redwood National Park.

10. Consider economic incentives to private developers of Commercial Recreation facilities in and around Orick.

11. Consider additional areas for commercial recreation in the Big Lagoon area.

## 2.2 RECREATION ISSUES: TAP

12. Update the TAP to reflect ownership changes to Trinidad Head. Discuss management options.

13. Update the TAP to reflect policy changes and infrastructure improvements for the Patrick's Point and Trinidad State Parks.

14. Re-evaluate maintenance requirements and jurisdictional responsibilities of Patrick's Point Drive and Stagecoach Drive.

15. Re-evaluate policy 2.13 regarding commercial recreation facilities within Urban Limit Lines.

16. The County is currently preparing a Master Plan for management of the Moonstone Beach area. Policy review is warranted to determine consistency with Coastal Act policies prior to adoption. Strong support for bathroom facilities at Moonstone Beach is warranted.

## 2.3 RECREATION ISSUES: MKAP

17. Re-evaluate the Parkland Dedication requirement for subdivision activities.

18. Update MKAP to reflect the acquisition of the Mad River Bluffs and improvements to Hiller Park. Coordinate with the McKinleyville Land Trust during the preparation of the Mad River Bluffs Management Plan to ensure consistency with the MKAP.

19. Evaluate the land area designated "Commercial Recreation" to determine adequacy for future needs.

20. Update the MKAP to reflect policy changes for the Little River State Park.

21. Review impacts of Hammond Trail to determine if support services are needed.

## 2.4 RECREATION ISSUES: HBAP

22. Update HBAP to reflect the acquisition of Mad River Slough, Fay Slough and the Elk River Wildlife Areas by the Department of Fish and Game.

23. Review impacts of the proposed Samoa Town Master Plan on recreational facilities.

24. Update the HBAP to reflect the management and ownership changes of the Manila Community Center (formerly Redwoods United). Consider revising land use designation to reflect proposed recreational uses.

25. Update the HBAP to reflect the management and ownership changes of the BLM Recreational Area, including information regarding Coast Guard station. Consider revising land use designation to reflect proposed recreational uses.

26. Update the HBAP to reflect the management and ownership changes of the Humboldt Bay National Wildlife Area. Consider revising land use designation to reflect proposed recreational uses.

27. Revise the HBAP to support visitor-serving uses in the King Salmon/Fields Landing area.

28. Update the HBAP to support the development of a water trails system in and around Humboldt Bay.

## 2.5 RECREATION ISSUES: ERAP

29. Review areas designated Commercial Recreation within the ERAP to determine adequacy of total land area. Identify areas where policy conflicts may occur.

30. Update ERAP to reflect the acquisition of Cock Robin Island and the Eel River Delta and Elk River Wildlife Areas by the Department of Fish and Game. Policy review is warranted to determine consistency with Coastal Act policies prior to adoption.

31. Investigate the institution of "homestays" as a compatible recreational use in the areas planned for Agriculture Exclusive.

32. Investigate the establishment of "water trails" within the Eel River Delta.

## 2.6 RECREATION ISSUES: SCAP

33. The BLM is currently preparing a Master Plan for management of the Kings Range National Conservation area. Policy review is warranted to determine consistency with Coastal Act policies prior to adoption.

34. Review recreational needs of the Shelter Cove area in relation to geologic stability of the area and planned land use.

35. Update the SCAP to reflect recreational facilities provided by the BLM in the Shelter Cove area.

36. Update the SCAP to reflect acquisition of the Lost Coast Headlands by the BLM and recreational facilities provided.

37. Review service capabilities for the Shelter Cove Community Service District and determine compliance with visitor serving policies of the SCAP.

# III. WATER AND MARINE RESOURCES

The California Coastal Act sets out a series of policies to protect and enhance land suitable for aquaculture, fisheries and environmentally sensitive habitat in the coastal zone. Streams and associated riparian habitat are protected in order to maintain the biological productivity of coastal waters. Section 30231 requires that natural vegetation buffer areas that protect riparian habitats are maintained, and that the alteration of natural streams be minimized. Section 30236 limits channelizations, dams, or other substantial alterations of rivers and streams to only three purposes: necessary water supply; protection of existing structures where there is no feasible alternative; or improvement of fish and wildlife habitat.

Marine resources are protected not only to sustain the biological productivity of coastal waters, but also to maintain healthy populations of all species of marine organisms. Section 30230 requires that marine resources be maintained, enhanced, and where feasible, restored. Uses of the marine environment must provide for the biological productivity of coastal waters and that will maintain healthy populations of marine organisms. Section 30233 provides that the diking, filling, or dredging of open coastal waters, wetlands, or estuaries may only be permitted where there is no less environmentally damaging alternative and restricted to a limited number of allowable uses.

Finally, the Coastal Act requires that the biological productivity and quality of coastal waters be protected. Section 30231 requires that the use of means, including managing waste water discharges, controlling runoff, protecting groundwater and surface water, encouraging waste water reclamation, and protecting streams, in order to maintain and enhance water quality.

## *CURRENT WATERSHED CONDITIONS*

Humboldt County is part of the Klamath-North Coast Hydrologic Basin Planning Area, which includes all basins draining into the Pacific Ocean from the Oregon border southerly through the Russian River Basin. Ten of Humboldt County's twelve planning watersheds each drain to a single stream or river, all of which either drain directly or indirectly into the Pacific Ocean. Eureka Plain and Trinidad watersheds are drained by many smaller streams, which terminate in Humboldt Bay or the Pacific Ocean, respectively.

Evidence that watershed conditions are declining in at least some areas can be found in the 303(d) List update recommendations. While three rivers in Humboldt County are recommended for new listings, and three more are recommended for placement on watch lists, there is no mention of de-listing any Humboldt County waterways. For a water body to be de-listed, it must

be demonstrated that objectives are being met or revised, and beneficial uses are not impaired, or are protected by control measures.

Sedimentation and water temperature are the chief watershed management issues in Humboldt County.

- **Sedimentation** is a natural process but can be greatly accelerated by land use activities which modify drainage patterns or remove vegetative cover in highly erosive areas. Increased erosion and sedimentation may alter runoff characteristics and destroy aquatic and terrestrial wildlife habitat. Stream sedimentation from various activities limits coldwater aquatic uses—including the migration, spawning, reproduction, and development of cold water fish—and can contribute to flooding.

- **Temperature** is a vital factor for coho and chinook salmon, and steelhead, characteristically known as "cold water fish." Many physiological processes of salmon are affected by subtle temperature changes including metabolism, food requirements, growth rates, developmental rates of embryos and young, sensitivity to disease, and the timing of life-cycles such as adult migration, emergence from gravel nests, and proper life stage development. . In general, the types of effects are usually divided into lethal and sub-lethal effects. These effects are relevant for all the life stages of salmon.

**GROUNDWATER CONCERNS**

The Eel River, Humboldt Bay, Trinity River, and Klamath River Watershed Management Areas all list groundwater contamination as a primary water quality issue. Potential ground water contamination from nutrient loading via ground water to streams is of concern. Pesticide and herbicide applications on private and public lands are also of concern. Use of pesticides and herbicides along roadways, in agricultural operations, in urban areas, and in lily bulb farming and forestlands in Watershed Management Areas poses a threat to ground and surface waters.

To protect water resources within a watershed context, a mix of point and nonpoint source discharges, ground and surface water interactions, and water quality/water quantity relationships must be considered. These complex relationships present considerable challenges to water resource protection programs.

**STORMWATER CONCERNS**

Stormwater is an important factor in the distribution of sediments, chemicals, and other natural and human-produced compounds throughout a watershed. Runoff from heavy rains picks up these potential pollutants and carries them downstream, where they may be deposited or remain suspended in sensitive ecological areas. With Humboldt County's wet climate and large amount of land dedicated to timber production and agriculture, pollution due to stormwater runoff is of particular importance.

**NONPOINT SOURCE POLLUTION**

Nonpoint source (NPS) pollution, also known as polluted runoff, is the leading cause of water quality impairments in California and the nation. Nonpoint sources, including natural sources, are the major contributors of pollution to impacted streams, lakes, wetlands, estuaries, marine

waters, and ground water basins. Unlike pollution traceable to a single location or "point" (such as a sewage treatment plant), NPS pollution comes from many diffuse sources, and is principally caused by stormwater, snowmelt, or agricultural runoff moving across and diffusing into the ground. The runoff picks up natural and human pollutants and deposits them throughout the natural watershed (in rivers, lakes, coastal areas, and aquifers).

### *LOCAL WATER QUALITY REGULATIONS*

In May 2002, the Humboldt County Board of Supervisors adopted ordinance revisions dealing with grading, erosion control, geological hazards, streamside management areas, and related ordinance revisions. This action completes efforts to codify and implement comprehensive provisions for dealing with grading, erosion control and potential impacts to streamsides. It has the benefit of addressing nonpoint source pollution from runoff water as well.

The ordinance revisions have a number of critical benefits for water and marine resources including:

- implementation of various General Plan elements including water quality, biological resources, critical and sensitive habitats, geologic hazards, open space, conservation, and erosion and sedimentation control.
- additional guidance on the application of erosion and sediment control measures to various developments.
- enhancement of existing zoning regulations which conform to all local, state, and federal requirements to protect property rights, sensitive habitats, and coastal and other sensitive resources.
- management of risk in geologically unstable areas and improvement of erosion control regulations.

The revisions were submitted to the Coastal Commission staff on July 10, 2002 for review and certification. No action has been taken by the Coastal Commission to date. The amendments will become effective upon certification by the Coastal Commission.

### STREAMSIDE MANAGEMENT AREAS

The County maintains Streamside Management Areas (SMAs) to protect sensitive fish and wildlife habitats and to minimize erosion, runoff, and other conditions detrimental to water quality. These areas are corridors paralleling blue line streams identified on USGS topographic maps and significant drainage courses identified under CEQA. Streamside Management Areas were included in the original LCP's, and have just recently been incorporated the Framework Plan as a part of the Open Space Element.

The width of the SMA depends on whether or not the stream is perennial or intermittent and whether the area is inside or outside of Urban Development and Expansion Areas. In urban areas, the SMA width is 50 feet on each side of perennial streams and 25 feet for intermittent streams; outside of urban areas, the width is 100 feet for perennial streams and 50 feet for

intermittent streams. Development within the SMAs is very restricted and is subject to implementation of numerous mitigation measures designed to protect the habitat quality of the SMA

The main water and marine resource issues identified in the report focus on reviewing these new water quality regulations to ensure consistency with the LCP's and the intent of the Coastal Act.

**Relevant Coastal Act Policies: Water and Marine Resources**

- **Section 30230 Marine resources; maintenance**
- **Section 30231 Biological productivity; water quality**
- **Section 30236 Water supply and flood control**
- **Section 30240 Environmentally sensitive habitat areas; adjacent developments**

**Summary of Water and Marine Resource Issues**

**WATER AND MARINE RESOURCE ISSUES: GENERAL**

1. Update the Local Coastal Plans to include new non-point source pollution issues. This will include:
    a. Compare each plan for similarity and differences, and unify into one set of regulations. Maintain special protection sections for each plan.
    b. Compare the protection measures provided in each plan and incorporate the May 2002 Erosion Control Ordinance revisions. Determine if adequate protection exists with the merger of these regulations.
    c. Incorporate the County Road Maintenance Plan by reference into the LCP's.

2. Incorporate Natural Resources and Hazards Report, Volume II ("Detailed Watershed Characteristics and Regulatory Framework Analysis") into the LCP's regarding water resources analysis. Review policy recommendations provided in the Report.

3. Review new coastal monument regulations regarding off-shore rocks and determine consistency with LCP policies.

# IV. ENVIRONMENTALLY SENSITIVE HABITAT AREAS

One of the chief objectives of the Coastal Act is the preservation, protection and enhancement of coastal resources, including land and marine habitats. The rarest and most ecologically important habitats are identified and protected from development. Within the Coastal Zone, Environmentally Sensitive Habitat Areas (ESHAs) are designated, pursuant to the California Coastal Act. Section 30107.5 of the Coastal Act defines an ESHA as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

In addition to the policies protecting coastal waters, the Coastal Act requires the protection of environmentally sensitive habitat areas against any significant disruption of habitat values. Section 30240 requires that no development (with the exception of uses dependent on the resources) is allowed within any ESHA. This policy further requires that development adjacent to a sensitive habitat area is sited and designed to prevent impacts that would degrade the habitat area. Finally, development adjacent to parks and recreation areas must be sited and designed to prevent impacts.

Humboldt County ESHAs include: anadromous fish streams, sand dunes, rookeries and marine mammal haul-out areas, wetlands, riparian areas, areas of pygmy vegetation which contain species of rare or endangered plants, and habitats of rare and endangered plants and animals. Each Plan contains a description of the "current conditions" of the natural resources and identifies the ESHA within the planning area, including wetlands and wet areas. Development policies outline allowable uses within ESHA, required setbacks for development and identified restoration areas and mitigation requirements.

Included within the Issue Identification Report is the need to review the state and federal endangered species listing for both plant and animal species and compare with the LCP resource protection policies and maps for accuracy (a complete list of federal and state listed species for the County can be found in Appendix A). In particular, the recent listing of the snowy plover and the potential conflict with access and recreational uses are proposed for review. Also, recent changes in Coastal Commission policy decision regarding wetlands and definitions of wetlands will also need to be reviewed.

**Relevant Coastal Act Policies: Environmentally Sensitive Habitat**

- **Section 30240 Environmentally sensitive habitat areas; adjacent developments**

**Summary of Environmentally Sensitive Habitat Area Issues**

**ENVIRONMENTALLY SENSITIVE HABITAT AREAS ISSUES: GENERAL**

1. Review Local Coastal Plan Policies for compliance with recent decisions and listings of threatened and endangered species.

2. Update Resource Protection Maps to reflect changes in the listing of threatened and endangered species and protected habitat areas including but not limited to: snowy plover, vegetated dunes and other listed plant species.

   b. Review vegetative dunes as an ESHA to possibly distinguish between native and non-native habitats.

3. Review Wetland Resource Protection Maps for compliance with jurisdictional wetlands map. Update the Local Coastal Plan Maps and policies to reflect changes.

4. Review "Pocket Marsh Policies" included in the HBAP to determine applicability with other Plans. Review the most recent Coastal Commission wetland guidelines for compliance.

5. Update wetland buffer policies for conformance with recent actions by the Coastal Commission.

6. Update plans to include definitions of wetland types (such as "estuarine" and "riverine") and provide policies for protection.

7. Review Transitional Agricultural policies and definitions found in the NCAP, MKAP, HBAP and ERAP. Determine applicability for the SCAP and the TAP.

# V. AGRICULTURE

The protection of agriculturally productive lands is a very high priority in Coastal Act policies. Section 30241 requires that the maximum amount of agricultural land remain in agriculture to protect the agricultural economy, and to minimize conflicts between agriculture and urban uses, thus preventing premature conversion of agriculturally productive lands. Section 20242 provides for the conversion of agricultural lands to non-agricultural uses only when continued operations are not feasible and the conversion would preserve existing prime agricultural lands by concentrating development adjacent to existing urban areas.

Agriculture is an important element of Humboldt's economy and identity, sustaining hundreds of farm and ranch families and workers. Over 25% of the land is in some form of agriculture. Agricultural products (excluding timber) had a market value of approximately $110,000,000 in 2001[1]. Numerous factors contribute to the economic value of agriculture in Humboldt County, including soil quality, climatic conditions, irrigation availability and practices, farming costs, and agricultural policy.

The majority of prime agricultural lands in the County are located in the coastal zone (Figure 9). The highly productive delta soils of the Mad River and the Eel River, north and south of Humboldt Bay respectively, provide the basis for significant agricultural resources. Agricultural operations in these regions include dairies, livestock grazing, nursery operations (in particular, Sun Valley Bulb Farm) and row and field crops. The main towns were settled on these flats near Humboldt Bay. The cities of Arcata, Fortuna, and Ferndale, and the unincorporated area of McKinleyville, are all located on prime agricultural soil.

For over 20 years the County has had land use policies that at their core reflected the desire to conserve agriculture land; however, agricultural land is still being converted at a rate many determine to be too fast. Flexible interpretation of agriculture land preservation policies and the drive for economic maximization of land value lead to more agriculture land conversion than is desirable. A recent local study found that the agricultural lands protected by the stricter Coastal Act policies remained for the most part in agricultural production; most of the conversion occurred in the inland grazing and timberlands where numerous tracts of rural "ranchettes" have been created[2].

*1 Humboldt County Department of Agriculture, 2002*

[2] Michael Smith & Deborah Giraud; *Traditional Land Use Planning Regulations and Agricultural Land Conversion: A CaseStudy from a Rural Northern California County; Paper presented at the 63rd annual meeting of the rural sociological society inWashington D.C., August 13-17, 2000; 20 p*

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Certain policies of the Coastal Act apply to "prime farmlands" in particular. Since extensive soil surveys have not been conducted in Humboldt County and prime soils have not been identified, it can be difficult to apply these policies.

The original 1965 survey utilized the Storie Index Rating classification, which does not rate soils as "prime". The survey area covered about 125,000 acres of alluvial and terrace lands primarily located around Humboldt Bay. The majority of the mountainous portions of the County were not surveyed.

The NRCS is currently in the process of mapping the soils in Humboldt County to a USDA Land Capability Classification System with a projected target completion date of 2008. As of December, 2002, approximately one-third of the County has been mapped (Azan, 2002). Staff from the NRCS has indicated that site specific mapping information will be released as it is generated; however, this information will be released on a "provisional" basis only. Coastal land use designations may need to be revised as a result of the updated soils survey.

The primary program the County offers to help prevent the premature conversion of agricultural lands is the Williamson Act. The Act provides an arrangement where private landowners voluntarily restrict their land to agricultural and compatible open space uses under a contract with the County, known as a Land Conservation Contract. Property owners wishing to receive a tax break through the Williamson Act must follow an application process with the County and may need to form an Agricultural Preserve.

Williamson Act Preserve Contracts prepared pursuant to the Williamson Act have been scarce in the County's coastal zone. The few existing preserves within the Coastal Zone occur in the Southcoast Planning Area. Land owners with prime agricultural lands in Humboldt County (primarily the dairies on the bottomlands in the coastal zone) have not historically utilized the tax reduction benefits of the Williamson Act.

The majority of coastal agricultural lands are located in the McKinleyville, Humboldt and Eel River Planning Areas (the Trinidad Area Plan has no identified agricultural areas and therefore, does not contain any development policies regarding agricultural uses). Each Plan identifies the areas identified for agricultural uses and outlines development policies within these areas based upon whether the agricultural land is prime or non prime. Each Plan details the compatible uses allowed in the agricultural areas, with the underlying requirement that the use will not impair the economic viability of the agricultural operation.

Although there are many factors contributing to the profitability of agriculture and the sustainability of Humboldt's agricultural economy, only a few can be controlled or manipulated through planning. These include policies that provide protection of farmland, regulation of the amount of farmland lost to rural and urban development, insurance that subdivision of farmland will not adversely effect agricultural production, and prevention of land use conflict.

The issues identified in this report focus on policy options and programs that could help keep the agricultural industry thriving, and prevent premature conversion of agricultural lands.

## Relevant Coastal Act Policies: Agricultural Resources

- **Section 30241 Prime agricultural land; maintenance in agricultural production**
- **Section 30241.5 Agricultural land; determination of viability of uses; economic feasibility evaluation**
- **Section 30242 Lands suitable for agricultural use; conversion**

## Summary of Agricultural Issues

### AGRICULTURAL ISSUES: GENERAL

1. Review Plan designations to reflect new mapping information regarding soils information collected by the Natural Resources Conservation Service.

2. Review conversion of agricultural areas located in the Coastal Zone Boundaries and determine cause. Review policies to determine if adequate protection measures are available to ensure conformance with the Coastal Act.

3. Review recent public acquisitions and possible effects on overall agricultural production. Review ERAP Policy 3.34(D) for possible inclusion in other LCP's containing large agricultural areas.

4. Review compatible uses in agricultural areas to determine if this section needs to be updated with new industries compatible with agricultural production (i.e. homestays, cottage industries, portable timber processing equipment, etc.).

5. Investigate the possibilities of establishing intensive agricultural operations on reduced parcel sizes on prime ag lands within the coastal zone.

6. Review current urban limit lines to determine if adequate areas have been set aside for future urban development. "Buffer areas" may also be inadequate to protect viability of surrounding agricultural areas.

7. Investigate the use of conservation easements and policies to support the use of easements as a method of protecting agricultural lands.

8. Coordinate LCP Policy Updates with the General Plan Update to help eliminate conflicting or confusing agricultural policies that lead to leapfrog development.

9. Investigate the promotion of the Williamson Act program for agricultural operators within the coastal zone, particularly those in prime agricultural areas, and determine if policy revisions are necessary in the LCP's.

## 5.1 AGRICULTURAL ISSUES: NCAP

10. Review current urban limit line serving the Orick community to determine if adequate areas have been set aside for future urban development.

## 5.2 AGRICULTURAL ISSUES: TAP

11. Review potential agricultural lands in the Trinidad area identified in the background studies for the general plan update to determine if agricultural protection policies need to be included in the TAP.

## 5.3 AGRICULTURAL ISSUES: HBAP

12. Update HBAP resource maps to reflect new soils survey. Review urban limit lines and buffer areas and coordinate with General Plan Update policy revisions to prevent conflicting policies.

13. Review Table Bluff land division policies to determine adequate protection of resource lands.

## 5.4 AGRICULTURAL ISSUES: ERAP

14. Review new regulations for the construction of manure ponds for water quality purposes on dairies. Identify areas where policy conflicts may occur.

15. Review Table Bluff land division policies to determine adequate protection of resource lands.
    a. Review requests for lot divisions in the Loleta area.

## 5.5 AGRICULTURAL ISSUES: SCAP

16. The BLM is currently preparing a Master Plan for management of the Kings Range National Conservation area. Coordinated effort with the BLM is needed to determine consistency with Coastal Act policies prior to adoption.

17. Review public acquisitions of agricultural lands and determine if additional protection policies are needed.

# VI. HAZARDS

Under the Coastal Act, development is required to be sited and designed to minimize risks, assure stability and structural integrity, and neither create nor contribute significantly to erosion or require the construction of protective devices along the bluffs (Section 30253). Section 30235 of the Coastal Act allows the construction of shoreline protective devices where existing development is threatened from erosion (and designed to eliminate or mitigate impacts on the resources). The Coastal Act also provides that development damaged or destroyed by natural disasters can be rebuilt in the same location under certain conditions.

Natural hazards in Humboldt County's coastal zone are the result of floods, tsunamis, earthquakes, wildland fires, landslides and bluff erosion. Following is a brief description of each of these natural hazards.

### *SEISMIC AND SOIL STABILITY*

Humboldt County is located within a seismically active area of California. It is in the two highest seismic risk zones of the Uniform Building Code, and Cape Mendocino (located offshore in the southern portion of the County) experiences the highest concentration of earthquake events in the continental United States. In addition to causing ground shaking, an earthquake can trigger other natural disasters such as fire, landslides, and flooding, resulting in loss of life and extensive property damage. Seismic hazards in the county include earthquake ground shaking, surface fault rupture, liquefaction, and tsunami potential in the coastal zone areas. Geologic hazards not specifically related to earthquakes include landslides and soil stability.

Slope stability, which refers to the susceptibility of slopes to landslides, is a major concern in the county. Heavy rains, grading, or earthquakes can trigger landslides. Other contributing factors are type and structure of soils, slope steepness, water, vegetation, and erosion. Landslides resulting from ground shaking are most likely to occur on steep, unstable slopes.

In May 2002, the Humboldt County Board of Supervisors adopted ordinance revisions addressing grading, erosion control, geological hazards, and streamside management areas. The amendments further implement the goals of minimizing risk in geologically unstable areas and improving erosion control regulations.

### *TSUNAMIS*

A tsunami, or large sea wave, may be produced by movement of the ocean floor resulting from either a nearby or distant earthquake. Tsunamis have historically been rare in California. Since

1812, California has experienced fourteen tsunamis with wave heights greater than 3 feet; six of these were destructive. Ten of these were generated by distant earthquakes near Alaska, Chile or Japan. The worst damage in California resulted from the 1964 Alaskan earthquake, originating some 1500 miles away, which caused severe destruction and loss of life in the harbor area at Crescent City. The coastal area affected by a tsunami is called the tsunami "run-up zone." These areas are currently being mapped by the Geology Department at Humboldt State University.

## *BLUFF EROSION*

Bluff erosion is a natural process that occurs over time. Seismic activity, steep slopes and unstable soil conditions increase the rate of bluff erosion. The majority of residential development in the County's coastal zone occurs around Humboldt Bay on relatively flat, stable soils. However, there are two residential developments in the County that have experienced a relatively high rate of bluff erosion: the Big Lagoon Park Subdivision in the north coast region, and the Shelter Cove subdivision, in the south coast region.

### Big Lagoon Park Subdivision

The residentially developed area of the Big Lagoon Park Subdivision is approximately 28 acres in size and is developed with 76 cabins. The majority of these residences were built in 1929, and are used as summer vacation homes. Some of the cabins are located near the coastal bluff and have undergone several catastrophic erosion events. Most recently, the bluff retreated 80 feet between 1983 and 1985.

A study conducted in 1985 identified the projected coastal bluff retreat rate to the year 2005. At that time, 23 relocation sites were approved. Several cabins were moved to safety on the same parcel between 1985 and 1995 under an emergency Coastal Development Permit. This study was updated two years ago to project bluff retreat to the year 2065. To date, coastal bluff retreat hazards on that property required the relocation of 14 cabins.

### Shelter Cove Subdivision

The Shelter Cove Sea Park Subdivision was originally planned in 1965 as a retirement community and area for second-home, recreational development. The initial subdivision of the area created 4,715 residential lots. Since that time, consolidations of lots and acquisitions by the Bureau of Land Management (BLM) have reduced the total number of lots of the original subdivision design. The subdivision map shows a land use pattern of about 4,800 residential lots (additional area has been annexed into the District), about 130 acres of scattered commercial sites, 35 acres for high density apartments, numerous parks and open space areas and some timberland areas.

The South Coast Area Plan indicated that in 1990, there were 62 dwellings in the Coastal Zone portion of the Shelter Cove Subdivision with two motels, two restaurants, a recreational vehicle park and a developing harbor under the control of the Humboldt Bay Harbor Recreation and Conservation District. Initial improvements to the harbor facilities have recently been completed and the Shelter Cove Harbor Planning Committee is presently working on a mooring program

and assessing needs for on-shore support facilities. Since that time, over 196 Coastal Development Permits have been issued for the Shelter Cove area for commercial, recreational and residential purposes. Approximately 140 of these were for new residential structures.

Bluff erosion is a concern mainly due to the relatively small size of the residential lots located adjacent to the bluff. Bluff retreat hazards diminish with distance from the bluff edge. Adequate setbacks may not be possible to mitigate for current rate of erosion due to sizes of some existing lots. At this time, all development along the bluff in the Shelter Cove subdivision is required to prepare a R-2 Geologic Hazards Report in order to design development that reduces risk of injury and increased bluff erosion. Consolidation of lots, in some instances, is necessary to accommodate development.

### *FLOODING*

Flood hazards in Humboldt County are attributable to rivers, dam failure, and coastal high water hazards (tsunamis and flood tides), with river flooding by far the most prevalent. Flooding is an important concern for many waterways in coastal zone: the Eel River (including the Van Duzen and South Fork), the Mad River, the Eureka Plain (especially Freshwater and Jacoby Creeks) and Redwood Creek (around Orick). During the months of November to March, when seventy percent of precipitation in Humboldt County occurs, major floods have sometimes resulted from a succession of intense rainstorms.

One of the major issues in floodplain management and protection is how much urban encroachment should be allowed into 100-year flood zones. The closer to the river that development is sited, the higher a barrier to floodwaters will have to be erected. Type of development and land use is also an issue in flood zones.

### *FIRE HAZARDS*

Subsequent to an evaluation by the California Department of Forestry and Fire Protection (CDF), nearly three quarters of Humboldt County's land is identified as possibly containing substantial forest fire risks and hazards, pursuant to Section 4125 of the Public Resources Code. The areas not prone to fire risk are concentrated in coastal and estuary land and the high (eastern) Klamath-Trinity watersheds. Fire risk is being evaluated by the County in a separate study that will result in development of a new County Master Fire Protection Plan. This study is currently underway and has not yet been completed. Review of plan policies may be warranted to ensure that conflicts with Coastal Act policies do not occur.

The Local Coastal Plans include summary descriptions of the potential hazards within each planning area. The current development policies defer to the policies contained in the Seismic Safety Element and the Natural Hazards/Land Use Risk Rating Matrix of the Framework Plan (General Plan for the inland areas). Additional development requirements are imposed for those areas along unstable bluffs or cliffs, tsunami run-up areas and flood prone areas.

The Issue Identification Report recommends reviewing the hazard maps and updating the hazard policies with the best available information.

**Relevant Coastal Act Policies: Natural Hazards**

- **Section 30253 Minimization of adverse impacts**

**Summary of Natural Hazard Issues**

**NATURAL HAZARD ISSUES: GENERAL**

1. Review and revise land use designation to reflect the unstable coastline conditions along the Big Lagoon subdivision non-certified areas.

2. Update LCP's to incorporate newly approved erosion control policies regarding geologic hazards. Review policies to determine if adequate protection measures are available to ensure conformance with the Coastal Act.

3. Determine conformance within the LCP's to the Department of Public Works newly developed Best Management Practices for the construction and maintenance of county roads.

4. Review geologic hazards maps for accuracy. Include recently revised ground shaking information into the plans.

5. Update the plans with new information regarding seismic safety. The seismic safety zones within the UBC should be clarified.

6. Review new information developed for tsunami hazard areas regarding the maximum credible event re-occurance interval, and revise plans accordingly. Update the hazards maps to reflect new information regarding tsunami run up zones.

7. Review the high coastal wave hazard inundation areas (in particular, the HBAP) and revise plans accordingly.

8. Update the plan policies regarding revisions to fire codes and reference new UBC regulations.

9. Consider the development of uniform hazard maps within the plans utilizing the same information and scale of maps.

10. Airport Safety Review designations have been developed as a result of the revision to the recently adopted Airport Plan. Review Section 3.28.G of the MKAP policies for consistency.

11. Update NCAP with new information concerning the proposed improvements on the levee in Orick and possible policies regarding maintenance area.

# VII. VISUAL RESOURCES

One of the primary objectives of the Coastal Act is the protection of scenic and visual resources, particularly as viewed from public places. Section 30251 requires that development be sited and designed to protect views to and along the ocean and other scenic coastal areas. New development must minimize the alteration of natural landforms. This policy also requires that development is sited and designed to be visually compatible with the character of surrounding areas. Where feasible, the Coastal Act requires that development include measures to restore and enhance visual quality in visually degraded areas.

Humboldt County's scenic resources, open space lands, coastal areas, forests, and scenic highways, contribute to the County's unique sense of place. Maintaining and enhancing these resources will help preserve the quality of life residents value. Views include coastlines, mountains, hills, ridgelines, inland streams and rivers, forests, pastoral agricultural vistas, idyllic rural communities, and a combination of all of these features. Views are distant and proximate, panoramic and discrete. There are perhaps very few areas of the County where scenic beauty is not evident.

Humboldt County's varied and extensive Pacific Ocean coastline allows for a wide range of scenic vistas from Highway 101 and from beaches, state parks and Coastal Access points. The 1980 County's Local Coastal Program included a technical study on visual resources that was used in evaluating opportunities and constraints within the Coastal Zone. This study, completed in 1979, includes a detailed inventory of local visual resources along the coastline. The study inventories and maps areas of visual concern and identifies areas as "highly scenic" and "visually degraded areas." The extensive inventory included points offering coastal views in Humboldt County.

The *2002 Natural Resources and Hazards Technical Background Report* prepared for the 2004 General Plan Update utilized this report for comparisons of current conditions. A qualitative viewshed analysis for selected viewpoints was conducted in order to assess the qualities of a viewshed and its sensitivity and susceptibility to deterioration from development impacts.

Deterioration of the scenic qualities of a viewshed can be caused by many factors, including logging and road construction as well as rural subdivision and development. As a result, viewsheds with the highest potential for deterioration are those closest to cities and towns and those near unprotected forestland.

The Local Coastal Plans currently identify scenic qualities in the planning areas by both a narrative description and by resource maps (not all plans include a narrative description). The Plans contain policies to protect coastal view areas and natural landforms and features, along

with providing resource buffer areas adjacent to public lands. Regulations for establishing Design Assistance Committees have been developed for the Trinidad Area Plan and the Northcoast Area Plan; however, there are no active review committees operating at this time. The Humboldt Bay Area Plan contains "corridor regulations" for billboards, while the Eel River Area Plan has specific policies for protecting historic buildings.

The Issue Identification Report recommends developing a more standardized approach to visual resource protection. Public opinion received during the General Plan Update favored the development of a billboard amortization program along Highway 101. This suggestion will also be forwarded as a part of this Report.

**Relevant Coastal Act Policies: Visual Resources**

- **Section 30251 Scenic and visual qualities**
- **Section 30253 Minimization of adverse impacts**

**Summary of Visual Resources Issues**

**VISUAL RESOURCE ISSUES: GENERAL**

1. Consider the development of a billboard amortization program for existing billboards along Highway 101 (Review amortization program developed for the PGE billboard). Review sign policies in HBAP to determine applicability to other plans with Coastal View Policies.

2. Consider standardizing the visual protection policies for each plan for a more unified approach. Review Design Assistance Committee policies to determine continued applicability.

3. Review recent public acquisitions for consistency with public land resource buffer policies.

4. Review Natural Features and the Natural Landform protection policies and update as necessary.

5. The General Plan Update reports have identified additional visual protection policies that should be reviewed for incorporation into the LCP's.

6. Review Section 3.40(B)(6) (Transfer of Development Credit) of the Trinidad Area Plan for applicability.

# VIII. INDUSTRIAL AND ENERGY RESOURCES

The Coastal Act gives priority to coastal-dependent development over other developments near the shoreline (Section 30255). In order to balance protection of coastal resources, including public access, land and marine habitat, scenic and visual quality, the Coastal Act provides policy direction that focuses new development, such as industrial uses, to existing developed areas with public services. Section 30250 requires that new development be located near existing developed areas, and where it will not have significant adverse impacts on coastal resources. Section 30260 encourages coastal-dependent industrial development to locate or expand within existing sites. Only when this is not feasible, are industrial uses allowed to locate outside of existing developed areas. Specific requirements for siting oil and gas developments within the coastal zone are provided (Sections 30261 – 30264), with an emphasis on protecting coastal resources throughout the site development and facility operations stages.

Industrial activity in Humboldt County's coastal zone is located almost exclusively around Humboldt Bay and in the Eel River Planning Area. A significant portion of these sites are located adjacent to wetlands. Energy resources are located primarily outside of the coastal zone with the exception of the PGE power plant.

## *ENERGY RESOURCES*

Energy resources in Humboldt County are primarily natural gas deposits. Active gas wells in Humboldt County are concentrated in the Tompkin Hills Gas Field, at the edge of the coastal zone. Of the County's 39 gas wells, 31 are currently producing and 8 are considered shut in, meaning they cannot produce gas at their current depths and are sealed off in order to maintain the pressure on remaining deposits. Humboldt County contains three inactive oil wells and has not produced oil in at least the past ten years. There is no record of geothermal production in Humboldt County.

The Planning Commission recently approved a Coastal Development Permit for five natural gas production well sites and a pipeline linking these wells to the PG&E gas main and regulator station at Alton. The gas wells are located along Grizzly Bluff Road in the Eel River Planning Area. This area has been the subject of previous exploratory drilling by ARCO (1991) and others; however, this project is the first to propose production wells and a pipeline connection to PG&E transmission facilities in Alton. Construction is proposed for the spring of 2003.

PG&E operates a power plant south of Eureka located adjacent to the Bay. Internal generation of the plant includes two 53 MW thermal generators, two 15 MW gas turbines, one 25 MW biomass generator and one 46 MW Qualifying Facility (PG&E, 2001). PG&E is also in the

process of decommissioning the 63 MW nuclear power plant that was in operation from 1963 to 1976. The company proposes to utilize a "Dry-cask" storage system for used-up fuel rods specifically designed to withstand earthquakes (Northcoast Journal, 1998). The design would also allow for the fuel rods to be moved to a federal nuclear repository without removing them from the storage unit.

Recent inquiries have been made before the Board of Supervisors by Calpine, a San Jose based energy company, to develop a site on Humboldt Bay in order to import liquefied natural gas and then move this gas via pipelines to the Central Valley. Some of the gas would also be used to "fire" a 220MW power plant. Review of existing policies to determine conformance with the Coastal Act would be necessary before a project of this magnitude could be considered.

### *COASTAL INDUSTRIAL USES*

Forty percent of the total industrial land use in unincorporated areas of the county is in the coastal Humboldt Bay Planning Area, which includes the company town Samoa. The North Spit of Humboldt Bay is the site of the County's heaviest industrial uses. Approximately 863 acres of the North Spit are planned and zoned for industrial uses, 280 acres of which are vacant. These sites include:

#### Sierra Pacific

Sierra Pacific Industry owns and operates a lumber mill on a 15-acre parcel located at the mouth of the Mad River Slough. The mill is approximately three miles south west of Arcata along Highway 255. An additional 30 acres is leased for log deck and lumber storage.

#### Louisiana Pacific/Simpson

Louisiana-Pacific (LP) owned over 1,000 acres on the Samoa Peninsula. Much of this property is planned and zoned for Coastal Dependent Industrial uses. LP operated three main manufacturing facilities on the industrial property, which included: a power generation plant, a redwood decking second growth sawmill, and a pulp mill. These facilities were located adjacent to each other with loading/unloading facilities on the bay.

Simpson Industries acquired LP's interest in their Humboldt county holdings in 1998 with the exception of the pulp mill which was retained as a subsidiary Samoa Pacific Cellulose. The pulp mill still operates as a chlorine-free facility.

In addition to LP's holdings, Simpson Industries owns over 400 acres on the Samoa Peninsula. The majority of theses properties are zoned either General Industry or Coastal Dependent Industrial. The Simpson pulp mill at the south end of the industrial complex on the north spit has been shut down for some time, and is currently undergoing demolition. Simpson Industries recently applied for a Coastal Development Permit for a wood chip handling facility that would store, process and ship wood chips outside of Humboldt Bay.

Most other lumber processing and export on the north spit has been curtailed, although wood chips are still exported. Fairhaven Power Company operates a woodwaste fired 20MW power plant adjacent to the Samoa Pacific pulp mill.

The issues identified in this report focus on review of current conditions to determine if adequate supply of industrially zoned areas exists (adjustments may be necessary to reflect changes as a result of the Samoa Town proposal) and a determination whether oil and gas siting policies are in need of revision.

## Relevant Coastal Act Policies: Industrial and Energy Resources

- **Section 30254 Public works facilities**
- **Section 30254.5 Terms or conditions on sewage treatment plant development; prohibition**
- **Section 30255 Priority of coastal-dependent developments**
- **Section 30260 Location or expansion**
- **Section 30261 Tanker facilities; use and design**
- **Section 30262 Oil and gas development**
- **Section 30263 Refineries or petrochemical facilities**
- **Section 30264 Thermal electric generating plants**
- **Section 30250 Location; existing developed area**
- **Section 30232 Oil and hazardous substance spills**

## Summary of Industrial and Energy Resources Issues

### INDUSTRIAL AND ENERGY RESOURCE ISSUES: GENERAL

1. Update Industrial Site Analysis for the Coastal Zone to determine status of current conditions and potential land needs.

2. Review recent Industrial Siting Surveys conducted by the Harbor District and the County to determine if revisions to current land use designation and plan polices are warranted.

3. Review changes in Coastal Act policies regarding off shore oil drilling policies to determine conformance within the LCP's.

4. Update the Plans to include a reference that any on-shore support facilities for oil drilling operations must be approved by a referendum vote.

### 8.1 INDUSTRIAL AND ENERGY RESOURCE ISSUES: HBAP

5. Review industrial designation of the airstrip on the North Spit. Consider possible re-designation to recreation/open space.

6. The County has received a re-development plan for the Town of Samoa that would change available industrial capacity and amend industrial land use designations within the HBAP. Review the proposed plan and adjust accordingly.

# IX. PUBLIC WORKS AND SERVICES

Section 30254 requires that new or expanded public works facilities be "designed and limited" to accommodate development that can be permitted consistent with the policies of the Coastal Act. This section also provides that, where public works facilities serving new development are limited, priority shall be given to coastal dependent uses, essential services, public and commercial recreation, and visitor-serving land uses. The Coastal Act also provides that no term or condition may be imposed on the development of any sewage treatment plant relative to future development that can be accommodated consistent with provisions of the Coastal Act.

The availability of public services to accommodate future growth is an important factor to consider when updating the Local Coastal Plans. Information concerning existing demand and capacity, proposed or planned expansions, and potential constraints for each Community Service District (CSD) providing services are needed prior to making decisions on urban land use. In addition to addressing public service capacity, urban land use issues identified include:

- How do we ensure maximum coordination between new growth and availability of public services and infrastructure?

- How do we accommodate this growth without violating resource protection policies in the Coastal Act?

Much of the data needed to update the public services sections in the LCP's has been collected as a part of the Technical Background Studies prepared for the 2004 General Plan Update. In addition, data for water and sewer systems have been provided by LAFCo and local area Master Service Elements. Minor "tweaking" may be necessary to pinpoint specific issues related to service provided within the coastal zone boundary.

Public service issues addressed in these reports include water and sewer only. Solid waste and transportation issues are currently being reviewed on a countywide basis as a part of the General Plan Update, and will not be addressed separately in this report. Existing water and sewer community service districts specifically serving properties within the coastal zone are presented in Appendix B.

## *EXISTING CONDITIONS*

Overall, public services are not viewed as a constraint to future development and growth countywide (Dyett and Bhatia, 2002). Existing capacities, combined with proposed future expansions, would accommodate the needs of the projected growth. Generally, for water services in the coastal areas it was determined that:

- An ample water supply is available to the County's water service providers, most drawn from the Mad and Eel rivers.

- The Humboldt Bay Municipal Water District (HBMWD) takes its water from the Mad River and holds title to 75 million gallons per day (mgd). It serves 77,000 residents—59 percent of the County—in three cities and five local service districts, including Eureka, Arcata, and McKinleyville.

- The Fortuna area, which draws from the Eel River Delta aquifer, is the only major population center for which current flows approach the capacity of current facilities.

- Smaller community service districts in the coastal zone that are at or near their capacity for water category include: Big Lagoon, Loleta, Westhaven, and Trinidad.

Sewer service is provided to some of the more densely populated communities, but is not universal in the County. Six incorporated cities and numerous special districts have wastewater systems. The remainder of the county is served by individual septic systems, which are supposed to be pumped at least every five years for maintenance purposes.

In the past, inadequate storage capacity to handle wet weather runoff has resulted in violations of wastewater discharge requirements. Generally, for sewer services in the coastal areas it was determined that:

- Every district acknowledges that some repairs and improvements are necessary to the local sewer system.

- In winter, Arcata's treatment plant is often overwhelmed and Fortuna has had trouble with untreated water being discharged to the Eel River during storms.

- A number of cities and smaller districts are at or near their capacity for sewer service and may require facility improvements to address a significant increase in number of connections.

- Due to issues with wet weather flow, inflow/infiltration, and handling of solids, the cities of Eureka, Ferndale, Fortuna and Arcata, and the Loleta Community Services Districts may require system upgrades over the next twenty years if they experience significant growth increases.

The issues identified in this report focus on review of current conditions, urban reserve areas, and the adequacy of available land and public services to meet future demand. Public works policies need to be reviewed to identify areas where conflicts may occur with Coastal Act policies and determine the specific system upgrades that will be necessary to accommodate planned development.

## Relevant Coastal Act Policies: Public Works Facilities

- **Section 30254 Public works facilities**
- **Section 30250 Location; existing developed area**

## Summary of Public Works Issues

### PUBLIC WORKS ISSUES: GENERAL

1. Update Master Service Elements for service providers in the Coastal Zone to determine status of current conditions and needed upgrades.

2. Review updated public services data to determine if revisions to urban limit lines, urban reserve, current land use designation and plan polices are warranted.

### 9.1 PUBLIC WORKS ISSUES: NCAP

3. Update the plan to illustrate the new district boundaries for the Orick CSD (currently extending to RNP Headquarters). Also, Section 4.32 of the NCAP needs revision concerning the discussion of Urban Limit Lines.

4. Review and update the service area for the Big Lagoon estates (revise ULL as necessary).

5. Review current service connections for Big Lagoon Park to reflect recent acquisitions by the County of bluff properties. Determine status of certification with Coastal Commission for this area as a result of these recent acquisitions.

### 9.2 PUBLIC WORKS ISSUES: TAP

6. Review and update the water connection status for the Trinidad area regarding hookups outside the city limits (will these connections change the current ULL?)

7. Update the Plan to include Westhaven CSD information.

### 9.3 PUBLIC WORKS ISSUES: MKAP

8. Update the Plan to reflect construction of the wastewater treatment facility in McKinleyville.

9. Revise the Plan to include services provided by the Patrick Creek Subdivision CSD.

10. Review policies in newly adopted McKinleyville Community Plan to ensure compatibility for public works facilities.

11. Review ULL and Urban Reserve with current growth patterns and revise as necessary the extension of services.

## 9.4 PUBLIC WORKS ISSUES: HBAP

12. Multiple service provides operate within the HBAP planning area, often with overlapping service boundaries. Update the description of services provided/ district boundaries of the CSD's, and determine if the urban reserve boundaries and policy revisions are warranted.

13. Review sewer capabilities in Manila to determine future development capacity.

14. Review and revise as necessary "Public Services – Rural" section for expansion of services to the rural areas around Mitchell Heights.

## 9.5 PUBLIC WORKS ISSUES: ERAP

15. Update services provided to Arlynda Corners and review plan policies for necessary revisions.

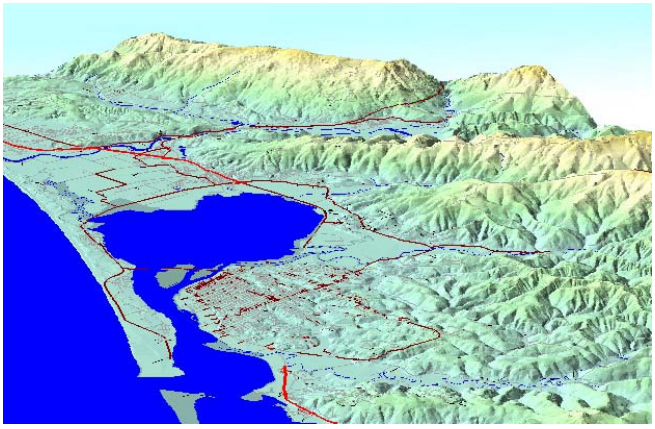
16. Review and update the serviceable areas outside the Ferndale City limits and determine if plan policies are required.

## 9.6 PUBLIC WORKS ISSUES: SCAP

17. Update water connections cap for the RID#1. Review plan policies for possible revisions for CDP allocation process and capacity reserve requirement for coastal dependent developments.

18. Review sewer system capacity and allocated service connections for RID# and update existing plan policies if necessary.

# X. HOUSING AND DEVELOPMENT NEEDS



The California Coastal Act requires that Local Coastal Plans "protect, encourage, and where feasible, provide housing opportunities for families or individuals of low or moderate income" in areas along the coast (Humboldt County Housing Study, 1980). As seen throughout the state, land costs adjacent to the coastline tend to be much higher than those found inland; often driving low and moderate income families away from coastal areas. One goal of the act is to protect coastal resources for all residents of the State by requiring local governments to build into approved LCP's some compensating mechanism to assure continued access to coastal housing for all.

The Coastal Act also requires that development occur in accordance with adopted policies of the local Housing Element of the General Plan. The most recent update to the Housing Element occurred in 1998. The Coastal Commission; however, has not yet approved the proposed revisions of the 1998 Housing Element for the Coastal Planning area. The County has prepared a Draft Housing Element, proposed for adoption in December of 2003. The housing needs identified as a part of the Draft Housing Element are proposed to be incorporated as a part of the Local Coastal Plan updates.

The County recently approved re-development funding for the areas of Samoa/Fairhaven, Fields Landing and Orick. Re-development of the Samoa area is currently being designed by a private re-development firm and will likely go through the public hearing process as a separate LCP amendment package. The proposed re-development by the County is not anticipated to affect current land use designations currently found in the LCP's.

### *COUNTY HOUSING ISSUES*

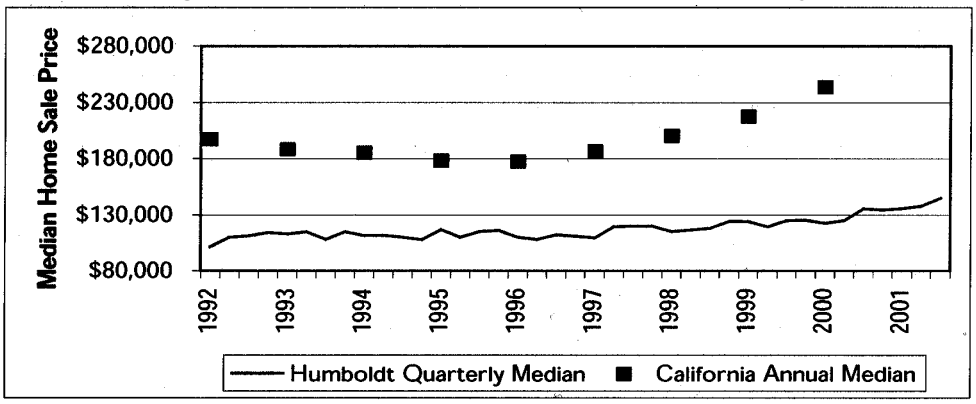
The 1979 Local Coastal Plans Housing Background Study identified that the concentration of population in Humboldt County occurred in the near-coastal communities between Trinidad and Fortuna. At that time, there was no identifiable shortage of housing units with the vacancy rate consistently at six percent. The majority of substandard housing conditions and low-income families located in the coastal areas were found predominantly in portions of McKinleyville, Manila, King Salmon and Fields Landing.

The 1998 Housing Element documented that although growth in housing stock kept pace with the increase in population, there was substantial erosion in the affordability of housing between 1980 and 1990. Growth in household income did not match the increase in the cost of housing and as a result, more people "overpaid" (paid more than 25% of their income) for housing in 1990 than in 1980. Very low income renters continued to pay more of their income for housing

than any other group; in 1990, 93% of their very low income households paid more than 25% of their income for housing up from 88% in 1980.

A continuation of this trend was found in the 2000 Census data and documented in the Draft 2003 Housing Element Draft. The percentage of low, low-income households paying more than 25% of their income on housing has actually risen to 97%. The affordability of housing has dropped significantly since 1990 as housing prices have risen over 52%. According to the Census 2000, the median house value in Humboldt County was $133,500, which is up $45,500 (52%) from the 1990 figure, a rather alarming increase of more than 5% each year. This compares to an average sales price of $129,000 in 2000 according to information provided by the Association of Realtors. The Association of Realtors has documented that the average sales price rose from $129,000 in 2000 to XXXXXX for 2003. The following figure shows the trends in housing prices tracked by the Association of Realtors over the past decade.

**Figure 10 Median Home Sales Prices in Humboldt County 1992 - 2001**




*Sources: Humboldt County Association of Realtors, 2001(Humboldt data), California Statistical Abstract, 2001 (California data)*

The trends for rental housing are a bit less dramatic. In 2000 the median monthly gross rent payment (including utilities) in Humboldt County was $461, up from $344 in 1990, an increase of 3.4% each year. The Statewide figure rose from $561 to $677 during this same time period.

## NOMADIC HOUSEHOLDS

Nomadic households belong to a generally unnoticed demographic segment of the population that resides throughout the year in various campgrounds, parks, and other sites both public and private (2003 Draft Housing Element). The nomadic population distinguishes itself from other forms of housing styles by staying on the move. Typically, the nomadic population will utilize recreational vehicle parks intended for short-term recreational uses, rather than mobilehome parks, permitted for residential uses.

The Coastal Zoning Ordinance distinguishes between Manufactured Home Parks ("mobilehome" parks) and Recreational Vehicle Parks (including campgrounds) based upon the tenure of the residency. Manufactured Home Parks are considered a Residential Use Type and include the lease of a lot for a manufactured home or recreational vehicle on a more permanent basis.

Recreational Vehicle Parks are considered a Commercial Recreational Use Type and provides for the lease of a site for recreational vehicles or tents for temporary occupancy.

Recreational Vehicle Parks are designated a "principal use" in the Commercial Recreation land use designation in the County's Local Coastal Plans. The purpose of this designation is to "protect sites suitable for the development of commercial recreation facilities, and for visitor serving facilities appropriate to assure recreational opportunities for visitors to the area." The intent is to provide recreational facilities, i.e. campgrounds; that will be used by "visitors", not as a primary residence.

The majority of the Local Coastal Plans contain development policies for Recreational Vehicle Parks that allowed for a limited use of the park for permanent residential uses; however, the intent of the regulations were to provide for temporary recreational housing facilities. For example, the Trinidad Area Plan states:

> *325B(4) Residential Use of Recreational Facilities*
>
> *In an approved recreational vehicle park the residential occupancy of recreational sites by mobile homes shall be allowed up to 20%, but not to exceed a total of 10 such existing sites from June through August and up to 80%, but not to exceed 40 from September through May.*

Many of the spaces in Recreational Vehicle Parks located in the coastal zone are used as a primary residence by local residents, even if only on a temporary basis. A recent survey conducted by staff found that the RV parks in the North Coast and Trinidad Planning areas are full throughout the summer, with a large proportion of the use by local residents. The use in the winter months is primarily by local residents.

The demand for additional facilities for nomadic housing facilities was documented in both the 1993 and 1997 Housing Elements. The, 1993 Housing Element identified the need for at least 80 special occupancy park spaces to accommodate the needs of nomadic households in Humboldt County. The 1997 Housing Element assumed that with the 8.2% increase in overall population in unincorporated areas between 1990 and 2000, there would be a corresponding increase in the nomadic population, and approximately 89 special occupancy spaces would be needed.

The County inventoried properties for the 2003 Draft Housing Element that were being used as special occupancy parks, and identified a total of 37 sites in the unincorporated areas that could potentially accommodate the identified housing needs of the nomadic households. Further site specific study of these properties to assess the number of available sites is included as an implementation program of this Report.

## *NEW DEVELOPMENT*

The Coastal Act strives to focus new development in areas of close proximity to existing development with available public services. The policies were designed to minimize the impacts of "leap-frog" development that results in the construction of new roads, utilities and other

services. Section 30250 of the Coastal Act requires that new residential, commercial, or industrial development be located near existing developed areas, and where it will not have a significant adverse impact on coastal resources. Additionally, Section 30250 establishes that land division outside existing developed areas can only be permitted when fifty percent of existing parcels have already been developed and that the new parcels are no smaller than the average size of existing parcels.

The County is currently in the process of updating the General Plan for the inland portions of the County. As a part of this process, the existing land uses, vacant lands and anticipated future land demand for all areas in the County were determined. Staff then identified constraints to development in order to calculate "unconstrained" developable lands (the constraints summarized in this chapter are associated primarily with constraints for which there is a policy and/or legal basis for restricting or prohibiting development). Following is a brief description of the findings for both the coastal and non-coastal areas, and how this information relates to the development needs within the Coastal Planning Areas (more detailed analysis of this data can be found in the General Plan Background Reports titled *"Building Communities Report", February 2001* and *"Natural Resources and Hazards Report", October, 2002).*

## EXISTING LAND USE

Land in the Coastal Zone accounts for less than one-twentieth of the County's total unincorporated acreage. Approximately 113,000 acres of the 2.3 million acres in Humboldt County are located in the Coastal Zone. Of the 103,000 acres located within the unincorporated Coastal Zone boundary, approximately 46% is in either public ownership or tribal lands.

Comparing the unincorporated Coastal Zone and the remainder of the unincorporated County, most land uses occur in similar proportions; the most significant difference is in the inventory of agriculture and timber lands. In the Coastal Zone, agriculture and grazing land account for 46.6 percent of total land use, while timber production covers 14.1 percent; in the remainder of the unincorporated County, the proportions are almost exactly switched (13.7 percent agriculture and 46.5 percent timber).

**Table 1: Existing Land Use in the Unincorporated Coastal Zone**

| LAND USE | ACREAGE | PERCENTAGE |
|---|---|---|
| Rural Residential | 4,491.7 | 4.4% |
| Single-Family Residential | 1,165.8 | 1.1% |
| Multi-Family Residential | 107.6 | 0.1% |
| Commercial | 628.4 | 0.6% |
| Light Industrial | 5.2 | 0.01% |
| Heavy Industrial | 757.3 | 0.7% |
| Public and Semi Public | 2,2024.7 | 2.0% |
| Open Space/Parks | 27,263.9 | 26.5% |
| Agriculture and Grazing | 48,008.5 | 46.6% |
| Timber Production | 14,485.3 | 14.1% |
| Tribal Lands | 62.0 | 0.1% |
| Vacant Lands (Urban)* | 996.5 | 1.0% |
| Vacant Lands (Unclassified* | 2,926.2 | 2.8% |
| **Total** | **102,923.0** | **100.0%** |

*Vacant Urban lands refer to vacant lands with single-family, multi-family, commercial or industrial designations, while Vacant Unclassified Lands encompass all rural residential land and land without a use description in the Assessors records.

Source: Humboldt County GIS, 2002

Commercial and industrial uses occupy an area that is about 64.1 percent of the size of the total amount of land devoted to residential land use; commercial land use represents 46 percent of the total and industrial use accounts for 54 percent. Twenty-two percent of the total commercial land use in unincorporated areas of the county is within the Fortuna and McKinleyville planning areas, and another 18 percent is in the North Coast Coastal Zone Plan Area. Forty percent (753 acres) of the total industrial land use in unincorporated areas of the county is within the Humboldt Bay Coastal Zone Plan Area, which includes the company town Samoa.

## POPULATION

According to the 2000 Census, the total population in Humboldt County was 126,518. The distribution of people within the County is illustrated graphically in Figure ??. Humboldt County's population growth rate increased in the late 1980s and early 1990s and has since returned to a level more consistent with historic growth rates over the past 20 years. Between 1985 and 1990, the County grew by about 8,000 people (7.3 percent), with an average annual increase of 1.4 percent. The total unincorporated population of the county grew 18.6 percent between 1980 and 2000, rising from 56,688 to 67,242 people (Dyett and Bhatia, 2002).

The total population within the Coastal Zone Planning Areas according to the 2000 Census was 19,380 (this total includes the population data for the incorporated areas within the Coastal Zone). This accounts for approximately 15% of the total County population. As expected, the

largest population concentration is found in the Humboldt Bay Planning Area with just under 13,000 people (Table 2).

**Table 2: Population within Coastal Zone**

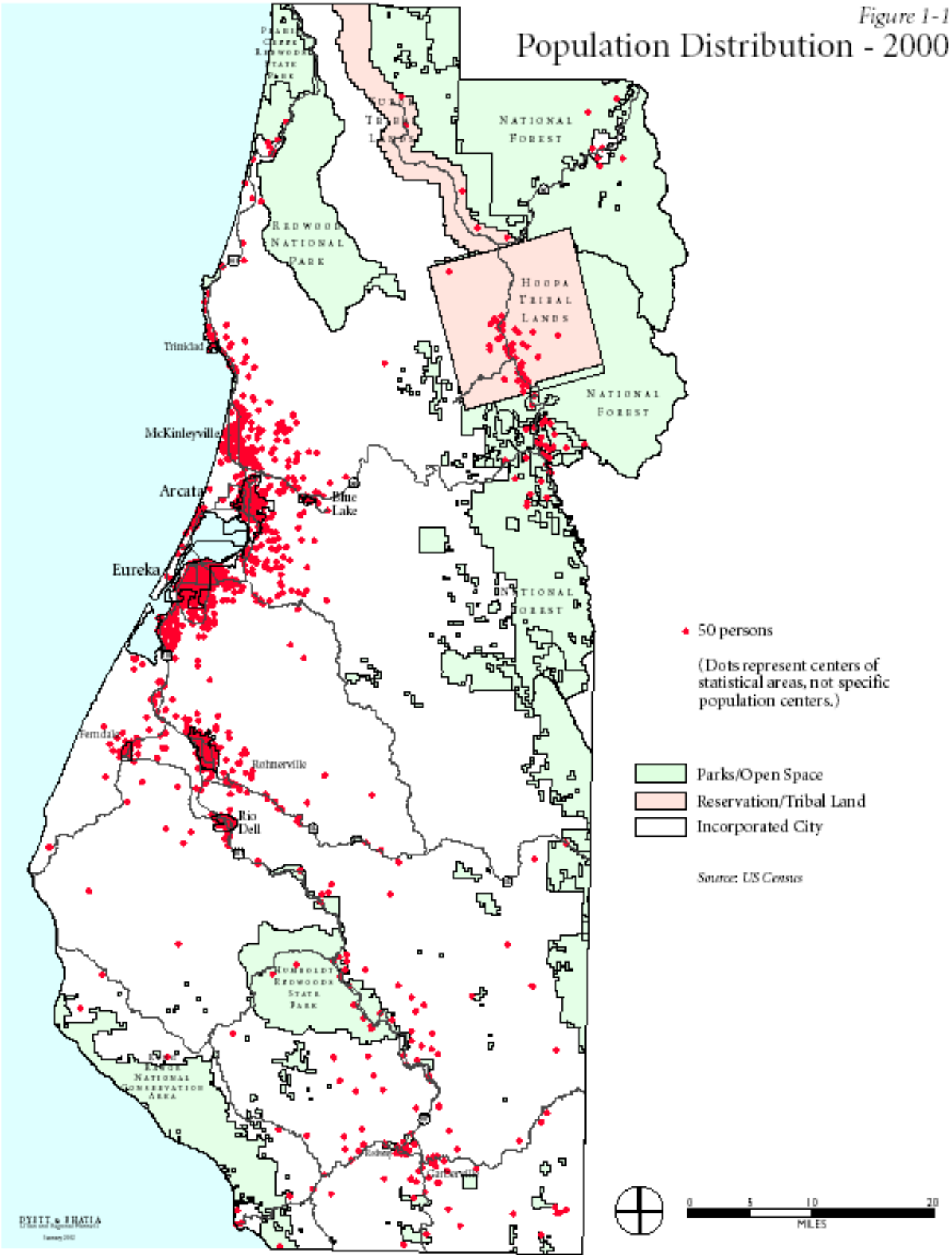
| Coastal Zone Planning Area | Population |
|---|---|
| North Coast Planning Area | 459 |
| Trinidad Planning Area | 1,416 |
| McKinleyville Planning Area | 2,327 |
| Humboldt Bay Area Plan | 12,647 |
| Eel River Planning Area | 2,154 |
| South Coast Planning Area | 377 |
| **Total:** | **19,380** |

Source: Humboldt County GIS, 2002, US Census, 2000

The primary growth areas of the county are found in the community of McKinleyville and the cities of Arcata and Fortuna, which accounted for 32.3 percent of the population in 2000, up from 29.3 percent in 1990. By comparison, according to the U.S. Census and DOF, Eureka's population dropped slightly in the 1990s, with growth occurring in the surrounding communities of Cutten, Bayview, and Humboldt Hill. McKinleyville has been the most consistently high-growth unincorporated community in Humboldt County for the past 20 years, averaging nearly three percent growth per year.

*Figure 1-1*

# Population Distribution - 2000



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## EXISTING DEVELOPMENT

Excluding residential land within the incorporated cities, just under 5,300 acres of land is developed for residential use within the 22 Community Planning Areas and six Coastal Zone Plan Areas, and another 150 acres are developed in the remainder of the unincorporated County. About 50.1 percent of the total is within the Eureka and McKinleyville planning areas. Nine out of ten acres of developed residential land is for single-family use; multi-family housing occupies only 610 acres.

Developed residential land in the unincorporated coastal zone areas accounts for 23.4% of all residential development in the County at just under 1,300 acres. Almost 90% (1097.5 acres) of this total is within the Humboldt Bay and McKinleyville coastal planning areas. The majority of these properties are developed with single-family residential, with multifamily residential developments occupying only 8.5% of the total. Multi-family residential development is located primarily in the Humboldt Bay and Eel River planning areas.

Forty percent of all commercial development in the unincorporated areas in the county occurs in the Coastal Zone. Almost half of this is located in the North Coast planning area with 289 acres (this planning area accounts for 18 percent of the total commercial land use in unincorporated areas of the county). The Trinidad and Humboldt Bay coastal planning areas follow this with both containing around 145 acres.

Industrial development occurs only in the Eel River and Humboldt Bay coastal planning areas. Forty percent (753 acres) of the total industrial land use in unincorporated areas of the county is within the Humboldt Bay Coastal Zone Plan Area, which includes the company town Samoa. Most of the unincorporated industrial land is designated for timber products processing only, as overlay zoning applied to many of these industrial areas prohibits other industrial uses.

## *CONSTRAINTS TO DEVELOPMENT*

The key constraints addressed in the analysis of vacant lands for the General Plan Update included geological hazards, unstable slopes, flood zones, sensitive species, wetlands, and agricultural soils, all of which are defined by one or more of the State open space categories. No timberlands occur on any of the vacant residential, commercial, or industrial sites within the Coastal Zone, and, therefore, timberlands are not further addressed in this chapter. Land designated as TPZ was excluded from the vacant land inventory in the Building Communities report and thus is not considered as available land for future development.

It is important to note that the presence of a constraint does not necessarily mean that the land is rendered unsuitable for development. The constraints mapping suggests one of three possible scenarios depending on the hazard, potential fragility of the resource, size/location of the vacant development site, and other factors:

- All development should be prohibited (e.g., floodways or steep slopes with severe instability);
- Development should be permitted only on part of the land and the remainder preserved as open space for resource conservation and/or resource production; or

• Development should be permitted subject to site plan review and imposition of conditions to protect against hazards

For example, there are many mitigation measures and site design practices available that could offset development impacts on sensitive biological resources and provide opportunities for utilization of at least a portion of the land for residential or commercial uses.

## SUMMARY OF CONSTRAINTS ANALYSIS

The constraints analysis conducted county-wide identified a total of over 10,000 acres of residential land that may be available for future development. Of this total, approximately 4,325 acres are in the large lot rural residential category (parcel sizes greater than 5 acres), leaving about 6,675 acres for potential single-family, multi-family, and estate (one to five acre parcel size) rural residential development.

Approximately 7,220 acres of vacant residential land and 373 of vacant non-residential lands in CPAs or Coastal Zone Planning Areas are subject to resource and/or hazard constraints. However, the consultant identified approximately 2,117 acres of unconstrained vacant residential lands and 106 unconstrained non-residential lands within the coastal zone planning areas.

Acreages represent those lands with one or more identified resource or hazard constraints versus lands with no identified constraints. The severity of the constraint depends on the type of constraint and whether multiple constraints are found on a particular vacant site. Please note that site-specific investigations will be needed to determine the precise amount of available land. Also, analysis of constraints such as roadway access, public utilities availability, and water supply may affect the overall amount of available land.

The following sections identify and quantify specific constraints and opportunities for each Coastal Zone Planning Area for residential uses.

## *VACANT RESIDENTIAL LANDS WITHIN THE COASTAL ZONE PLANNING AREAS*

***North Coast.*** Most of the land designated for residential or commercial development in the CPZA is not significantly affected by constraints. Steep or unstable slopes are a constraint on rural residential land in the southern portion of the CPZA. 100-year flood zones and agricultural soils are constraints, primarily in the area near the town of Orick.

| *Coastal Zone Planning Area* | *Hazards/Resources: Constrained* | *Hazards/Resources: Not Constrained* |
|---|---|---|
| **North Coast:** | | |
| Rural Residential | 62.2 | 699.4 |
| Single-Family Residential | 0 | 1.3 |
| ***Total Potentially Available Acres*** | | **700.7** |

***Trinidad.*** The primary constraint in the CPZA is agricultural soils although steep or unstable slopes and Alquist-Priolo zone is a significant constraint around the City of Trinidad. Agricultural soils affect 152 of the 526 acres of rural residential land, mostly in the northern section of the CPZA.

| *Coastal Zone Planning Area* | *Hazards/Resources: Constrained* | *Hazards/Resources: Not Constrained* |
|---|---|---|
| **Trinidad:** | | |
| Rural Residential | 200.2 | 547.4 |
| Single-Family Residential | 0.8 | 2.0 |
| ***Total Potentially Available Acres*** | | **549.4** |

***McKinleyville.*** The primary constraints in the CPZA are Alquist-Priolo zone and agricultural soils. Agricultural soils are present mostly along the eastern edge of the CPZA, affecting all of the vacant commercial and industrial land, and most of the vacant single-family residential land. Some rural residential land which may be available for development is scattered along Highway 101 in the southern portion of the CPZA.

| *Coastal Zone Planning Area* | *Hazards/Resources: Constrained* | *Hazards/Resources: Not Constrained* |
|---|---|---|
| **McKinleyville:** | | |
| Rural Residential | 55.6 | 27.1 |
| Single-Family Residential | 21.6 | 0.1 |
| ***Total Potentially Available Acres*** | | **27.2** |

***Humboldt Bay.*** The most significant constraint, in terms of area, is wetlands which cover much of the northern, eastern, and southern section of the CPZA. Alquist-Priolo zone, 100- year flood zone, and agricultural soils are the other primary constraints in the area, and are present throughout the CPZA. Vacant land which may be available for development in rural-residential, single-family residential, and industrial designations are scattered throughout the CZPA.

| *Coastal Zone Planning Area* | *Hazards/Resources: Constrained* | *Hazards/Resources: Not Constrained* |
|---|---|---|
| **Humboldt Bay:** | | |
| Rural Residential | 256.9 | 273.3 |
| Single-Family Residential | 24.2 | 81.5 |
| Multi-Family Residential | 5.5 | 0.0 |
| ***Total Potentially Available Acres*** | | |

***Eel River.*** Most of the vacant residential land in the CPZA is constrained, primarily by 100-year flood zone, agricultural soils, and wetlands, mostly along the Eel River. Most of the vacant single and multi-family residential land is constrained but approximately 46 of the 223 acres of vacant rural residential land may be available for development.

| *Coastal Zone Planning Area* | *Hazards/Resources: Constrained* | *Hazards/Resources: Not Constrained* |
|---|---|---|
| **Eel River:** | | |
| Rural Residential | 176.8 | 46.0 |
| Single-Family Residential | 23.8 | 0.0 |
| Multi-Family Residential | 1.5 | 0.2 |
| ***Total Potentially Available Acres*** | | |

***South Coast.*** Much of the land potentially available for higher density or intensity development is in the area around Shelter Cove. Steep and unstable slopes, and Alquist-Priolo zones are the primary constraint in this area. Rural residential land, potentially available for development is located outside the Shelter Cove area.

| *Coastal Zone Planning Area* | *Hazards/Resources: Constrained* | *Hazards/Resources: Not Constrained* |
|---|---|---|
| **South Coast:** | | |
| Rural Residential | 2.4 | 229.9 |
| Single-Family Residential | 145.8 | 208.8 |
| ***Total Potentially Available Acres*** | | **438.6** |

## RESIDENTIAL AND NON RESIDENTIAL LAND DEMAND

The total projected countywide residential land demand for Year 2025 is 3,120 acres, as calculated in the *Building Communities Report* (Dyett and Bhatia, 2002). This total includes a demand of 604 acres in areas served by public sewers and 2,516 acres in areas not served by public sewers. The total projected countywide non-residential land demand is 275 acres.

The consultant projected that at the current rate of growth, the land demand in the coastal zone planning areas for Year 2025 would be approximately 586 acres. Of this total, 250 acres would be sewered and 337 acres would be located outside sewered areas. Based upon the constraints analysis presented in the *Buildings Communities Report* (and referenced throughout the chapter), vacant residential land currently exceeds the anticipated demand by Year 2025 within the coastal zone.

The consultant projected that at the current rate of growth, the land demand for non-residential development in the coastal zone planning areas for Year 2025 would be approximately 27 acres. Based upon the constraints analysis presented in the Buildings Communities Report (and referenced throughout the chapter), vacant non-residential land currently exceeds the anticipated demand by Year 2025 within the coastal zone.

## Relevant Coastal Act Policies: Housing

- **Section 30213 Public works facilities**
- **Section 30250 Location; existing developed area**
- **Section 30116(f) Sensitive Coastal areas: low income housing**

## Summary of Housing and Development Issues

### HOUSING AND DEVELOPMENT ISSUES: GENERAL

1. Review 1998 Housing Element policy recommendations and incorporate into the LCP Amendments.

2. Review 2003 Draft Housing Element identified housing needs and proposed ordinance revisions and incorporate into the LCP Amendments.

3. Review findings for vacant lands survey for LCP areas and revise accordingly.

4. Review nomadic housing issues and revise LCP's accordingly.

## NEXT STEPS….

The purpose of the Issue Identification Report is to outline needed revisions to the Local Coastal Plans (LCP). These proposed revisions include both minor updating of baseline information contained in the plans and revisions that may drastically alter existing plan policies.

After release of the report, public workshops will be conducted to solicit comments on the report. Staff will review these comments and prepare a revised Issue Identification report. This Report will guide research and preparation of the draft LCP amendments. A Hearing Draft of the LCP amendments will then be circulated for public review. Public hearings will be conducted before the Humboldt County Planning Commission, Board of Supervisors and the California Coastal Commission, with final review authority resting with the state Coastal Commission.

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# APPENDIX A
## Table 1[1]

| Federal and State Listed Species in Humboldt County | | |
|---|---|---|
| *Scientific Name* | *Common Name* | *Occurrences* |
| Astragalus agnicidus | Humboldt Milk-Vetch | 5 |
| Bensoniella oregona | Bensoniella | 5 |
| *Brachyramphus marmoratus* | Marbled Murrelet | - |
| Charadrius alexandrinus nivosus | Western Snowy Plover | 6 |
| Empidonax traillii | Willow Flycatcher | 1 |
| Erysimum menziesii ssp eurekense | Humboldt Bay Wallflower | 6 |
| Eucyclogobius newberryi | Tidewater Goby | 6 |
| Falco peregrinus anatum | American Peregrine Falcon | 2 |
| Haliaeetus leucocephalus | Bald Eagle | 5 |
| Layia carnosa | Beach Layia | 10 |
| Lilium occidentale | Western Lily | 9 |
| Oncorhynchus clarki clarki | Coast Cutthroat Trout | 32 |
| Oncorhynchus kisutch | Coho Salmon-Central CA ESU | 3 |
| Oncorhynchus mykiss irideus | Summer-Run Steelhead Trout | 6 |
| Oncorhynchus mykiss irideus | Northern California Steelhead Trout | - |
| Oncorhynchus tshawytscha spring-run | Spring-Run Chinook Salmon | 1 |
| Ralluslongirostris obsoletus | California Clapper Rail | 1 |
| Riparia riparia | Bank Swallow | 1 |
| Strixoccidentalis caurina | Northern Spotted Owl | 318 |
| Thlaspi californicum | Kneeland Prairie Pennycress | 1 |

[1] Table 1 shows a complete list of federal and state listed species for the County. As summarized in Table 2, there are six federally listed endangered species, seven federally listed threatened species, and two federal candidate species in Humboldt County.

TABLE 2

| **Summary of Special Status Species in Unincorporated Humboldt County [2]** | |
|---|---|
| *Status* | *Number of Species* |
| Federal Endangered | 6 |
| Federal Threatened | 7 |
| Federal Candidate | 2 |
| State Endangered | 10 |
| State Threatened | 2 |
| State Rare1 | 1 |
| DFG Species of Special Concern2 | 24 |
| CNPS* Rare or Endangered in CA and elsewhere | 25 |
| CNPS* Rare or Endangered solely in CA | 30 |

[2] The marbled murrelet (*Brachyramphus marmoratus*) and the Northern California steelhead (*Oncorhynchus mykiss irideus*) are not included in the CNDDB, therefore occurrences and watershed information is not available through GIS. Both are federally listed as threatened; the marbled murrelet is also listed as endangered by the State.

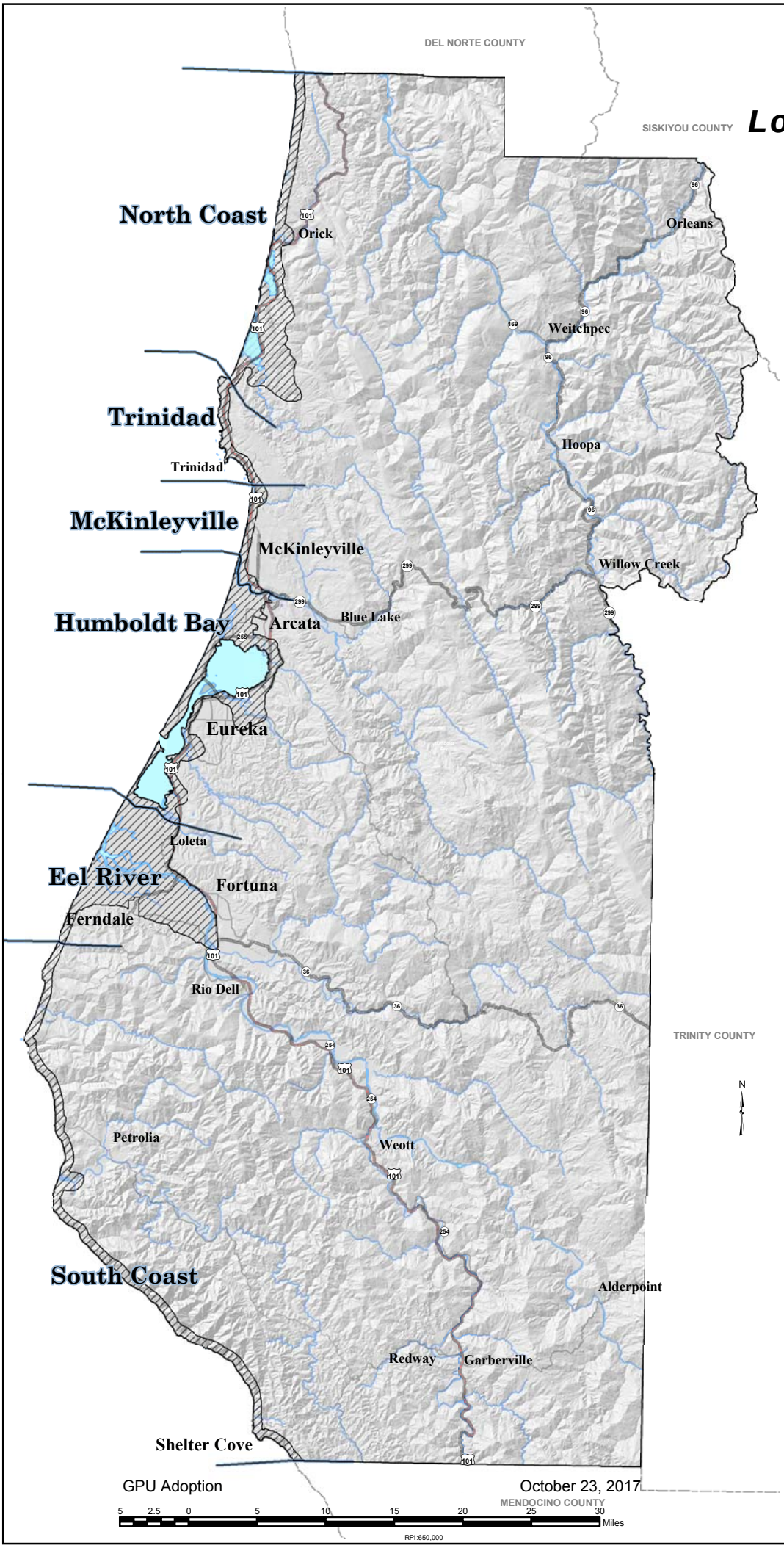
# APPENDIX B
## Table 3
## COASTAL ZONE CSD'S
### Water and Sewer Services

| LCP AREA | CSD | SERVICES | MSE[1] | MAP[2] |
|---|---|---|---|---|
| **NCAP:** | | | | |
| | Orick CSD | Water only | ✓ | ✓ |
| | Big Lagoon Park | Water only (Corp and LP) | ✓ | ✓ |
| | Big Lagoon Estates | Private –water only | | |
| **TAP:** | | | | |
| | City of Trinidad | Water only | ✓ | ✓ |
| | Westhaven CSD | Water only | ✓ | ✓ |
| **MKAP:** | | | | |
| | McKinleyville CSD | Water/sewer | ✓ | ✓ |
| | Patrick Creek CSD | Water only (McK CSD) | ✓ | ✓ |
| **HBAP:** | | | | |
| | Humboldt CSD | Water/sewer[3] – Eureka, King Salmon, Fields Landing | ✓ | ✓ |
| | City of Arcata | Water/sewer | ✓ | ✓ |
| | Manila CSD | Water/sewer | ✓ | ✓ |
| | City of Eureka | Water/sewer | EIR | ✓ |
| | HBMWD | Water only (services seven municipalities[4]) | ✓ | |
| **ERAP:** | | | | |
| | Loleta CSD | Water/sewer | ✓ | ✓ |
| | City of Fortuna | Water/sewer | ✓ | ✓ |
| | City of Ferndale | Water[5]/sewer | ✓ | ✓ |
| | Riverside CSD | Water only | ✓ | ✓ |
| **SCAP**: | | | | |
| | Shelter Cove RID#1 | Water/sewer | ✓ | ✓ |

[1] Master Service Element has been prepared for the district
[2] The Sevice District has been mapped by the County's GIS program
[3] The City of Eureka and the HCSD water services are interconnected at various locations allowing for transfer of services within each other's district. Service interdependence extends to sewer disposal as well.
[4] Cities of Eureka, Arcata, Blue Lake and Humboldt CSD, McKinleyville CSD, Fieldbrook CSD and Manila CSD
[5] The City of Ferndale and Arlynda Corners receives water from Del Oro Water Company

# Figure 1

# Local Coastal Program Planning Area Boundaries




This map is intended for display purposes and should not be used for precise measurement or navigation. Data has not been completely checked for accuracy.

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Adobe Acrobat File: H:\gis1\admin\cz\czareas.pdf

Map compiled by Humboldt County Community Development Services (HCCDS) - Advance Planning Division, July 2003.

Map Location

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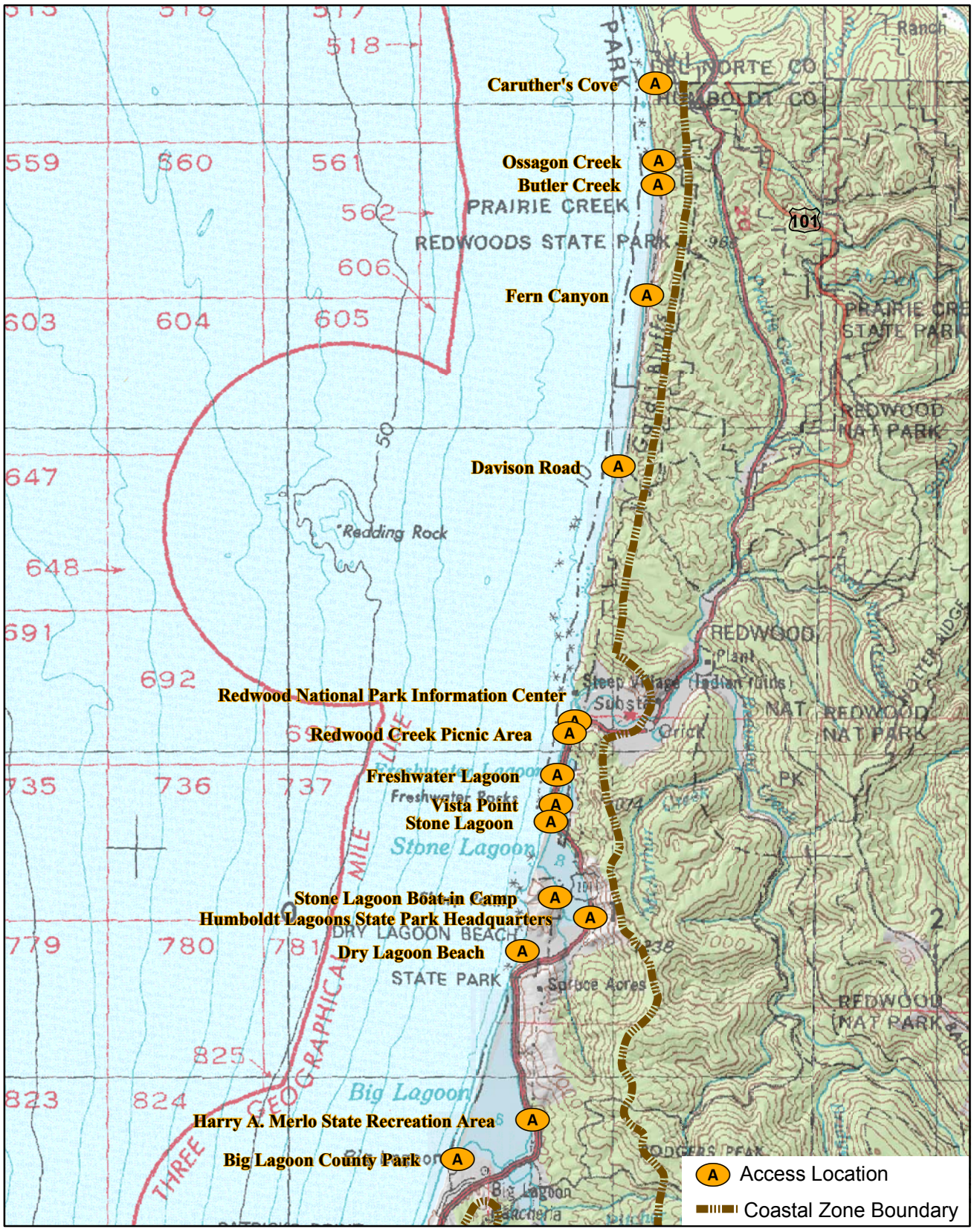
# North Coast Coastal Access Inventory



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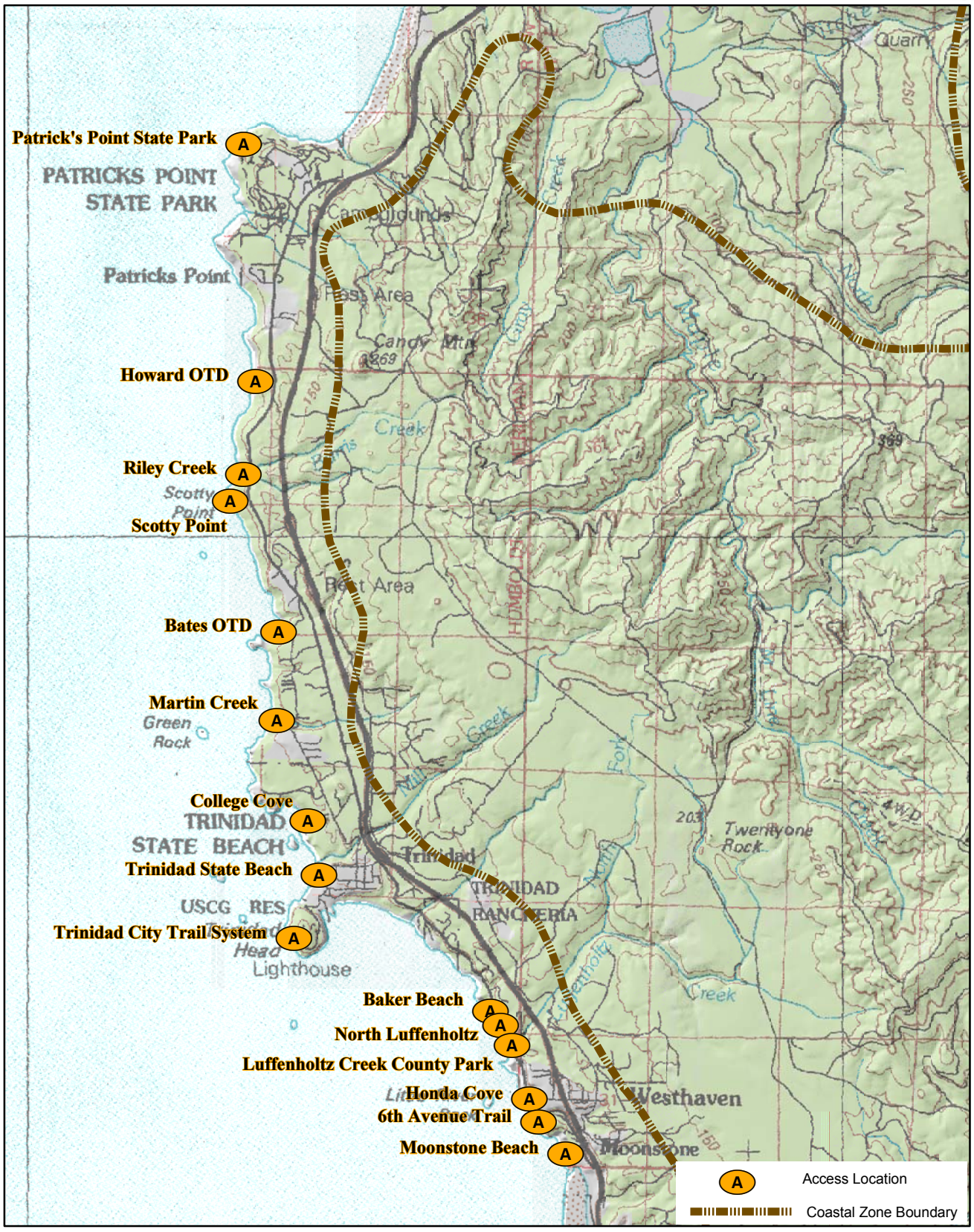
# Trinidad Coastal Access Inventory

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# McKinleyville Coastal Access Inventory

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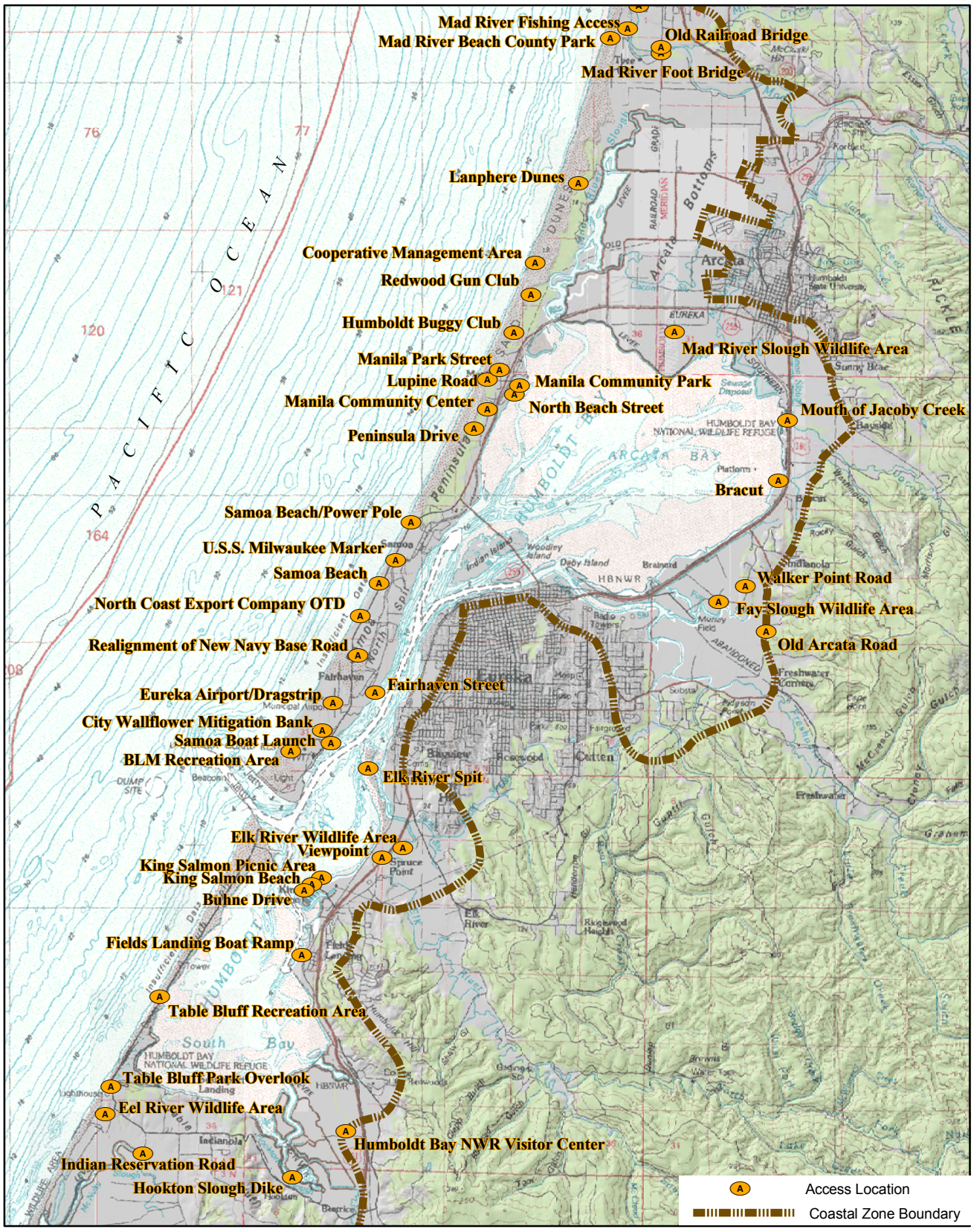
# Humboldt Bay Coastal Access Inventory






This map is intended for planning purposes and should not be used for precise measurement. Information has not been completely checked for accuracy.
Map compiled by Humboldt County Community Development Services (HCCDS) - Advance Planning Division, May 2003.

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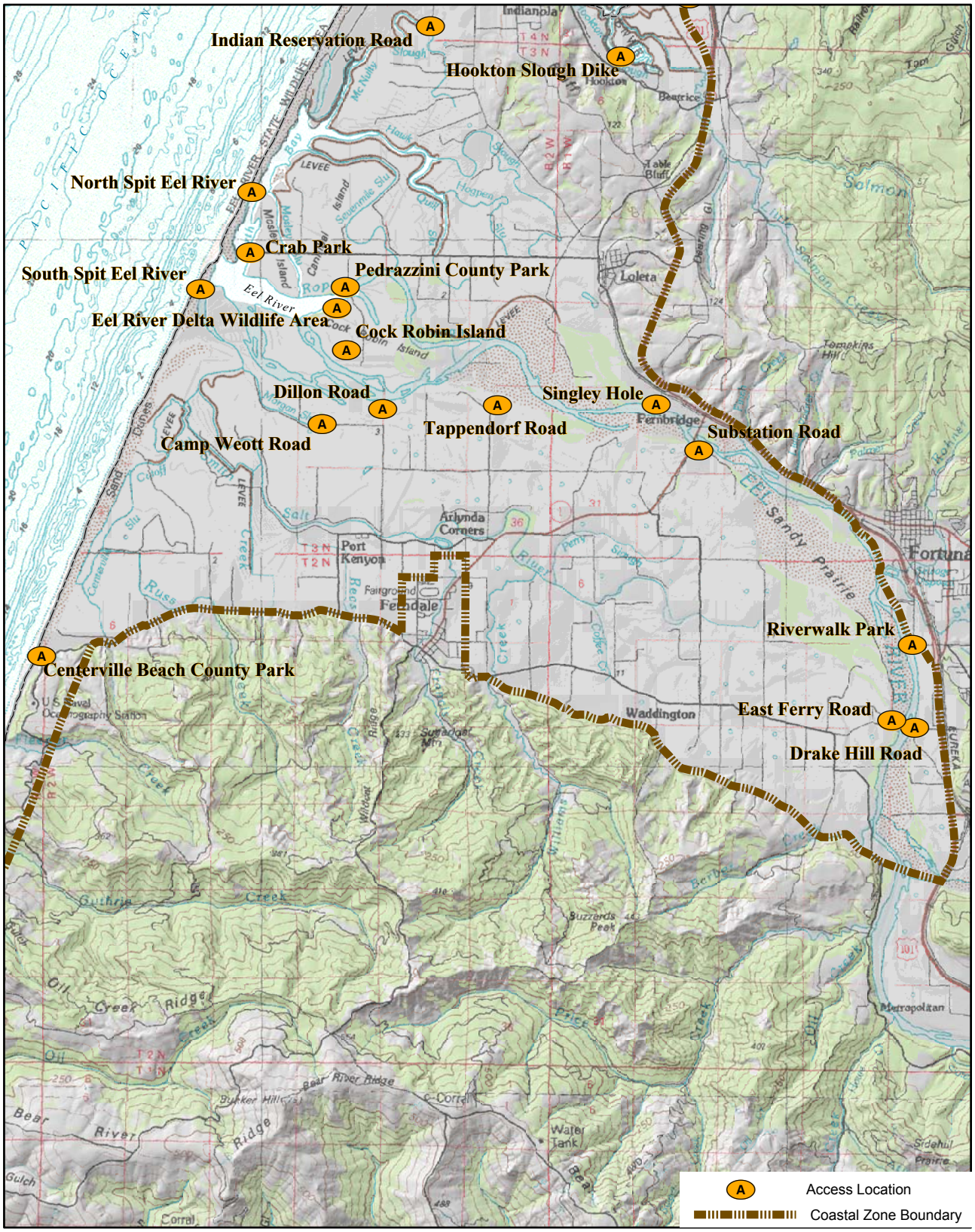
# Eel River Access Inventory

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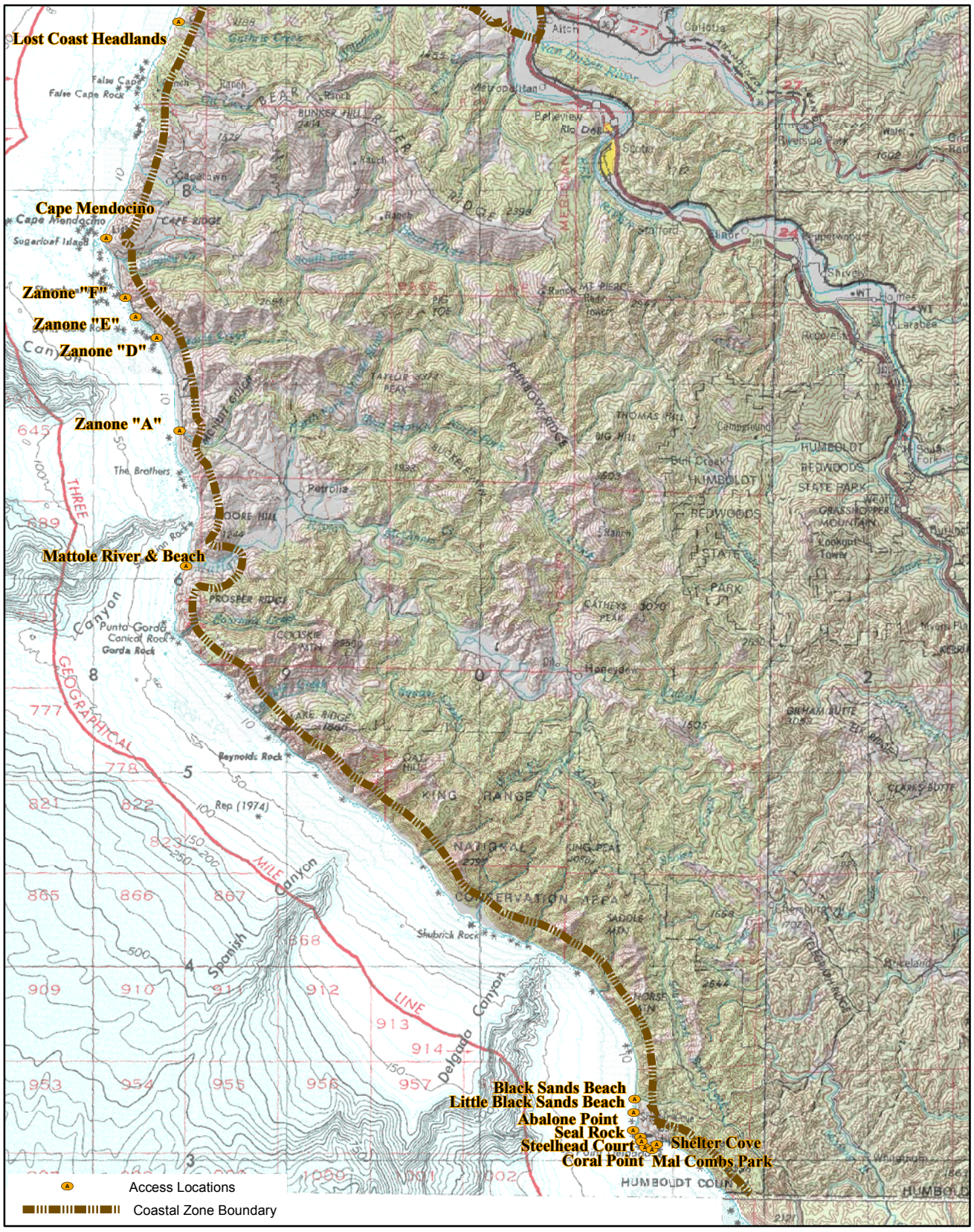
# South Coast Coastal Access Inventory



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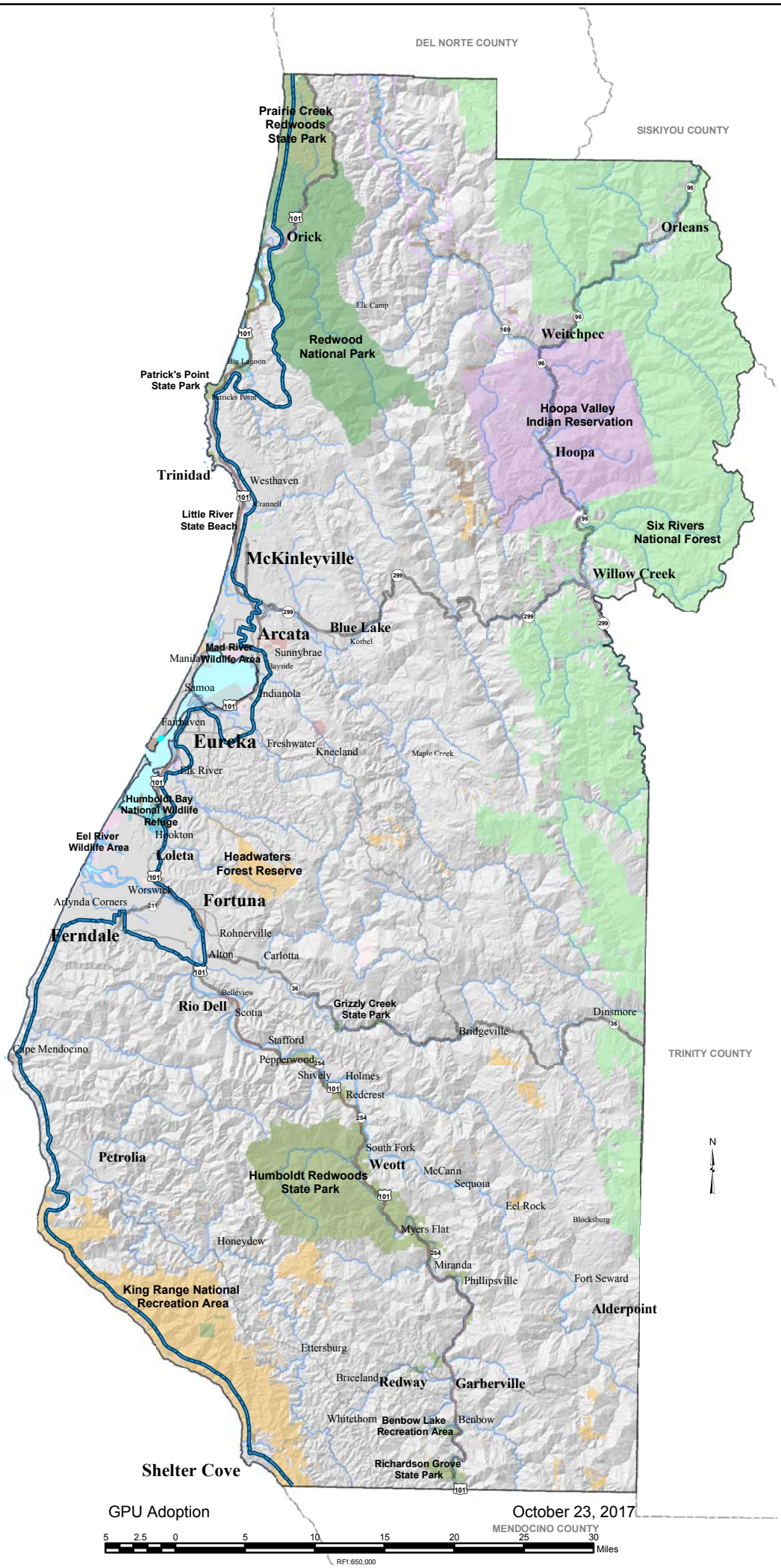


# Figure 8

# Humboldt County Public Lands

## Legend

- Coastal Zone Boundary

**Public Lands**

**Federal Lands**

- Burea of Land Managment
- Humboldt Bay National Wildlife Refuge
- Redwood National Park
- National Forest
- Other Federal Lands

**Tribal Lands**

- Hoopa Valley Indian Reservation
- Other Tribal Lands

**State of California Lands**

- California Department of Fish and Game
- State Beach, Park, or Recreation Area
- College of the Redwoods or HSU
- Other State Lands

**Local Lands**

- County Parks
- City Parks
- Other City, County, or Local Agency

This map is intended for display purposes and should not be used for precise measurement or navigation. Data has not been completely checked for accuracy.

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Map compiled by Humboldt County Community Development Services (HCCDS) - Advance Planning Division, July 2003.

Map Location

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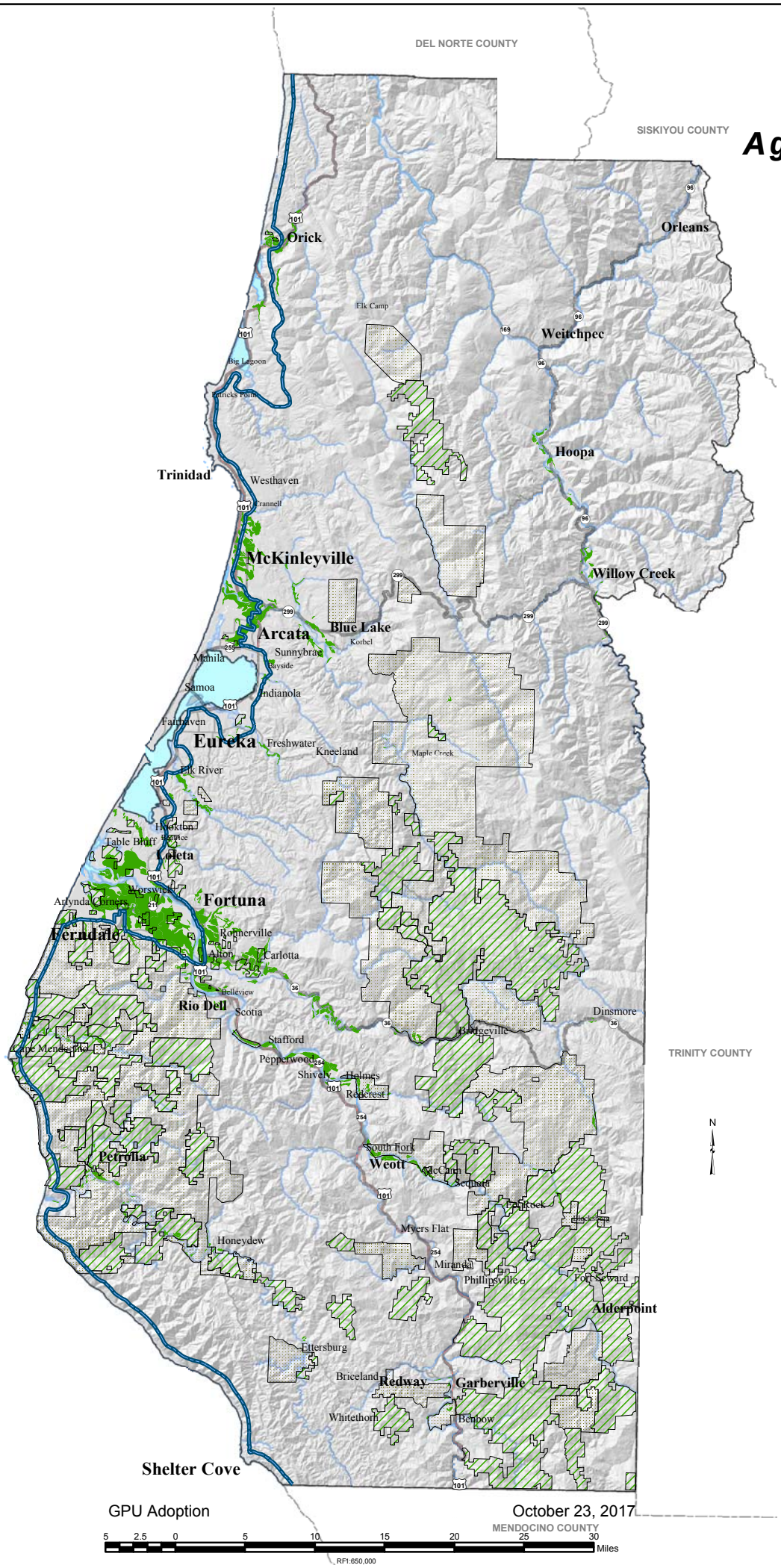
# Figure 9

# Agricultural Preserves, Grazing Areas, & Prime Soils




## Legend

- Coastal Zone Boundary
- Agricultural Preserves
- Grazing Areas
- Prime Soils (Grade 1)

This map is intended for display purposes and should not be used for precise measurement or navigation. Data has not been completely checked for accuracy.

ArcMap 8.2 Map File: Humco\\c:\aprs\czagpres.mxd

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Map Location

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# Appendix P

Water Resources Technical Background Report

# DRAFT WATER RESOURCES TECHNICAL REPORT

## For:

## Humboldt County Community Development Division

## DRAFT REPORT

November 2007

Prepared for:

County of Humboldt
Community Development Division

Eureka, CA 95501

Prepared by:

**Winzler & Kelly Consulting Engineers**
633 Third Street
Eureka, CA 95501
Tel: 707.443-8326
Fax: 707.444-8330

## TABLE OF CONTENTS

## Figures & Tables



### List of Acronyms

| | |
|---|---|
| AFY | Acre Feet per Year |
| BAT | Best Available Technology |
| BCT | Best Conventional Pollutant Control Technology |
| BMPs | Best Management Practices |
| CCAs | Critical Coastal Areas |
| CEQA | California Environmental Quality Act |
| cfs | Cubic Feet per Second |
| CTR | California Toxics Rule |
| CWA | Clean Water Act |
| $ft^3/yr$ | Cubic Meters per Year |
| HA | Hydrologic Areas |
| HR | Hydrologic Region |
| HSA | Hydrologic Sub-Areas |
| MCLs | Maximum Contaminant Levels |
| MMM's | Minimum Management Measures |
| MEP | Maximum Extent Practicable |
| mg/kg | Milligrams per Kilogram |
| NPS | Non-point Source |
| NPDES | National Pollutant Discharge Elimination System |
| SWQPA | Stormwater Quality Protection Areas |
| SWPPP | Storm Water Pollution Prevention Plan |
| SUSMP | Standard Urban Stormwater Mitigation Plan |

| | |
|---|---|
| TMDL | Total Maximum Daily Load |
| µg/g | Micrograms per Gram |
| µg/kg | Micrograms per Kilogram |
| µg/L | Micrograms per Liter |
| USEPA | United States Environmental Protection Agency |
| WMA | Watershed Management Areas |
| WQOs | Water Quality Objectives |

# Executive Summary

The Water Resources Technical Report presented herein was developed to guide conclusions presented in the draft Water Resources Element of the Humboldt County General Plan. This report builds upon the water resources information developed as part of the Natural Resources and Hazards Report, Volume II. This report presents an analysis of hydrology and water quality for: 1) existing conditions in Humboldt County, including a framework of regulatory requirements; 2) an analysis of future water demands based on the General Plan land use build out; 3) potential mitigation measures and reduced impacts utilizing BMPs; 4) cumulative impacts; and 5) a summary of watershed and water resource issues facing Humboldt County.

Historically, water resources have not been covered as a separate element in the County's General Plan. Currently, only Imperial County has a Water Element. Several other counties, including Sonoma are currently working on water resources elements and it is anticipated that this element will be an important part of general plans in the future. It is hoped that this will serve as a model for integrating water resource issues into the County's planning process.

Humboldt County is blessed with an abundance of water resources, with 5 federally recognized wild and scenic rivers, numerous creeks, rivers and lakes, Humboldt Bay, and 110 miles of ocean frontage.

The water resources of the County, as with other areas of the State, are faced with a myriad of issues both natural and political that could affect future needs:

**Pollutants**

California ranks TMDL's (Total Maximum Daily Loads) as low, medium, or high priority based on the number and severity of the impairments and the importance of the beneficial uses. In Humboldt County several waterbodies have been identified as impaired by sedimentation, siltation, temperature, low dissolved oxygen, chemical constituents, and by nutrient loads. Of these waterbodies, the Mattole River, Freshwater Creek, and Elk River are listed as the highest priority because of the severity of the impairments and the importance of the beneficial uses.

Sediment impairment affects fifty-nine percent of the area covered by the North Coast Region. The human-caused activities contributing to excessive sediment discharge include but are not limited to:

- Construction;
- Mining;
- Agriculture, including ranching, grazing, and farming;
- Dairies and other types of confined animal operation;
- Timber harvesting;
- Other earth-disturbing activities.

Non Point Pollutants of concern in Humboldt County include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas;
- Oil, grease, and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding stream banks;
- Salt from irrigation practices and acid drainage from abandoned mines;

- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems;
- Atmospheric deposition and hydromodification are also sources of nonpoint source pollution.

### Adequacy of Existing Stormwater Management Standards

For the purposes of Humboldt County's General Plan update, site specific stormwater standards for General Plan land use build-out), and development standards should be considered. Standards that prohibit projects from altering the hydrologic regimes of streams by increasing peak flows or decreasing summer low flows by treating all stormwater from at least a two-year rain event through on-site detention and percolation are recommended by Department of Fish and Game. Additionally, for the unincorporated areas of the County that are not covered by existing community plans uniform standards are recommended.

### Groundwater Quantity and Quality

As a general rule, most of the wells that truly rely on groundwater as the water source in Humboldt County find that the water is often poor in quality and quantity. While there are exceptions, including some of the wells located in the Humboldt Bay Basin, these wells can have very high levels of iron and manganese and can have insufficient production during the late summer and fall.

Groundwater quality characteristics and specific local impairments vary within the regional setting of Humboldt County. In general, seawater intrusion and nitrates in shallow aquifers are problems in the coastal groundwater basins; high total dissolved solids (TDS) content and iron, boron, and manganese can be problems in the inland basins of the County.

TDS in drinking water originate from natural sources, sewage, urban run-off, industrial wastewater, and chemicals used in the water treatment process. In Humboldt County, elevated TDS has been due to natural environmental features such as carbonate deposits and seawater intrusion, but other sources include stormwater and agricultural runoff, and point/non-point wastewater discharges.

### Water Import and Export

Water surpluses and shortages coexist in different parts of California due to growing demands and the limited ability to increase supplies without Herculean new efforts. Hence, while the northern one-third of the state accounts for 75 percent of total water supply, the southern two-thirds accounts for 80 percent of demand.

Water portfolios prepared for the North Coast Hydrological Region by the State Water Resources Control Board shows that for 2001, which was a drier year with precipitation at 60 percent of average, 32,244,000 acre-feet entered the region from, precipitation and inflows from Oregon. Of the inflows, 32,882,000 acre-feet left the region in the form of consumptive use (647 TAF), exports to other regions (703 TAF), outflows to Oregon (66 TAF), statutory required outflows to Salt Sink (8,021 TAF), evaporation and natural runoff (23,323 TAF), and other outflows (122 TAF). The difference between outflows and inflows for 2001 (638 TAF) represented a net decrease in surface water available for storage in 2001.

For years, Humboldt County has had a significant amount of water exported outside of the County borders. As statewide water supplies are falling behind demand, areas with relatively abundant water supplies are likely to be targeted for additional exports. While such proposals

are within the jurisdiction of the SWRCB, Humboldt County needs to be aggressively proactive in protecting its water resource interests.

### Hydropower Projects

Relicensing projects have significantly impacted Humboldt County and future relicensing must be thoroughly reviewed to avoid further impacts. The relicensing of the Potter Valley Project and the Klamath River projects are two examples. While such proposals are within the jurisdiction of FERC, Humboldt County needs to be continually proactive in evaluating hydropower projects in excess of 5 Mw in size that utilize the County's water resources.

### Availability of Water for Future Growth

Surplus water is available for future growth in certain areas of Humboldt County. The highest level of excess water available for future developments in Humboldt County is from the Humboldt Bay Municipal Water District. There are however critical shortages of domestic water now and therefore projected in the future for several communities all of which are in the Eel River Basin. Those areas include Briceland CSD, Garberville Sanitary District, Phillipsville CSD, Redway CSD, Benbow Water Company, Shelter Cove's Resort Improvement District #1, and Weott CSD. These areas would require infrastructure development to make their individual systems more efficient. Major leaks, inadequate storage facilities, and reliability on un-appropriated water are the leading reasons why domestic water shortage have or will be experienced in the future.

### Adequacy of Water-Related Infrastructure to Meet Regulatory Standards

Public infrastructure in Humboldt County is in dire need of upgrades to bring existing systems up to public works and regulatory standards, and need to be expanded to meet current and anticipated population needs. There are numerous sewer, water, and drainage systems in the County that currently pose serious health risks to the public, hamper development, and degrade the community due to their inadequacy. Infrastructure is critical to maintaining the local economy. These projects require state and federal financial assistance due to their high costs. A total of $180 million is needed just to bring sewer and water systems within Humboldt County into compliance with public works and regulatory standards.

### Water Reuse

Increasing the amount of reclaimed water for agriculture and commercial consumers will significantly ease the strain on rivers, lakes, and aquifers that provide us with clean and safe drinking water.

Until the safety and value of reclaimed wastewater is understood, people will balk at the idea of using it. However, the idea is not a novel one. All of our water (including drinking) was at one point used for, or emitted by, something else and is part of a general cycle of rain, ground filtering, and evaporation.

Humboldt County citizens have a responsibility to monitor and control their water use. There are many simple ways for people to reduce excess water use, lower water bills and protect the environment, especially in the spring and summer months. Beyond the standard constraints of watering the lawn only when necessary and washing the car wisely by using soap and a bucket of water such as plumbing retrofits, leak detection and repair, large landscape water conservation programs, rebates for high efficiency washing machines; conservation pricing, heightened citizen involvement and water conservation deign practices.

### Global Warming

The potential impacts to Humboldt County's water resources as a result of global warming are not clearly known. The Pacific Institute as part of the California Water Update 2005 surveyed existing literature on climate change and its impacts on water resources in California. The study concluded that managing water resources to address climate change impacts could prove different than managing for historical climate variability because:

- Climate changes could produce hydrologic conditions and extremes of a different nature than current systems were designed to manage;
- They may produce similar kinds of variability but outside of the range for which current infrastructure was designed;
- Traditional water resource management assumes that sufficient time and information will be available before the onset of large or irreversible climate impacts to permit managers to respond appropriately;
- Traditional management assumes that no special efforts or plans are required to protect against surprises or uncertainties.

Humboldt County's water managers must determine if existing facilities can handle the impacts that will occur under future climate change, and at what economic cost. Precise information on future climate impacts is unavailable, so water managers must explore the sensitivity of their system to a wider range of conditions, and develop methods or technologies to improve operational water management. They should also determine quantitative impacts from climate change on water supply and flood control, and evaluate alternative water management options. In addition, water managers should closely examine the design practices of hydraulic infrastructure, because of the many uncertainties in predicting peak flows under climate change scenarios.

# I. Introduction

## A. Purpose and Objectives

The main purpose of this report is to provide an assessment of the hydrologic, stormwater, water quality conditions, and major watershed issues that are present now and could possibly be issues in a twenty-year planning horizon for Humboldt County.

The main objectives of this report include the following:

- Research, collect, and synthesize relevant information regarding water resources of Humboldt County.
- Identify flooding hazard zones and issues within and around the County.
- Characterize and assess the existing storm drainage/stormwater conditions.
- Identify applicable drainage computation methodologies as well as applicable design standards.
- Provide a base map of existing hydrology and proposed hydrology to conceptualize specific stormwater control features.
- Identify applicable stormwater regulations and guidelines.
- Characterize and assess the existing/proposed potential pollutant loads from the various sketch plans.
- Propose mitigation measures such as Best Management Practices (BMPs) to help minimize and/or eliminate potential impacts from pollutant loads.
- Identify Water Supply and Demand availability including water exports.
- Along with the Natural Resources and Hazards Report this report will be used to generate a Water Resources Element for the Humboldt County General Plan Update.

## B. Water Resources Element Description

The Governor's Office of Planning and Research (OPR) has suggested that cities and counties include a new water element in their general plan—beyond the currently required seven elements—that focuses on water and the manner in which the city or county will plan for its acquisition, usage, and conservation. This water element is intended to consolidate the Humboldt County's discussion of water issues from other required elements (such as the circulation, conservation, open-space, and safety elements) in one place, making water issues easier for the public to understand. The main thrust of the Water Resource Element is to evaluate the usefulness of a water resource plan along with the regulatory scheme for long-term land use and water planning.

The Water Resources Element will address a range of water related issues in Humboldt County. Some other water-related topics are also addressed in other elements. Water availability as a factor in land use plan map densities is addressed in the Land Use Element and the Community Services and Infrastructure Element. The Conservation and Open Space Elements addresses riparian corridors, wetlands, wildlife protection, tree protection, fishery resources and other biotic resources, water-oriented recreation, soil erosion, forestry, and mineral resources. The Safety Element addresses flood hazards, fire suppression, and hazardous materials. The Water Resources Element has been developed to be consistent with and build upon the information in these other elements. With regard to natural resources, the Natural Resources and Hazards Report prepared by Humboldt County staff provides an assessment of current conditions related to water (surface, ground, and pollution) and watersheds; biological resources (vegetation,

fisheries, and special status species); forest lands (including Timberland Production Zones); agricultural production (including soils and economic structure); parks, recreation, and open space; cultural resources (historical and archaeological sites and landmarks); mineral and energy (sand and gravel, rock, metal, and oil and gas); scenic qualities; and air quality (climate and pollutants). There is a direct link between this Water Resources Technical report and the Natural Resources and Hazards Report as the analysis presented herein builds upon the watershed characterization and regulatory setting of the Natural Resources and Hazards Report

# II. Existing Conditions

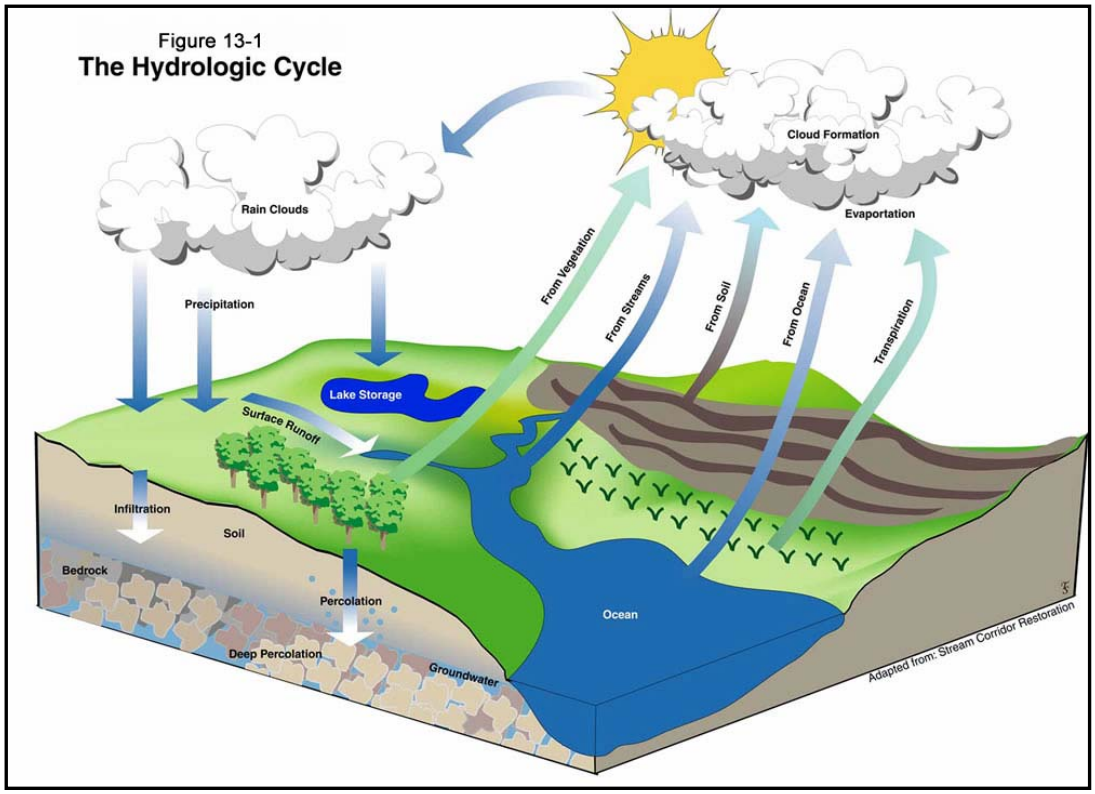
## A. Water Resources Background

Linkages between water management and land development occur in different ways. Water pollution is often created on land. Urban development is often restricted, or motivated, by the presence or lack of water. Some types of land uses, such as dense urban development, can cause flooding and water quality issues. Agricultural or industrial land uses may deplete ground water, degrade water quality, or drain naturally wet areas. Clearly, water development and land development are inherently connected.

The approach taken in the General Plan involves: 1) consideration of appropriate land use designations in order to link land use policies, environmental protection, and economic development efforts to water quality and supply objectives; 2) to focus attention on water as a planning concern including the protection of the County's water resources from avoidable export; and 3) to address the shifts in water supply caused by climate change and new development patterns within the County.

### Water Cycle

Water moves continuously from Earth's surface into the air and then back to the land, changing only in form. This movement is commonly referred to as the hydrologic cycle and is powered by sunshine and gravity. When the sun heats up water in streams, lakes and oceans, the water evaporates into vapor or steam in the atmosphere. As the moisture-laden air cools, particularly where it is forced higher by steep slopes, the vapor condenses into water which falls as rain or, if the vapor is chilled enough, it forms solid ice crystals and falls as snow. Most of the rain and snowmelt runs off into surface water bodies which drain back to the sea. Some of the precipitation is absorbed into the Earth and becomes "groundwater", some of which moves slowly through subsurface layers to streams, lakes and oceans (Figure 13-1).



There is as much water today in the water cycle as there ever was, but 97 percent of Earth's water is contained in the oceans and is too salty for most land-based uses. Since the salt is left behind during evaporation, the resulting precipitation is fresh water. Of the 3 percent of the water on Earth that is fresh water, most is locked in icecaps and glaciers. Streams and lakes contain only about one-fiftieth of one percent of Earth's water, and ground water constitutes only about half of one percent. Although nearly all water becomes air-borne vapor at one time or another, the atmosphere contains only one-thousandth of one percent of Earth's water.

The North Coast region generally has the most abundant water resources of any region of the State as a result of its location. The high volumes of precipitation and natural river runoff are a key component for most of the beneficial uses of its water bodies, including commercial and recreational fishing, shellfish harvesting, urban and agricultural use, and recreation. Many of the region's forests and watersheds support threatened and endangered species of plants and animals, and the major rivers and streams contain significant anadromous fishery resources. This region also features important coastal resources, including Trinidad Harbor, Humboldt Bay, and many small estuaries and lagoons.

**Water Rights**

The people of California own all the surface water in the state. Water rights provide the right to reasonable and beneficial use of the water, not ownership of the water. Public interests are thus involved at every level of water management in California.

Rights to use water are subject to the State's obligation under the Public Trust Doctrine as trustee of certain resources for Californians. The Public Trust Doctrine is a legal doctrine that imposes responsibilities on State agencies to protect trust resources associated with California waterways, such as navigation, fisheries, recreation, ecological preservation and related beneficial uses.

The California Constitution requires that water be used in a reasonable and beneficial manner and prohibits misuse and waste of water. Water is used beneficially when, for example, it is used to drink, grow crops or wash cars. What is reasonable water use depends on the circumstances; for example, it could be unreasonable to wash cars during a severe drought. All types of water rights are subject to this constitutional policy, and a state agency, the State Water Resources Control Board (SWRCB) Division of Water Rights, is authorized to take action to prevent unreasonable uses of water. In addition, the SWRCB conducts hearings to determine water rights on un-appropriated waterbodies. A water right hearing is a quasi-judicial proceeding that has, as an objective, the development of an adequate record upon which the SWRCB can rely to make good decisions. In Humboldt County dozens of water rights decisions have been made by the SWRCB over the years. There are two principal types of surface water rights in California, riparian rights and appropriative rights.

**Riparian Water Rights**

A riparian right is the right to divert, but not store, a portion of the natural flow for use based on the ownership of property adjacent to a natural watercourse. Water claimed through a riparian right must be used on the riparian parcel. Such a right is generally attached to the riparian parcel of land except where a riparian right has been preserved for non-contiguous parcels when land is subdivided. Generally, riparian rights are not lost through non-use. All riparian water users have the same priority; senior and junior riparian water rights do not exist. During times of water shortage, all riparian water users must adjust their water use to allow equal sharing of the available water supply.

Riparian rights are not defined by California statutes but have been established by common law and court decisions. Permits or other government approvals are not required to exercise riparian

rights. However, a permit from the Army Corps of Engineers or some other regulatory agency, or an agreement with the California Department of Fish and Game, may be necessary to construct diversion facilities needed to exercise riparian or appropriative rights.

**Appropriative Water Rights**

Under the prior appropriation doctrine, a person may acquire a right to divert, store, and use water regardless of whether the land on which it is used is adjacent to a stream or within its watershed. The rule of priority between appropriators is "first in time is first in right." A senior appropriative water rights holder may not change an established use of the water to the detriment of a junior, including a junior's reliance on a senior's return flow. Acquisition of appropriative water rights is subject to the issuance of a permit by the State Water Resources Control Board (SWRCB) with priority based on the date a permit is issued. Permit and license provisions do not apply to pre-1914 appropriative rights (those initiated before the Water Commission Act took effect in 1914), but pre-1914 rights are still subject to reasonable and beneficial use. Appropriative rights may be sold or transferred.

Water flowing in subterranean streams through known and defined channels is subject to diversion, use and regulation under riparian and appropriative rights as described above. Water is considered to be flowing in a subterranean stream through a known and definite channel if it is in contact with surface water and moving in the same direction in a relatively defined channel.

An appropriative water right in California can be maintained only by continuous beneficial use, and can be lost by five or more continuous years of non-use. Riparian rights, on the other hand, cannot be lost through non-use. Appropriative rights can also be lost through abandonment, but to constitute abandonment of an appropriative right, there must be the intent not to resume the beneficial use of the water right. As a result, abandonment is always voluntary.

**Groundwater Rights**

The vast majority of California's groundwater is unregulated. The State does not have a comprehensive groundwater permit process to regulate ground water withdrawal. There are three legally recognized classifications of groundwater in California: subterranean streams (through known and defined channels), underflow of surface waters, and percolating groundwater. Subterranean streams and underflow of surface waters are subject to the laws of surface waters and are regulated by the State Water Board. Percolating groundwater, on the other hand, has few regulation requirements.

Percolating groundwater has two sub-classifications: overlying land use, and surplus groundwater. Land owners overlying percolating groundwater may use it on an equal and correlative basis. This means that all property owners above a common aquifer possess a shared right to reasonable use of the groundwater aquifer. These rights are similar to riparian rights and since they are correlative, a user cannot take unlimited quantities without regard to the needs of other users. Surplus groundwater may be appropriated for use on non-overlying lands, provided such use will not create overdraft conditions. Landowners overlying groundwater have rights to share the groundwater under their property with other overlying land owners without obtaining a permit from any state agency as long as that groundwater is put to reasonable and beneficial use. Groundwater may also be used on lands which are not overlying, but this right is subordinate to the prior use of any overlying land owners. Surface water can be diverted or pumped into aquifers for later extraction, with SWRCB approval.

The courts have held that cities and counties may regulate groundwater use under their police powers to protect the public's health, safety and welfare. In addition to those powers, the State Water Code provides other regulatory tools including the adoption and implementation of a

groundwater management plan under the Groundwater Management Act (Water Code Section 10750-10755.4; AB 3030). Several California counties have adopted groundwater regulation programs. Litigation has also resulted in court decrees regulating groundwater use in some cases.

**Tribal Water Rights**

Some of Humboldt County's Indian Reservations as well as other federal lands have reserved water rights implied from acts of the federal government, rather than state law. When tribal lands were reserved, their natural resources were also reserved for tribal use. Since reserved tribal rights were generally not created by state law, states' water allocations did not account for tribal resources.

In the landmark 1908 Winters v. U.S. case, the U.S. Supreme Court established that sufficient water was reserved to fulfill the uses of a reservation at the time the reservation was established. The decision, however, did not indicate a method for quantifying tribal water rights. Winters rights also retain their validity and seniority over state appropriated water whether or not the tribes have put the water to beneficial use. Only after many years did tribes begin to assert and develop their reserved water rights.

In 1963, the U.S. Supreme Court decision Arizona v. California reaffirmed Winters and established a quantification standard based on irrigation, presupposing that tribes would pursue agriculture. Despite criticisms of the "practicably irrigable acreage" (PIA) quantification standard from various perspectives, the PIA standard provided certainty to future water development. Quantifying water needs in terms of agricultural potential does not accurately show the many other needs for water. Even urban water quantity and quality assessments that look at the adequacy of the domestic water supply and sanitation do not provide a complete picture of tribal water needs. A large part of the tribal water needs are for instream flows and other waterbodies that support environmental and cultural needs for ceremonial use, fishing, hunting, and trapping.

The Winters Doctrine originally applied to Indian reservations but has since been applied to other federal land reservations. A variety of court decisions have extended the reserved right doctrine to encompass not only Indian reservations, but water uses in national forests, national parks and monuments, and military reservations. In the 1963 Arizona *v.* California decision, the U.S. Supreme Court found the Winters Doctrine equally applicable to other federal establishments and affirmed an allocation of water for non-Indian federal uses.

## B. Public Water Systems

An adequate and sustainable water supply is essential if Humboldt County is to serve projected increases in population, housing, employment, business, and agriculture. The main purpose of this section is to address water supply services provided by public and private entities. The following is a discussion on the various public water systems that serve Humboldt County communities and Figure 13-2 illustrates those portions of Humboldt County that are served by public water suppliers

All water systems are responsible for meeting and maintaining water quality standards established by DHS and the NCRWQCB. The suppliers are required to prepare and adopt wellhead protection plans that will avoid future contamination. To the extent that these plans may need to rely upon the regulation of land uses around supply wells, the County's cooperation may be necessary for wells located in the unincorporated area.

**Humboldt Bay Municipal Water District**

The Humboldt Bay Municipal Water District (HBMWD) was declared formed in September of 1956 after a successful special election was held.

The District was formed for the purpose of obtaining an adequate supply of water to meet the municipal and projected industrial water demand for the Humboldt Bay area. Formation of the District was prompted by water supply concerns of the cities of Arcata and Eureka. Arcata was dependent upon shallow wells adjacent to the Mad River, and Eureka was furnished water from a badly silted Sweasey Dam.

Humboldt Bay Municipal Water District (HBMWD) is a wholesale water agency that serves the greater Humboldt Bay area - including the cities of Eureka, Arcata and Blue Lake, as well as Community Service Districts serving unincorporated areas such as McKinleyville, Cutten, Fairhaven, Fieldbrook and Manila. The population served via these agencies totals about 65,000 people. HBMWD's service area contains a large variety of business and industry; College of the Redwoods, a two year community college; and, Humboldt State University, a campus of the California State University System.

Drinking water delivered by the district is drawn from wells located in the bed of the Mad River northeast of Arcata. These Ranney Wells, draw water from the sands and gravel of the riverbed at depths of 60 to 90 feet, thereby providing a natural filtration process. In the summer this naturally filtered water is disinfected with chlorine and delivered to the District's wholesale municipal and retail customers in the Humboldt Bay Area. In the winter the water is further treated at a regional Turbidity Reduction Facility which reduces the occasional turbidity (cloudiness) in the District's source water. The District's source water has been classified by the DHS as groundwater. A groundwater classification dictates the regulations that a water system must follow to ensure water quality.

Presently, the District has water rights to divert 75 million gallons a day (MGD) from the Mad River. This totals 84,000 acre-feet per year (AFY), which represents 8% of the average annual runoff of the Mad River basin. Under an agreement with the California Department of Fish and Game, the District is responsible for maintaining sufficient flows for the protection, propagation and preservation of fish and wildlife. The flows required for fish and wildlife vary based o the time of year and river conditions; the potential maximum is 46,000 AFY.

The District currently has long-term wholesale contracts in place to provide treated water for domestic use to seven municipalities. The current 20-year contracts were entered into in 1999. Currently the District delivers an average of 11 and a peak of 18 million gallons per day (MGD) of treated domestic water to seven wholesale municipal customers; Eureka, Arcata, Blue Lake, Humboldt CSD, McKinleyville CSD, Fieldbrook CSD and Manila CSD. The domestic water system has a capacity of 21 MGD. By far, the HBMWD has the highest level of excess water available for future developments in Humboldt County

# Public Water Sources in Humboldt County

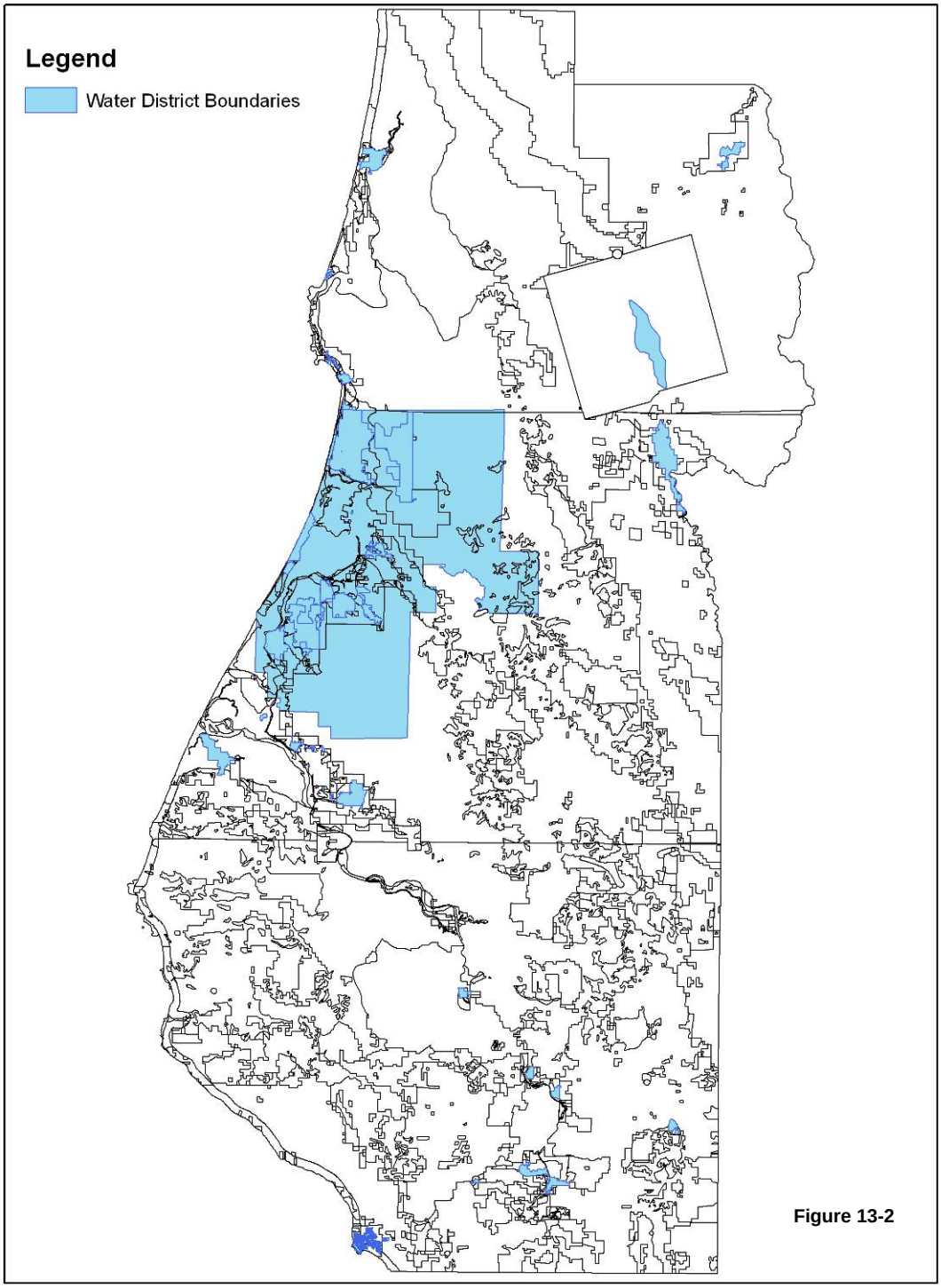



**Figure 13-2**

**Alderpoint Water District**

The Alderpoint Water District was originally organized in 1965. The governing board of the District is the Board of Supervisors; however, the Board of Supervisors appoints a 5 member Board of Directors to supervise the business of the District.

The source of water for the District is an infiltration gallery in the Eel River bed. The infiltration gallery collection pipe is approximately nine feet below the bed of the river. From the infiltration gallery wet well, water is pumped through a six-inch cast iron main to a 5,000-gallon staging tank located 130 feet above the riverbed. The 5,000-gallon tank and its accompanying pump house are located just off River Road. Calcium hypochlorite, a disinfectant, is added to the water in the 5,000-gallon tank. From the 5,000-gallon staging/preliminary distribution tank, water is pumped up another 300-feet, via a six inch main, to a 100,000-gallon redwood storage tank. This main storage tank feeds water into the distribution system serving the community.

Water is distributed directly to several households along River Road north and south of the 5,000-gallon tank from the line to the 100,000-gallon tank. The main distribution system contains approximately 2.5 miles of mainline varying in size from two-inch to six-inch is in diameter.

According to statistics derived from the February 2003 Water System Feasibility Study, supply capacity is the range of 216,000 to 320,000 gallons per day, which is well in excess of the current demands and production. Alderpoint is planning to install new pumps, which would provide about 200 gallons per minute (gpm) or 288,000 gallons per day (gpd).

Currently, the District holds a permit from the State Water Resources Control Board for appropriation of 0.25 cubic feet per second that converts to approximately 161,500 gallons per day.

**City of Arcata**

The primary source of Arcata's drinking water is r purchased from HBMWD. HBMWD produces water drawn from wells located in the bed of the Mad River northeast of Arcata.

The secondary source of drinking water is the City of Arcata's Heindon groundwater well. The Heindon well was placed on-line in 1999 to supplement purchased water from HBMWD. All water introduced into the City's distribution system undergoes chlorination and fluoridation treatment. The City is currently contracted with HBMWD to receive a peak water allocation of 3.25 MGD. Water is delivered through 76.5 miles of water distribution mains and storage reservoirs located throughout the community. The City has approximately 4.4 million gallons of storage capacity spread over 17 tanks ranging in size from 25,000 gallons to 1.5 million gallons.

According to 2005/2006 HBMWD records, the City of Arcata's average daily use was 1.825 mgd and peak daily use was 3.405 mgd. The City delivered over 676 million gallons of HBMWD water in fiscal year 2005/2006. The City has approximately 6,000 existing connections and also supplies water to Jacoby Creek Water District (City of Arcata, 2005).

**City of Blue Lake**

The City of Blue Lake obtains all of its domestic water from the HBMWD.
The City's receives its water supply through contract with HBMWD. Water is delivered through distribution mains and storage reservoirs located throughout the community. The City has approximately 0.9 MG of storage capacity spread over two redwood tanks ranging in size from 400,000 gallons to 500,000 gallons.

The City of Blue Lake's water system is in good condition overall. Peak daily use of HBMWD water for the City (0.378 MGD in 2005/2006) is currently less than their peak rate allocation of 0.50 MGD set in contract with HBMWD on July 1, 2006.

**Big Lagoon Community Services District**

The Big Lagoon Community Service District was formed on July 1, 1998 under Community Service District law pursuant to sections 61000-61934 of the Government Code. The governing board is elected and consists of a five (5) member Board of Directors to supervise the business of the District.

The District was formed for the purposes of supplying water to houses in the Big Lagoon subdivision and Big Lagoon School. It is important to note that the District was formed conditional upon a Local Coastal Plan amendment to expand the Urban Limit Line to include all properties within the District.

The Big Lagoon CSD manages a water system that was installed for the Big Lagoon subdivision in 1962; the Big Lagoon CSD acquired the water system from a private owner in 1999. The water system now consists of 2 wells, a 20,000 gallon redwood storage tank, booster pumps and 3,000 gallon hydro pneumatic tank with an air compressor.

Forty households and the Big Lagoon School were originally served by the water system. Following an El Nino event in 1998, several homes were lost due to a coastal bluff failure and the system now serves 32 households and the school.

**Briceland Community Services District**

The Briceland Community Service District (CSD) was formed on September 20, 1989 under Community Service District law pursuant to sections 61000-61934 of the Government Code. The governing board is elected and consists of a five (5) member Board of Directors to supervise the business of the District.

The District was formed for the purposes of improving the water system that was supplying water to houses in the Briceland area. The water system that was in place at the time was an antiquated system put in by the original settlers in the 1880's.

In forming the Briceland CSD, District proponents planned on using State Safe Drinking Water Grant Funds to identify additional water sources and develop two 21,000 -gallon water tanks. New treatment and distribution facilities were also proposed.

The District currently serves 26 lots in the District and 1 outside District boundaries. District representatives have indicated that: "Due to regulatory constraints, the District has no plans of expansion either in terms of size or number of service connections. There are presently four applications for service, the oldest of which has been held on file for more that ten years.

**City of Eureka**

The City of Eureka purchases water from a wholesaler, Humboldt Bay Municipal Water District. The District's source of water is the Mad River. The District pumps water from the gravel and sand beds beneath the Mad River by four Ranney wells in the riverbed. The Department of Health Services (DHS) has classified the District's water supplied to domestic customers as groundwater. The District is in the process of conducting a Groundwater Study to be used to generate a Groundwater Management Plan (GMP).

According to Humboldt Bay Municipal Water District documents, the District currently has water rights to divert 75 million gallons per day (MGD) from the Mad River, which converts to 84,000 acre feet per year (AFY). The District also owns and operates the R W. Matthews Dam impounding water in Ruth Lake.

The District manages releases from the dam to ensure sufficient supplies downstream throughout the year. The City of Eureka maintains water rights to Mad River water equivalent to 6,499 AFY (5.8 MGD). Under the agreement between the District and The City of Eureka, the deliveries from the District to the City are considered to be deliveries of the City's water, emanating from its own water rights not those of the District. Deliveries to the City in excess of the City's water rights are considered deliveries of the District's water.

**City of Fortuna**

The City's water supply comes entirely from five groundwater wells (four active and one emergency stand-by) located at the City's corrosion control facility. The combined rated capacity of all wells is 4,000 gpm, or 5.76 MGD. Water is chlorinated in the wells as a precautionary measure due to the annular seals being less then 50 feet deep and then pumped from the wells into a 120,000 gallon wet well, containing three 100 horsepower booster pumps that pump water into the City's distribution system. The distribution system is divided up into eight pressure zones and contains a series of pumps, water tanks, reservoirs, and hydropneumatic tanks. The combined storage capacity of the system is approximately 7.3 million gallons. Some pressure zones do not have adequate storage, but can be provided water through booster stations with portable generators on site.

According to the January 13, 2005 administrative draft of the Fortuna General Plan, the City produced more than 519 million gallons of drinking water in 2004. Average daily use is therefore estimated at 1.42 mgd, and peak daily use for 2004 was reported as 2.3 mgd in the 2007 DHS annual inspection report. The City has approximately 4,238 existing connections and does not retail water to any other districts.

**Fieldbrook- Glendale Community Services District**

Both the Glendale and Fieldbrook Valley floor area are served by a community water system operated by the Fieldbrook Glendale Community Services District (FGCSD)..

The "valley floor" portion of the Fieldbrook area and the Glendale portion of the area currently meet its water user's needs with a sufficient and dependable water supply system provided through the FGCSD. FGCSD purchases its treated water from Humboldt Bay Municipal Water District (HBMWD). The FGCSD system begins at a water meter just north of the intersection of Fieldbrook Road and includes over 10 miles of water mains, one booster pump station, and one 400,000 gallon water tank. Water quality is excellent and meets or exceeds State standards. Some localized pressure problems are experienced by some residences and this problem needs to be addressed before any additional growth is to occur. Other water system improvements anticipated to be needed include the installation of a standby (emergency) generator at the booster pump station and the construction of an additional reservoir. In the Glendale area, low water pressure is among the primary concerns voiced by local residents.

**Garberville Sanitary District**

The Garberville Sanitary District (District) was formed by Order of the Humboldt County Board of Supervisors on April 12, 1932, pursuant to "The Sanitary District Act of 1923" after a majority vote was cast in a general election sometime prior to the April 12, 1932, date. The governing board of the District is the Board of Supervisors; however, the Board of Supervisors appoints a five (5)

member Board of Directors to supervise the business of the District. The District initially was formed for the purpose of providing sewer services.

Presently, the District maintains and operates a water system and a sewer system.

The water system was recently purchased from private owners and consists of two water sources, a treatment plant, four water tanks, three booster stations, approximately 380 active service connections, and a waterline distribution network. One of the water sources is surface water from the South Fork of the Eel River and one is a shallow well in downtown Garberville. The surface water source is regulated by the California Surface Water Treatment Regulations.

The existing system has adequate production, treatment, and storage capacities for the average daily demand. The maximum daily demand is 370,830 gpd based upon the maximum month of July 1999. The total storage capacity for the system is approximately 300,000 gallons. This is not sufficient to meet the maximum daily demand or to provide any fire protection services during the maximum daily demand. The water treatment facility produces water that meets or exceeds the State regulations for drinking water. The turbidity and residual free chlorine levels comply with the maximum allowable levels.

The existing system provides adequate water pressure throughout the District. Reports of inadequate flow for fire suppression purposes have been received for Maple Street. This is likely due to insufficient line sizes. The system in general has very few fire hydrants, and many of those installed are wharf hydrants that will not provide sufficient flow for fire suppression. The fire department reported that there are only a few hydrants that are approved for use during a structure fire, and most are located on Redwood Drive.

The Eel River Infiltration Gallery is the main water source and it is a surface water source. It was originally installed in 1940. The infiltration gallery has one 6-inch 320-gpm 50-HP submersible pump that was installed in February 1999. The pump operates against an approximate 380 feet differential elevation head. The pump discharges to the water treatment plant adjacent to the 200,000-gallon storage tank. The pressure filter in the water treatment plant has a limited capacity of 250 gpm. The existing treatment plant filtration cell does not have sufficient capacity to allow processing of the maximum daily demand. The treatment plant produced a total of 80 million gallons of water in 1999.

The District holds a current water diversion permit from the State Water Resources Control Board for appropriation of water from the South Fork of the Eel River. It limits the diversion of water to 0.595 cubic feet per second, year round. This would equate to a maximum daily diversion of approximately 385,000 gallons if adequate pumps and treatment facilities were available.

The majority of the water mains in downtown Garberville were installed prior to 1940. Some of the lines are lead joint, some are copper, and most are either iron or asbestos cement. Only the line in Redwood Drive is 8 inch. Most of the downtown mains are 4-inch lines. The water mains in the Wallen and Johnson Subdivision were installed in 1978 and are mostly 6-inch lines.

**Hoopa Valley Public Utilities District**

The Hoopa Valley Public Utilities District was created in 1981 pursuant to a charter granted by the Hoopa Valley Tribe and provides both drinking water and irrigation to all residents of the Hoopa Valley.

The primary drinking water supply for the existing valley wide water system consists of a Ranney-Type collector in the Trinity River, a water treatment plant, and a pump station near the center of the urban zone of the Hoopa Valley community.

One "valley-wide" community water system currently serves the Hoopa Valley east and west of the Trinity River. According to the Hoopa Valley Public Utilities District, there were a total of 539 metered service connections, with about 280 connections on the east, and 259 on the west in 2004. Approximately 2,100 people are served by the water system. The water system has various surface and groundwater sources, with varying manners of treatment.

Overall, about 50 percent of the annual domestic water supply is gravity fed, and the remainder pumped. Storage tanks are located along the valley benches and are connected to the systems throughout the valley. The distribution system generally includes main water trunk lines extending the length of the valley on both sides of the river, with smaller lateral pipes and some main loops. Pressure booster pump stations and water storage tanks higher on the valley benches locally serve the upper portions of the Reservation.

The east side historically had adequate water supply in the winter and spring months, but fell short in the late summer and fall. The former major source, Captain John Gulch, tended to have reduced flow rates or occasionally dried up in the summer and fall months due to its small watershed (less than two square miles). To compensate, untreated water was pumped into the system from the Mill Creek irrigation flume then was treated and distributed to consumers. In 1999, the Captain John system was taken off line and was replaced with the Trinity River collector. The west side generally has year round surface water, but high winter and springtime turbidity levels in Campbell Creek preclude operation of the water treatment plant during this period. Well water normally meets winter and spring demands, but there was insufficient capacity to satisfy summer demand. That deficiency was also ameliorated with the installation of the Trinity River collector.

The existing Valley-wide water system provides water service to the north end of Soctish Field through an eight inch pipeline. The elevation of the pipeline in Soctish Field is approximately 320 feet.

**Humboldt Community Services District**

The Humboldt Community Services District was declared formed in September of 1952 after a successful special election was held. The District was formed as an independent multi-purpose district organized pursuant to Section 61000 et seq. of the California Government Code. Formation of the District was prompted by an unmet need for urban type services in the rapidly growing "suburban" areas surrounding the City of Eureka. Because the desired services could not be obtained from the City, district formation was the only means available for providing those services necessary for the maintenance of existing and developing residential and commercial areas.

Presently, the District provides water service to approximately 85% of its residents, and sanitary sewer service to approximately 60% of its residents in the more densely developed areas. Streetlights are also provided in various locations throughout the District.

The District purchases approximately 33% of its potable water from the Humboldt Bay Municipal Water District. 34% of the district's water is provided from District owned wells located at the base of Humboldt Hill and Spruce Point area. These wells primarily serve Humboldt Hill, Fields Landing, King Salmon, College of the Redwoods, and some portions of the Pine Hill area. The District also has a long term contract with the City of Eureka to purchase additional water (34%

of total demand), which also originates from Humboldt Bay Municipal Water District. The district and City's water systems are interconnected at various locations allowing for such transfers to occur.

**Hydesville County Water District**

The Hydesville County Water District was originally organized March 26, 1963 under Division 12 of the Water Code of the State of California and by Resolution 1861 of the Humboldt County Board of Supervisors. The five member governing board of the District is elected by the residents of the District to supervise the business of the District. The term of office of the board members is four years. The District was formed for the purpose of providing water services.

The District's water supply is obtained from two (2), twelve inch (12") wells located on District owned land near Yager Creek. These wells are equipped with pumps which are rated at a total of approximately 359 gpm. The water is chlorinated at the well site and then pumped to the District's two storage tanks. These storage tanks have a capacity of 200,000 and 400,000 gallons, which is estimated to be the equivalent of seven days of normal usage. The stored water is distributed by gravity, throughout the District's distribution system. The District has installed fire hydrants throughout the service area.

Normal operating procedure for the District is to utilize one well while maintaining their second well in a reserve status, except during peak usage days (estimated to occur five to seven times per year). This is standard procedure which allows for sufficient reserve capacity in case of pump failure of other disruption in the operation of a well.

**Jacoby Creek Community Services District**

The Jacoby Creek County Water District is an independent, single purpose special district formed pursuant to Section 30000 et seg. of the Water Code of the State of California. The District was declared formed on December 30, 1970 by the Board of Supervisors after a successful special election was held within the area proposed for district formation.

The Jacoby Creek County Water District is located adjacent to the south-eastern boundary of the City of Arcata and extends along Jacoby Creek in a generally south-east direction for approximately four (4) miles. The present boundaries of the District contain approximately five (5) square miles or 3200 acres.

The District's water distribution system was constructed in 1974 with funds obtained from a Davis-Grunsky loan from the State of California. The District obtains its water from the City of Arcata, who in turn, obtain their supply from the Humboldt Bay Municipal Water District. An agreement with the City of Arcata provides for the City to supply water, operate and maintain the distribution system and provide billing and collection services for the District. Water service is currently supplied to 215 connections within the District. Most of these connections are for residential users plus a few small businesses.

**Loleta Community Services District**

The Loleta Community Services District was originally organized on November 13, 1990 under Government Statute 1923, Statues 1, and Chapter 171. The governing board of the district is the Board of Directors. The citizens of the District elect the Board of Directors. The District was formed for the purpose of providing water and sewer services.

Presently, the District maintains water and a sewer system. These facilities provide adequate coverage and services to approximately 94% of the households in the District for domestic water supply and to almost 100% of the households in the District for wastewater services.

The District operates two wells located on Peugh Road in Loleta. Water is pumped from the wells through a Green Sand filter where the iron and manganese is removed by injecting chlorine and potassium permanganate. Treated water is provided to the service area through approximately 4.5 miles of pipe and to a 225,000 gallon storage tank located just off the freeway. The treatment system runs an average of twelve to thirteen hours a day.

One of the wells located on Peugh Road pumps on the average of 60,000 gallons of water a day. Development of the other well is currently in progress. The capacity of the new well is designed to produce 309,600 gallons per day (gpd). It should be noted that most of the Loleta area generally have low yields and water quality issues. With the new well producing the designed capacity, the capacity of water production for the Loleta water system will be 369,600 gpd; this is the ideal production rate, the target water production rate is 144,000 gpd. The storage capacity of the Loleta System is 225,000 gallons, which translates to approximately 1.4 days storage (according to the peak daily usage data). A current estimation of peak usage of the system is 157,000 gpd. According to the designed water production, and including the storage capacity of the system's 225,000 gallon tank, the Loleta water system is at 26 percent capacity on the highest use day of the year. However, these numbers do not take fire suppression in to consideration, and they are based on the assumption that the facilities are in perfect running order. The District serves 226 homes, 11 businesses, and 2 industrial sites.

**Manila Community Services District**

The Manila Community Services District was formed on July 20, 1965 by the Humboldt County Board of Supervisors as an independent multi-purpose district organized pursuant to Resolution No. 2130 adopted under the Community Services District Law, pursuant to Title 6, Division 2, of the California Government Code. The five-member Board of Directors are locally elected by the residents of the District. The District employs a General Manager who is responsible for administering and implementing policies set by the Board.

The District purchases its potable water from the Humboldt Bay Municipal Water District (HBMWD). Water is delivered to Manila by a 15-inch diameter main that continues south through Manila to serve the towns of Samoa and Fairhaven and the pulp mill. A 10-inch diameter main provides water to the District. The District provides water service for approximately 357 service connections (2003) consisting of 354 residential and 3 commercial/industrial. There is ample water from the supplier to meet future demands until maximum build-out of the District occurs.

**McKinleyville Community Services District**

The McKinleyville Community Services District was declared formed on April 21, 1970 after a successful special election was held within the area proposed for district formation. The District was formed as an independent multi-purpose district organized pursuant to Section 61000 et seq. of the California Government Code. Although the district now provides several services, it was originally formed to provide a community water supply system only. When formed, the district had a land area of 19 square miles or 12,160 acres. The *Azalea Park Annexation* in 1973 (the district's only annexation since formation) added approximately one-half square mile or 320 acres. The district's current boundaries encompass the area from the Pacific Ocean on the west to the foothills bordering the Fieldbrook area on the east. The district extends north from the Mad River approximately 5.5 miles. The McKinleyville CSD is governed by a locally elected five-member Board of Directors

The District purchases its potable water from the Humboldt Bay Municipal Water District. The district's contract with the Humboldt Bay MWD sets average daily water use at 1.45 million gallons per day (MGD) and peak water use at 3.31 MGD. The district provides water service to

approximately 5,417 households. Recent analysis indicated there is ample water from the supplier to meet future demands until maximum build-out of the District occurs. The district currently has 5.25 million gallons of storage, but does have plans to install a six million gallon reservoir on District property located on Murray Road east of Central Avenue. This additional capacity would provide storage in the event of a catastrophic seismic event or prolonged power loss or supply interruption. This additional storage would also result in significant operational power savings since power demand could be shifted to off-peak hours when power is at substantially lower rates.

McKinleyville's water distribution system is designed to provide adequate service to approximately 10,000 homes. As of now, approximately 57% o possible connections have been made to the system. According to the district's manager, the system could be expanded beyond 10,000 connections with the addition of expanded distribution, pumping and storage facilities.

Treated water is then piped from the Essex Hill storage tank under the Mad River to the MCSD's Grant A. Ramey Pump Station at the intersection of Azalea and North Bank Roads. The water is then boosted up to two storage tanks located at Cochran and Norton Roads and in-turn to a third higher elevation tank on McCluski Hill. This system provides a gravity-flow distribution of water to end users and fire hydrants throughout the water service area. A fourth undeveloped tank site on Murray Road has been purchased by the MCSD to serve future community water needs. The total potential system storage capacity is approximately six million gallons. The delivery system, from storage tanks to individual users, consists of about 70 miles of water mains.

**Miranda Community Services District**

The Miranda USA is provided water service through the Miranda Community Services District (Miranda CSD). The governing board of the district is the Board of Directors, elected by the citizens of the District. The District was formed for the purpose of providing water, sewer, and fire protection services.

The District's water source comes from two wells with rated capacities of 150 gpm and 85 gpm, for a total capacity of 0.338 MGD. The pumps are operated in a lead lag arrangement, with the larger pump leading during summer months and the smaller pump leading during winter months. There are 6-inch asbestos cement (AC) and ductile iron pipes from the wells to the treatment building. Continuous disinfection is provided through a BIF metering pump that injects calcium hypochlorite into the main line. The meter is switched on by the well pumps. Soda ash is used to raise the pH of the water, which is typically around 6.1. The District has 0.2 MG of total storage in the form of two 100,000 gallon tanks, one redwood and one bolted steel. The redwood tank was installed in 1964, and the bolted steel tank was installed in 1978. Both tanks are in good condition.

The distribution system consists of one pressure zone, which is gravity fed by the two tanks. Low pressures are known to occur, especially in the School Road area, due to small diameter (2") mains. This problem is exacerbated when fire hydrants are in use. The District has 20 fire hydrants.

The system has had some action level exceedances for copper and lead in the past, but these issues seem to have been resolved by the addition of soda ash feed.

**Orick Community Services District**

The Orick Community Services District (CSD) was originally organized in 1955 under Government Statute. The governing board of the District is the Board of Supervisors; however, a 5 member

Board of Directors is elected by the populous to supervise the business of the District. The District was formed for the purpose of providing water and fire protection services.

Presently, the District maintains and operates a water system. The locations of these facilities provide adequate coverage and services to approximately 97% of the households in the District for domestic water supply.

The initial Orick water system was built in 1977-1978 with funds obtained from the State of California under the Davis-Grunsky Program and the Farmers Home Administration at a cost of approximately $400,000. At the time of planning the existing system, the need for water to service the area south of Orick was recognized but funding availability forced the curtailment of the project. Funding for the extension of the system was granted with aid from Redwood National Park in 1983.

The initial system construction of the water system served most of the residents of the Orick Community. The original system consisted of two 60 foot wells with 10 hp submersible pumps, a 100,000 gallon redwood storage tank, and 8-inch, 6-inch, and 4-inch distribution lines.

In 1978, an 8-inch line was extended southwest along the north side of Route. 101 in anticipation of the 1987 expansion. The 8-inch line was extended west past Hilton Road to the National Park Service Visitors' Center in 1987.

The pumping capacity of the District's water system is approximately 288,000 gallons per day. The system demand is approximately 216,000 gallons per day. The system demand is approximately 75% of the system pumping capacity. Currently 139 of 142 service connections provided by the water facility are being served.

**Orleans Community Service District**

The Orleans community is provided water service through the Orleans Community Services District (OCSD). The OCSD was originally organized under Government Statute 1923, Statues 1, Chapter 171. The governing board of the district is the Board of Directors. The citizens of the District elect the Board of Directors. The District was formed for the purpose of providing water, sewer, and fire protection services.

OCSD's water supply consists of an infiltration gallery within Pearch Creek with unknown but adequate capacity. Water flows by gravity to treatment, where it is prechlorinated and then filtered through three parallel Permutit automatic backwash filters. The District recently began feeding polymer or other coagulant. Water is then stored in a 100,000 gallon redwood tank and fed to distribution. Two pressure zones exist within the system, with one zone served by the redwood storage tank and a second zone served by a booster pump. The distribution system consists of mostly asbestos cement pipe with some ductile iron, PVC, and steel, all ranging in size between 2 inches and 8 inches in diameter. The distribution system was installed in 1977 and 1997.

According to the 2005 DHS annual inspection report, OCSD retailed approximately 26 million gallons of drinking water in 2005. Average daily use for the entire District is estimated at 0.071 mgd, and peak daily use is estimated at approximately 0.513 mgd. The Orleans WSA has approximately 149 active connections and 15 inactive connections. Only one meter used by the Forest Service is unmetered.

**Palmer Creek Community Services District**

Palmer Creek CSD's water supply consists of two active wells, each capable of pumping 80 gpm. Water pumped from the wells is injected with chlorine and then sent to a contact basin

prior to filtration through a Loprest package treatment plant designed to remove iron and manganese from the groundwater. The plant consists of a reaction vessel and three pressure filters, after which water is boosted to storage and distribution. The District has one 200,000 gallon storage tank that serves two pressure zones; one has reduced pressures through a PRV. The distribution system consists of approximately 38 miles of PVC, cast-iron and asbestos cement pipe ranging in size from 2 inches to 10 inches.

Palmer Creek CSD produced more than 11 million gallons of drinking water in 2003. Average daily use is estimated at approximately 0.031 MGD, and peak daily use is estimated at approximately 0.084 MGD. The District has approximately 150 service connections, of which 127 are active connections. All active connections are metered

**Patrick Creek Community Services District**

The Patrick Creek Community Service District was originally organized in August 1969 under Community Service District law pursuant to sections 61000-61934 of the Government Code. The governing board of the District is the Board of Supervisors; however, the Board of Supervisors appoints a five (5) member Board of Directors to supervise the business of the District. The term of office of the Board is at the pleasure of the Board of Supervisors.

The District was formed for the purposes of: a) supplying water for domestic use, irrigation, industrial use, fire protection and recreation; b) collection, treatment and disposal of sewage, waste and storm water; c) street lighting; d) streets and road maintenance; and e) construction and improvement of bridges, culverts, curbs, gutters, and drains

The District originally had its own water system. However, in 1973, the Patrick Creek Community Services District (PCCSD) transferred interest in the distribution system to the McKinleyville Community Services District where water obtained from the HBMWD is distributed. The water system currently serves 17 homes, with a total capacity of 18 homes. One household has two lots, and the rest are single lots. With the exception of the possibility of the double lot ownership, the district is at capacity.

**Phillipsville Community Services District**

The Phillipsville area is provided water service through the Phillipsville Community Services District (PCSD). The PCSD was declared formed in August of 1989 after a successful special election was held. The District was established for the purpose of supplying potable water and fire protection services. The governing board is a five member Board of Directors.

PCSD's water supply consists of a groundwater well of unknown capacity and a surface water spring source with variable capacity. The spring source is unable to meet summertime demands, and therefore only serves the upper portion of the system during low flows while the well supplies water to the rest of the system. The well is primarily used during dry months. The spring is believed to be under the influence of surface water, is not filtered, and is not continuously chlorinated with a reliable method (chlorine tablets). It is therefore not in compliance with SWTR. The well is continuously disinfected with a chlorination feed system located in the well housing. The well has high levels of iron and manganese and suffers from low pH, which causes problems with coloration and corrosion of the distribution system.

The system has a total of eight storage tanks ranging in size from 250 gallons to 60,000 gallons for a total combined capacity of 74,850 gallons. The system has numerous small pressure zones with anywhere between two and four connections. The distribution system consists of a variety of piping, not all of which meet standards. The exact amounts of any particular piping are

unknown. Some electrical conduit is currently being used for water piping. The system has replaced approximately 2,050 feet of piping since 2000 with PVC piping.

According to the 2004 DHS annual inspection report, PCSD retailed an estimated 8.75 million gallons of drinking water in 2003. Average daily use for the entire District is estimated at 0.024 mgd, and peak daily use is estimated at approximately 0.085 mgd. The Phillipsville area has approximately 65 active service connections. The system does not have a master meter to monitor production.

**Redway Community Services District**

The Redway Community Services District (District) was originally organized in 1965 pursuant to the provisions of Title 6, Division 2 of the Government Code. The governing board of the district is the Board of Supervisors; however, the Board of Supervisors appoints a five member Board of Supervisors to oversee the business of the District. The term of office is four years. The District was formed for the purpose of providing water, sewer, fire protection, collection of garbage, and street lighting service. In 1977 the Redway Sanitary District was dissolved and combined with the Redway Community Services District.

Presently, the District maintains and operates a water system and a sewer system. These facilities provide water service to 100% of the households and businesses in the District, and approximately 93% of the households and businesses with sewer service.

The District's water system consists of two water sources, a conventional filter water treatment plant, three storage facilities, two pressure reduction vaults, and one booster pump station, as well as the transmission and distribution lines, many of which were installed prior to 1950. There are presently 600 service connections.

The sources of water are the South Fork of the Eel River (surface water) and an unnamed spring (ground water). The water treatment plant design capacity is 460,000 gallons per day. The water permit allows for a draw of 1.05 CFS. The spring source is limited to .123 CFS, and 52 AC-FT per year. The maximum production for the spring is 46,000 gallons per day.

The total capacity of the three storage areas is approximately 380,000 gallons. Additional storage capacity is indicated for fire safety during high use periods, which coincide with the highest fire danger seasons. There are areas within the district that are in the planning stages of subdivision; the developer would have to provide the needed additional storage capacity to enable the District to provide services to numerous additional customers.

**Resort Improvement District #1 (Shelter Cove)**

The Resort Improvement District #1 (RID) was formed in February 1965 pursuant to the provisions of the Public Resources code. The district was created for the purpose of installing and maintaining facilities and providing services within the Shelter Cove Sea Park Subdivision. This is one of only three such districts created prior to the State Legislature's repeal of the enabling legislation in 1975. It is now the only such district remaining in the State because of reorganizations affecting the other two districts.

Presently, the District provides water service to approximately 324 residential customers and 19 commercial customers, and sanitary sewer service to approximately 269 residential customers and 18 commercial customers in the more densely developed areas.

The District's water supply system consists of a diversion facility and treatment plant on Telegraph Creek. The distribution system has been extended throughout the District and contains 18

storage tanks and 10 booster pump stations. Although the distribution system was installed District-wide, the initial water appropriation rights were not sufficient to meet projected demand for full build-out.

**City of Rio Dell**

The City's water supply comes from a recently completed infiltration gallery in the South Fork of the Eel River. The production capacity of the gallery is tied to water levels within the river, such that in the winter the pumps can deliver around 700 gpm, but in the summer production falls to about 550 gpm (0.792 MGD). Water is pumped to treatment for filtration and disinfection before entering the City's distribution system. The City has two pressure zones served by four tanks ranging in size from 100,000 gallons to 500,000 gallons for a total combined storage capacity of 1.1 million gallons. The distribution system contains approximately 11 miles of pipe, of which 5 miles were replaced with 10" HDPE pipe under the City's infrastructure rehabilitation project. The remaining distribution system ranges in size from 4 inches to 6 inches and consists mainly of AC pipe.

The City has recently invested heavily in upgrading its water system following a declared water emergency in 2001 when the City's water supply began to fail. Since then, they have received $5.0 million in grant funds to rehabilitate the water distribution system city-wide and $1.0 million in grant funds and a loan in the amount of $2.3 million to construct a new infiltration gallery and water treatment plant. The new treatment plant has a design capacity of 700 gpm.

The City has approximately 1,179 connections within the system, of which approximately 96% are residential connections. The City also serves 49 commercial connections, two landscape connections, and two agricultural connections.

**Riverside Community Services District**

The Riverside Community Service District was formed on June 25, 1991 under Community Service District law pursuant to sections 61000-61934 of the Government Code. The governing board is elected and consists of a five (5) member Board of Directors to supervise the business of the District.

The District was formed for the purposes of securing a state grant to bring an existing water system into compliance with state water quality requirements. The District provides water services for both domestic and agricultural purposes.

The current system provides water service to 71 residential customers and 25 agricultural operations: dairies on the Ferndale bottoms. The District water source consists of artesian springs and wells with a maximum production capacity of approximately 60,000 gallons of water a day. The current system pumps an average of 28,000 gallons of water per day and is at less than half of the District's capacity.

**City of Trinidad**

The Trinidad water system in its current configuration has been in operation since the early 1970's. Minor improvements have been implemented over the years, but the basic configuration has remained the same. The City's water system serves approximately 315 connections within its sphere of influence.

Potable water for the City system is currently supplied from Luffenholtz Creek, half mile from the coast, and approximately a mile and a half from the City. Originally, homes in the City had individual wells or were served from an untreated water supply from Mill Creek (also referred to as Old Mill Creek). The City obtained the domestic water right for Luffenholtz Creek, and an

infiltration gallery and water treatment plant were constructed to supply the City when it became clear that Mill Creek could not meet long term needs.

The pumps located at the infiltration gallery that supply pressure to move water through treatment to the storage tanks were inundated with sediment a few years back. The pumps were rehabilitated, but have never worked as well as expected since their repair. The pumps should be capable of delivering 120 gallons per minute (gpm), but only deliver about 100 gallons per minute.

The City of Trinidad has an operations and maintenance program that keeps the storage, treatment, and distribution systems in good condition. The storage tanks are regularly inspected and the steel bands tightened to prevent water losses. The City conducted leak detection testing on the distribution system in 2003 and tested all water meters in 2003. Major leaks detected have been repaired, and poorly functioning water meters are being replaced as funds become available.

**Weott Community Services District**

The Weott USA receives water service from Weott Community Services District (WCSD). The WCSD was originally organized in 1965 pursuant to the provisions of Title 6, Division 2 of the Government Code. The governing board of the district is the Board of Directors, elected by the citizens of the District. The term of office is four years. The District was formed for the purpose of providing water, sewer, and fire protection.

WCSD's water system consists of two surface water sources located across the Eel River and south of Bull Creek. The springs located on Mill Creek are permitted to produce 80 gpm, and the springs located on Corner and Deck Creek are permitted to produce 60 gpm. The springs flow by gravity to two treatment trains – the Mill Creek springs provide water to Line A, while the other springs provide water to Line B. The total rated capacity of these sources is approximately 0.202 MGD.

The springs flow by gravity through two separate treatment and distribution systems – Line A and Line B. Line A has a treatment capacity of 37.7 gpm at the maximum allowable filter loading rate, and Line B has a treatment capacity of 47.7 gpm. Each treatment train has two pressure filters in series. Sodium hypchlorite is injected following filtration. Interties exist between the two systems within the distribution system. Treatment capacity totals approximately 85.4 gpm (0.123 MGD) and is therefore more limiting than source capacity.

The District operates two pressure zones, each served by separate storage and distribution systems. Water storage consists of two tanks: a 79,000 gallon concrete tank and a new 90,000 bolted steel tank. One booster station is in operation to boost Line A following filtration to storage. The distribution system consists of approximately three miles of PVC, steel, and aluminum pipe varying in size from 3 inches to 4 inches.

**Westhaven Community Services District**

The Westhaven CSD water system was developed by the Westhaven Mutual Water Company: (WMWC), incorporated in 1968 and eventually consisting of 186 shareholders). In 1968, the WMWC assumed ownership of a reservoir fed by surface water sources and a primitive distribution system previously used by a series of private owners to supply domestic water to portions of the community.

The WMWC constructed a second reservoir and installed a new, though substandard, distribution system. The WMWC eventually supplied water to 182 dwellings, one market, two

churches and the volunteer fire department, and promised water to 12 idle services. The WMWC system was operated without filtration, adequate disinfection or treated water storage facilities.

Beginning in 1978, the WMWC came under increasing pressure from the State Department of Health Services to construct water treatment and storage facilities that would provide for the distribution of water that met municipal water quality standards. Hoping to be better able to make needed improvements as a public entity, members of the WMWC Board and other community residents began to pursue formation of a community service district in 1986.

The Westhaven Community Service District (CSD) was formed on May 17, 1988 under Community Service District law pursuant to sections 61000-61934 of the Government Code. The governing board is elected and consists of a five (5) member Board of Directors to supervise the business of the District.

After the District was formed, it assumed ownership and operation of all facilities then owned and operated by WMWC. The District boundary was drawn essentially to include all the service area established by WMWC. As anticipated, the District was able to secure publicly supported funding to improve the water system. A project phased over four years in the early 1990s included construction of a filter for surface water, repair of a failed storage tank, installation of reliable disinfection equipment, purchase of a well and replacement of approximately 25% of the distribution system. Much of the remaining distribution system is substandard and more than 30 years old.

The Westhaven Community Service District currently provides domestic water service to 204 single-family homes and 3 small-scale commercial-type establishments (Westhaven Community Church, Westhaven Center for the Arts, and Westhaven Community Hall). Nineteen (19) idle WMWC services represent a future obligation, making a total of 226 service connections possibility at full capacity.

The system is supplied by three small, spring-fed tributaries of Two Creek at the eastern edge of the community and a 100-foot deep well within the residential area. The creek source represents approximately 75% of the total source capacity, with the well accounting for the remaining 25%. During the system-upgrading project in the early 1990s, the District expended considerable resources in efforts to locate additional local water sources. Except for the well, no additional sources that could be developed in an economically feasible manner were located within the District. During this same time, an attempt by the District to develop a municipal well just outside the northeast boundary failed due to local political impasse.

**Willow Creek Community Services District**

The Willow Creek Community Services District was originally organized in 1965 under Government Code Section 61600. There are five members of the board who supervise the business of the District.

Presently, the District maintains and operates a water system and park facilities. The locations of these facilities provide adequate coverage and services to 100% of the households in the District for domestic water supply.

The District source of supply is from Willow Creek. It consists of six wells located in the mouth of Willow Creek. Four wells draw water from infiltration galleries in the Willow Creek flood plain acting as a natural filtration system. The water is chlorinated and treated before it placed into the distribution system. The District monitors chlorination and turbidity 24 hours a day. The District

has a pumping capacity of 1.9 million gallons per day. The daily average consumption during peak time is 1.6 million gallons per day. Water storage capacity is 1.1 million gallons.

Currently the District has 960 water service connections. The District anticipates being able to accommodate an additional 1,000 through 1,200 service connections before meeting capacity.

**Private Water System and Wastewater Disposal Systems**

The balance of the County not served from the public water suppliers outlined above are served by a myriad of private water systems and on-site wastewater disposal systems. Private drinking water systems in the County include springs and other surface water sources and those water sources that are dug, driven, and drilled.

A spring is a place on the earth's surface where groundwater emerges naturally. The water source of most springs is rainfall that seeps into the ground uphill from the spring outlet. While springs may seem like an ideal water supply, they need to be selected with care, developed properly, and tested periodically for contamination.

Spring water moves downhill through soil or cracks in rock until it is forced out of the ground by natural pressure. The amount, or yield, of available water form springs may vary with the time of year and rainfall. Groundwater obtained from springs is similar to water pumped from shallow wells. Like shallow wells, springs may be contaminated by surface water or other sources on or below the ground surface.

Springs are susceptible to contamination because the water feeding them typically flows through the ground for only a short distance, limiting the amount of natural filtering that can occur. Springs may not be a good choice for a water supply if the area uphill where the water collects is used for industry, agriculture, or other potential sources of pollution.

Dug wells are holes in the ground dug by shovel or backhoe. Historically, a dug well was excavated below the groundwater table until incoming water exceeded the digger's bailing rate. The well was then lined (cased) with stones, brick, tile, or other material to prevent collapse. It was covered with a cap of wood, stone, or concrete. Since it is so difficult to dig beneath the ground water table, dug wells are not very deep. Typically, they are only 10 to 30 feet deep. Being so shallow, dug wells have the highest risk of becoming contaminated.

Like dug wells, driven wells pull water from the water-saturated zone above the bedrock. Driven wells can be deeper than dug wells. They are typically 30 to 400 feet deep and are usually located in areas with thick sand and gravel deposits where the ground water table is within 15 feet of the ground's surface. In the proper geologic setting, driven wells can be relatively inexpensive to install. Although deeper than dug wells, driven wells are still relatively shallow and have a moderate-to-high risk of contamination from nearby land activities.

Drilled wells penetrate about 100-400 feet into the bedrock. Bedrock at the surface, it is commonly called ledge. To serve as a water supply, a drilled well must intersect bedrock fractures containing ground water.

Generally, private drinking water sources are not regulated by EPA, the State, or the County. However public water system standards do apply to private water systems that serve over 25 people for more than 60 days per year.

All development within both unincorporated and incorporated areas within the County are subject to meeting minimum development standards for infrastructure. These minimum

standards are detailed in the Humboldt County General Plan and standards set forth and adopted by incorporated cities within the County. Generally for annexations to be considered, infrastructure within the potential annexed area must meet the minimum standards of the City. For example, Fortuna requires all proposed annexations to be up to Fortuna's sewer/water/roads standards and would require a new assessment district where there are deficiencies.

However, regulations governing the on-site disposal of wastewater include the Sewage Disposal Ordinance and the Sewage Disposal Regulations adopted by Humboldt County, and the Policy on the Control of Water Quality with Respect to On- Site Waste Treatment and Disposal Practices adopted by the California Regional Water Quality Control Board.

A septic system is a biological method of household sewage treatment that can be very effective when it has been carefully designed and installed and then is properly used and maintained. Septic systems are designed to provide partial treatment of the sewage, with disposal to the soil in such a manner that the sewage stays under the ground and is further treated by soil organisms so that contaminants do not reach groundwater or streams.

A septic system typically consists of a septic tank and a leaching device. The tank is usually 1,000-2,000 gallons in size and is designed to trap solids and grease and provide initial, primary treatment of sewage. Treatment in the septic tank is anaerobic without oxygen) and produces a fairly raw effluent that is still very high in bacteria and pathogens, dissolved solids and organics, ammonia and organic nitrogen. The liquid then typically flows by gravity to the leaching device where the sewage soaks into the soil and most of the treatment takes place. The total size of tank and leaching area needed is determined by the expected amount of sewage flow into the system and capabilities of the soil to absorb water. Solids settle to the bottom of the tank and must be periodically pumped out by a qualified pumper before they build up and get into the leach lines. If this happens, the solids will clog the system and cause its failure.

Good treatment is primarily a biological process and it occurs most rapidly in upper soil layers that are rich in soil organisms and with plenty of oxygen to provide aerobic treatment. Besides the basic tank and trench leaching device, an onsite sewage disposal system may include other components such as a pump if the leachfield is higher than the tank. Cesspools and pit privies are old methods of sewage disposal that are now prohibited by the North Coast Regional Water Quality Control Board.

While these systems can work effectively, the presence of high groundwater has significantly reduced their performance. Once in the groundwater, pollutants can travel up to 100 times the distance in unsaturated soils before achieving the same level of treatment. Over the last 20-years there has been significant advances in the development of "alternative" treatment methods that are suitable for residential use. They include mounds, sand filters, recirculation textile and other media filters as well as constructed wetland. While conventional septic tank/leachfield systems represent the easiest and most cost effective system, the alternatives can be use to correct existing deficiencies and to allow development to occur in areas where conventional systems are inadequate. Humboldt County regulations have not been updated since 1984 and should be to better incorporate these relatively new technologies.

A current issue that faces the RWQCB and Humboldt County is the protection of "all" groundwater for potential reuse as drinking water. While protecting our drinking water supply is essential, for a number of reasons including geology and water quality (i.e. predominately iron and manganese) many areas of the County are not suitable for productive use of groundwater for drinking water purposes. Currently, this concern is driving the RWQCB to require removal of nitrogen such that advanced technologies are needed at considerable expense. Our

regulations should be set so that they recognize when these advanced technologies do provide any real benefit in terms of environmental protection. Each site in the County is unique and the regulations should be revised to reflect this fact.

The State and County have several regulations to help prevent septic systems from causing pollution or presenting a serious public health hazard. The State Health and Safety Code require an appropriate means of sewage disposal for all homes and businesses. It also prohibits any discharge of sewage on the ground surface. The Health and Safety Code designates the local Health Officer as the person for ensuring proper sewage disposal in each jurisdiction. The Health Officer can delegate these responsibilities to another responsible agency. In Humboldt County, the responsible agency is the Environmental Health Department.

The North Coast Regional Water Quality Control Board is responsible for ensuring that septic systems do not cause pollution of surface or groundwater. The Regional Board has developed many standards for proper septic system installation, including: groundwater separation, stream and well setbacks, slope limitations, minimum system sizing requirements, and allowances for use of alternative technologies. These standards are contained in the Water Quality Control Plan for the North Coast Region (Basin Plan). The Basin Plan delegates permitting and regulating authority to local entities. The County must comply with the minimum standards contained in the Basin Plan in order to keep the authority to permit septic systems.

Another state law has recently passed and been added to the State Water Code that affects the unincorporated coastal areas in relation to septic systems. The Coastal On-site Sewage Treatment System Regulations requires the State Water Quality Control Board to adopt standards and regulations for the permitting and operation of septic systems in coastal areas.

## C. Regulatory Setting

This section provides an overview of the regulatory requirements pertinent to Humboldt County jurisdictions.

The overview begins with federal regulations and is followed by a more detailed discussion of state and county regulations relevant to the use of the various water resources. Land development that discharges Stormwater runoff into waters of the United States and/or the State of California is subject to the requirements of Federal, State and local agencies (i.e. California State Water Resources Control Board, North Coast Regional Water Quality Control Board (RWQCB), and the County of Humboldt. Regulations and permits under the Unites States Army Corps of Engineers and California Department of Fish and Game are also considered.

Water quality protection has long been a priority at all levels of government. In California, programs implementing the Federal Clean Water Act and the State Porter-Cologne Act are administered by the SWRCB, the nine regional water quality control boards (RWQCB) and authorized Indian tribal governments. Humboldt County is governed by the North Coast RWQCB and the Hoopa Valley Tribe for portions of the Trinity River. Waste discharge requirements are set by each RWQCB for point sources, including industrial and commercial uses, community wastewater management systems and individual septic systems. Implementation of point source controls has led to substantial increases in the level of treatment and quality of discharges.

### *National Pollutant Discharge Elimination System*

The focus of regulatory efforts has expanded in recent years to address surface runoff pollutants into drainage channels, streams and groundwater. The National Pollutant Discharge Elimination System (NPDES) program requires individual permits for construction sites and certain industrial

and commercial activities and requires "municipal" area wide permits for urbanized areas. Beginning in 2003, Municipal NPDES permits are required for all local jurisdictions having a population greater than 10,000. Similar approaches to controlling storm water pollution are being developed in the Humboldt County's Coastal Zone in response to California Coastal Commission policies. The requirements for NPDES permits include the "California Toxics Rule" and State and Federal criteria for metals, pesticides and other pollutants which could affect aquatic life and human health.

### *Federal Clean Water Act*

In 1987, the Federal Water Pollution Control Act (CWA) was amended by adding Section 402(p) that established regulations for both municipal and industrial storm water discharges under the National Pollutant Discharge Elimination System (NPDES) Program. Section 402(p), as amended, requires NPDES permits for stormwater discharges from storm drain systems to waters of the United States. Storm drain systems are described as Municipal Separate Storm Sewer Systems (MS4s) and include streets, gutters, conduits, natural or artificial drains, channels and water courses or other facilities that are owned, operated, maintained or controlled by any permittee (cities and counties) and used for the purpose of collecting, storing, transporting or disposing of storm water.

Section 402(p)(3)(B) of the CWA requires that permits for storm drain systems "(i) may be issued on a system- or jurisdiction-wide basis; (ii) shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers; and (iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable (MEP), including management practices, control techniques and system, design, and engineering methods, and other such provisions as the Administrator or the State determines appropriate for the control of such pollutants." The state level discussion of the Clean Water Act included in this report provides further detail.

### *Federal Safe Drinking Water Act*

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and ground water wells. (SDWA does not regulate private wells which serve fewer than 25 individuals.)

#### 1. California Toxic Rule (CTR) Overview

In accordance with the CWA regulations, States are required to adopt water quality standards for water bodies and have those standards approved by the United States Environmental Protection Agency (USEPA). If States cannot propose acceptable standards to the USEPA, the USEPA is responsible for setting the standards. Because California had not established a complete list of water quality criteria acceptable to the USEPA, EPA Region IX has established numeric water quality criteria for toxic constituents, in particular – metals, as the California Toxics Rule (CTR). CTR limits do not apply to stormwater directly, but in watersheds with adopted Total Maximum Daily Loads (TMDL's) for metals, are increasingly being used as benchmarks.

#### 2. 303(d) List of Water Quality Limited Segments & TMDL's Overview

Pursuant to the Clean Water Act (CWA), the State and Regional Boards are required to assess the water quality and beneficial uses of water bodies every two years and list water bodies that have been determined to be impaired on the CWA Water Quality

Limited Segments 303(d) List. Once a water body has been deemed impaired, the State of California and or USEPA are required to develop a Total Maximum Daily Load (TMDL). A TMDL must be developed for each water body and each pollutant or group of pollutants that are causing the impairment to beneficial uses. Essentially, a TMDL is an estimation of the total daily load of pollutants from point sources as a waste load allocation (WLA), non-point sources as a load allocation (LA), and natural sources (background concentration) that a water body may receive without causing an exceedance of applicable water quality criteria. TMDL's account for current and future dischargers into a water body.

**3. Municipal Separate Storm Sewer (MS4) Permit Overview**

On November 16, 1990, pursuant to Section 402(p) of the CWA, the USEPA promulgated Federal regulations (40 Code of Federal Regulations (CFR) Part 122.26 establishing requirements for stormwater discharges under the NPDES program. However, small municipalities (with less than 100,000 population) are covered under separate permitting requirements. The significance of these federal regulations is discussed in greater detail below.

***California State Water Resources Control Board (SWRCB)***

Division 7 of the California Water Code, also known as the Porter-Cologne Water Quality Control Act, contains provisions that cover water quality protection and management for California's waters. The Porter-Cologne Act establishes the SWRCB (State Water Resources Control Board) and the nine Regional Water Quality Control Boards (RWQCBs) as the principal state agencies responsible for the protection and, where possible, the enhancement of the quality of California's waters. The SWRCB sets statewide policy, and together with the RWQCBs, implements Federal and State regulations.

**4. North Coast Water Quality Control Board Basin Plan**

The *Water Quality Control Plan for the North Coast Region* (Basin Plan, January 2007) is comprehensive in scope. It contains a brief description of the North Coast Region, and describes its water quality and quantity problems and the present and potential beneficial uses of the surface and ground waters within the Region. The water quality objectives contained in the Basin Plan are prescribed for the purposes of protecting the beneficial uses and include both narrative and numeric criteria.

The present water quality within the North Coast Region generally meets or exceeds the water quality objectives set forth in Section 3 of the Basin Plan. In most cases the water quality is sufficient to support, and in some cases, enhance the beneficial uses assigned to water bodies in Section 2 of the Basin Plan. However, the Basin Plan identifies a number of present or potential water quality problems which may interfere with beneficial uses or create nuisances or health hazards.

**5. Beneficial Uses**

Beneficial uses are designated under the CWA Section 303 in accordance with regulations contained in 40 CFR 131. An essential part of a water quality control plan is an assessment of the beneficial uses, which are to be designated and protected. Table 13-1 identifies beneficial uses for each hydrologic area in Humboldt County, as well as for specific waterbodies and broad categories of waters (i.e., bays, estuaries, minor coastal streams, ocean waters, wetlands, and groundwater). Protection will be afforded to the present and potential beneficial uses of waters of the North Coast Region as designated

and presented in Table 13-1. The beneficial uses of any specifically identified water body generally apply to all of its tributaries.

The Basin Plan has identified the following existing and potential beneficial uses for Humboldt County as abbreviated below:

**MUN** Municipal and Domestic Supply
**AGR** Agricultural Supply
**IND** Industrial Service Supply
**PRO** Industrial Process Supply
**GWR** Groundwater Recharge
**FRSH** Freshwater Replenishment
**NAV** Navigation
**POW** Hydropower Generation
**REC-1** Water Contact Recreation
**REC-2** Non-Contact Water Recreation
**COMM** Commercial and Sport Fishing
**WARM** Warm Freshwater Habitat
**COLD** Cold Freshwater Habitat
**ASBS** Preservation of Areas of Special Biological Significance
**SAL** Inland Saline Water Habitat
**WILD** Wildlife Habitat
**RARE** Rare, Threatened, or Endangered Species
**MAR** Marine Habitat
**MIGR** Migration of Aquatic Organisms
**SPWN** Spawning, Reproduction, and/or Early Development
**SHELL** Shellfish Harvesting
**EST** Estuarine Habitat
**AQUA** Aquaculture
**CUL** Native American Culture
**FLD** Flood Peak Attenuation/Flood Water Storage
**WET** Wetland Habitat
**WQE** Water Quality Enhancement
**FISH** Subsistence Fishing

The subheadings are abbreviations of beneficial uses and are taken directly from the Basin Plan. An "E" or a "P" in a column beneath one of these designates an existing or potential beneficial use for a given hydrologic area, sub-area or water body, respectively. The complete list of beneficial uses for Humboldt County follows.

In addition to numerical water quality objectives, the NCRWQCB Basin Plan defines certain narrative objectives which are aimed at prohibiting increases in concentrations of materials that would pose a nuisance or adversely affect beneficial uses of receiving waters such as color, odors, oil and grease, temperature and a whole host of other constituents.

**Table 13-3. Beneficial Uses**

| Hydrologic Unit/Area/Subunit/ Drainage Feature | MUN | AGR | IND | PRO | GWR | FRSH | NAV | POW | REC1 | REC2 | COMM | WARM | COLD | ASBS | SAL | WILD | RARE | MAR | MIGR | SPWN | SHELL | EST | AQUA | CUL | FLD | WET | WQE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Klamath River Hydrologic Unit** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Orleans Hydrologic Subarea | E | E | E | P | E | E | E | P | E | E | E | E | E | | | E | E | | E | E | P | | P | E | | | |
| **Trinity River Hydrologic Unit** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hoopa Hydrologic Subarea | E | E | E | P | E | E | E | P | E | E | E | | E | | | E | E | | E | E | P | | P | E | | | |
| Willow Creek Hydrologic Subarea | E | E | E | P | E | E | E | E | E | E | E | | E | | | E | E | | E | E | P | | P | | | | |
| **Redwood Creek Hydrologic Unit** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Orick Hydrologic Area | E | E | E | P | E | | E | P | E | E | E | | E | | | E | E | E | E | E | | E | P | E | | | |
| Beaver Hydrologic Area | E | E | E | P | E | | E | P | E | E | E | | E | | | E | E | | E | E | | E | P | | | | |
| Lake Prairie Hydrologic Area | E | E | E | P | E | | E | P | E | E | E | | E | | | E | E | | E | E | | E | P | | | | |
| **Trinidad Hydrologic Unit** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Big lagoon Hydrologic Unit | E | E | E | P | E | E | E | | E | E | E | | E | E | | E | E | E | E | E | | E | P | E | | | |
| Little River Hydrologic Unit | P | E | E | P | E | E | E | | P | E | E | | E | | | E | E | E | E | E | | E | P | E | | | |
| **Mad River Hydrologic Unit** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Blue Lake Hydrologic Area | E | E | E | E | E | E | E | P | E | E | E | | E | | | E | E | P | E | E | | E | E | E | | | |
| N. Fork Mad River Hydrologic Area | E | E | E | E | E | E | E | P | E | E | E | | E | | | E | E | | E | E | | | P | | | | |
| Butler Valley Hydrologic Area | E | E | E | E | E | E | E | P | E | E | E | | E | | | E | E | | E | E | | | P | E | | | |
| Ruth Hydrologic Area | E | E | E | E | E | E | E | E | E | E | E | E | E | | | E | E | | E | E | | | P | | | | |
| **Eureka Plain Hydrologic Unit** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Jacoby Creek | E | E | E | P | E | E | E | P | E | E | E | | E | | | E | E | | E | E | | E | P | E | | | |
| Freshwater Creek | E | E | E | P | E | E | E | P | E | E | E | | E | | | E | E | | E | E | | E | E | E | | | |
| Elk River | E | E | E | P | E | E | E | P | E | E | E | | E | | | E | E | | E | E | | E | P | | | | |
| Salmon Creek | E | E | E | P | E | E | E | P | E | E | E | | E | | | E | E | | E | E | | E | P | E | | | |
| Humboldt Bay | E | E | E | P | | E | E | P | E | E | E | | E | | | E | E | E | E | E | E | E | E | E | | | |
| **Eel River Hydrologic Unit** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Lower Eel River Hydrologic Area** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ferndale Hydrologic Subarea | E | E | E | P | E | E | E | P | E | E | E | | E | | | E | E | P | E | E | E | E | P | E | | | |
| Scotia Hydrologic Subarea | E | E | E | P | E | E | E | P | E | E | E | | E | | | E | E | | E | E | | | P | | | | |

| Hydrologic Unit/Area/Subunit/ Drainage Feature | MUN | AGR | IND | PRO | GWR | FRSH | NAV | POW | REC1 | REC2 | COMM | WARM | COLD | ASBS | SAL | WILD | RARE | MAR | MIGR | SPWN | SHELL | EST | AQUA | CUL | FLD | WET | WQE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Larabee Creek Hydrologic Subarea | E | E | E | P | E | E | E | P | E | E | E | | E | | | E | E | | E | E | | | P | | | | |
| **Van Duzen River Hydrologic Area** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydesville Hydrologic Subarea | E | E | E | P | E | E | E | P | E | E | E | E | E | | | E | E | | E | E | | | P | E | | | |
| Bridgeville Hydrologic Subarea | E | E | E | P | E | E | E | E | E | E | E | E | E | | | E | E | | E | E | | | P | | | | |
| Yager Creek Hydrologic Subarea | E | E | E | P | E | E | | P | E | E | E | E | E | | | E | E | | E | E | | | E | E | | | |
| **S. Fork Eel River Hydrologic Area** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Weott Hydrologic Subarea | E | E | E | P | E | E | E | P | E | E | E | E | E | | | E | E | | E | E | | | P | | | | |
| Benbow Hydrologic Subarea | E | E | E | P | E | E | E | P | E | E | E | E | E | | | E | E | | E | E | | | P | | | | |
| **Cape Mendocino Hydrologic Unit** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mattole River Hydrologic Area | E | E | E | P | E | E | E | P | E | E | E | P | E | | | E | E | | E | E | | E | E | | | | |

### 6. California Toxic Rule (CTR)

The California Toxics Rule (CTR) criteria are used as benchmarks to evaluate potential effects of toxic pollutants – in particular metals - on both aquatic and human life. The CTR criteria are applicable to receiving water bodies and not directly applicable to stormwater runoff. Therefore, they are used only for the evaluation of potential acute and chronic toxic effects on aquatic biota. Acute toxicity means a toxic effect, which occurs immediately or shortly after a single exposure; as compared to chronic toxicity, which indicates that a toxic effect that occurs after repeated or prolonged exposure(s).

### 7. CWA 303(d) List of Water Quality Limited Segments

The other major Clean Water Act regulatory process affecting the future of water quality in Humboldt County is the Total Maximum Daily Load (TMDL) program. TMDL standards differ from previous regulatory methods which focused on waste loads from identifiable point sources. Instead, TMDL's considered the totality of pollutant stressors in a watershed basin and allocate responsibility for action among dischargers. Rather than focusing on a single entity for corrective action, TMDL's often require a number of programs and agencies to work together in achieving the desired level of pollution control. In order for TMDL's to be enforceable, they must be incorporated into a Water Quality Control Plan (Basin Plan). California ranks TMDL's as low, medium, or high priority based on the number and severity of the impairments and the importance of the beneficial uses. The RWQCBs are required to determine which waterbodies are "impaired" by certain pollutants limiting beneficial uses of water and then to initiate a public process to assess pollutant sources, determine acceptable levels, allocate allowable pollutant loads to various sources, and establish an implementation program. The following water bodies in Humboldt County have been identified as impaired:

**Table 13-4. TMDL Listed Water Bodies in California**

| Water Body | Basin | TMDL Stressor | Size Affected | Priority |
|---|---|---|---|---|
| South Fork Trinity | Klamath-Trinity | Sedimentation/Siltation/Temperature | 1161 miles | Medium |
| Trinity | Klamath-Trinity | Sedimentation/Siltation | 1256 miles | Medium |
| Klamath River | Klamath-Trinity | Nutrients/ Organic Enrichment/Low Dissolved Oxygen Temperature | 609 miles | Medium |
| Mattole River | Mattole | Sedimentation/Siltation/Temperature | 503 miles | High |
| Redwood Creek | Mad-Redwood | Sedimentation/Siltation/Temperature | 332 miles | Medium/Low |
| Mad River | Mad-Redwood | Sedimentation/Siltation/Temperature/Turbidity | 654 miles | Low |
| Freshwater Creek | Eureka Plain | Sedimentation/Siltation | 84 miles | High |
| Elk River | Eureka Plain | Sedimentation/Siltation | 88 miles | High |
| Eel River Delta | Eel River | Sedimentation/Siltation/Temperature | 426 miles | Medium |
| South Fork Eel | Eel River | Sedimentation/Siltation/Temperature | 943 miles | Medium |
| Middle Fork Eel | Eel River | Sedimentation/Siltation/Temperature | 1071 miles | Medium |
| Upper Main Eel River | Eel River | Sedimentation/Siltation/Temperature | 1141 miles | Medium |
| Middle Main Fork Eel | Eel River | Sedimentation/Siltation/Temperature | 674 miles | Medium |
| North Fork Eel | Eel River | Sedimentation/Siltation/Temperature | 382 miles | Medium |
| Van Duzen River | Eel River | Sedimentation/Siltation | 585 miles | Medium |
| Humboldt Bay | Eureka Plain | PCB's | 16075 Acres | Low |
| Jacoby Creek | Eureka Plain | Sediment | 19 miles | Low |
| 2002 CWA Section 303(D) List Of Water Quality Limited Segment, North Coast Regional Water Quality Control Board | | | | |

Sediment impairment affects fifty-nine percent of the area covered by the North Coast Region. The human-caused activities contributing to excessive sediment discharge include but are not limited to:

- Construction;
- Mining;
- Agriculture, including ranching, grazing, and farming;
- Dairies and other types of confined animal operation;
- Timber harvesting;
- Other earth-disturbing activities.

As of June 2007, the Regional Water Board has developed and adopted 17 sediment TMDL's and TMDL implementation plans for watersheds in the North Coast Region. In November 2004, the NCRWQCB adopted Resolution R1-2004-0087 Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region. This document directs the development of a work plan to set priorities for addressing sediment waste discharges at a watershed-specific level. It also encourages cooperative relationships and joint efforts in a non-regulatory manner to help land owners meet good stewardship goals.

In June 2007, the NCRWQCB developed draft implementation measures to control excess sediment. It finds that a prohibition offers the most workable solution for those activities not covered by a waste discharge waiver. The adopted language proposed as an amendment to the Basin Plan follows:

*"The discharge or threatened discharge of excess sediment from human-caused activities to waters of the state is prohibited. Excess sediment is soil, silt, sand, clay or similar material discharged to waters of the state in an amount that could be deleterious to beneficial uses or cause nuisance. Soil erosion occurs on the landscape as a natural process. This prohibition is intended to encourage application of protective measures that will control the discharge of human-caused excess and help meet the Region's water quality standards".*

The Regional Board intends to utilize progressive enforcement measures which may require non-conforming land owners to submit a Report of Waste Discharge.

The Freshwater Creek and Elk River watersheds in the Eureka Plain are unique in the policy instrument used by the Regional Water Quality Control Board to control excess sediment discharge. In 2006, the NCRWQCB issued resolutions and orders for Watershed-Wide Waste Discharge Requirements (WDR's) for timber harvest plan activities conducted by Scotia Pacific Company, Salmon Creek Corporation, and the Pacific Lumber Company which are collectively referred to as "Discharger" in the documents. The resolution and other documents find the discharger owns 78 percent of the total watershed area in Freshwater Creek. In the Elk Creek watershed, the discharger owns 98 percent of the N. Fork, and 51 percent of the S. Fork area.

For both watersheds, the Regional Water Board concluded that timber harvest activities are the dominant factor contributing to the CWA 303(d) sediment impairment. The degradation due to sediment is so severe the watersheds are no longer able to attain their intended beneficial uses. Prior to the issuance of the WDR's, the dominant controlling policy instrument was multi-species Habitat Conservation Plan (HCP) that the

discharger entered into in 1999 with the US Fish and Wildlife Service, NOAA Fisheries, and the California Department of Fish and Game. An Independent Scientific Review Panel found compliance with the HCP prescriptions alone would be insufficient to ensure all beneficial uses of water are protected. The NCRWQCB finds that the WDR's are consistent with both the Basin Plans and the State Water Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (May 2004). Taken as a whole, the WDR orders represent the furthest end of the spectrum in progressive enforcement measures the Regional Water Boards can consider.

The Klamath River Nutrient, Temperature, and Dissolved Oxygen TMDL Action Plan under development by the Regional Board were scheduled for completion by the end of 2008 under court-mandated consent decree. A time extension for this TMDL is currently being negotiated between USEPA and the plaintiffs.

**8. Municipal Separate Storm Sewer (MS4) permit**

The MS4 NPDES permits were developed to target discharges from stormwater conveyance systems which tend to carry toxic pollutants to receiving water bodies. On December 8, 1999, USEPA promulgated Small Municipal Separate Storm Sewer Systems (MS4s) with populations of 100,000 or less and construction sites disturbing between one and five acres of land not covered under the Phase I regulations. NPDES Federal regulations allowed two permitting options: individual permits and general permits. On February 4, 2003, the State Water Resources Control Board adopted a general permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ, NPDES General Permit No. CA000004) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s. A "regulated Small MS4" is defined as a Small MS4 that discharges to a water of the U.S. or other MS4 regulated by an NPDES permit and is either automatically designated by U.S. EPA pursuant to 40 CFR because it is located within an urbanized area defined by the Bureau of the Census; or individually designated by the SWRCB or RWQCB based on some determining factors.

A regulated Small MS4 will be covered under the Permit once the NOI and SWMP are received by the RWQCB. The Small MS4 can then begin implementing its SWMP with the understanding that the RWQCB may require the municipality to make further revisions to the SWMP. Per this Permit, the MS4s must implement Best Management Practices (BMPs) that reduce pollutants in storm water runoff to the technology-based standard of "Maximum Extent Practicable" (MEP) in lieu of numeric effluent limitations.

Also, the permittee's must implement programs to protect water quality. In the event that discharges may cause or contribute to water quality standard exceedances, BMPs must be proposed and implemented.

The General Permit requirements for regulated Small MS4s are mainly to:

- Develop and implement a SWMP
- Reduce discharge of pollutants to the MEP
- Perform inspection and monitoring

The SWMP must describe how storm water pollutants are to be controlled and address the BMPs for six minimum control measure requirements. These six measures are: 1) Public Education, 2) Public Participation, 3) Illicit Discharge Detection and Elimination, 4)

Construction Site Storm Water Runoff Control, 5) Post Construction Storm Water Management, and 6) Pollution Prevention/Good Housekeeping.

Under the General Phase II Permit, the Small MS4 is responsible for maintaining, implementing, and enforcing the SWMP. The SWMP must describe BMPs and measurable goals, which will satisfy the six minimum control measures identified above. Also, the SWMP shall be designed such that it can be easily updated with subsequent findings. It should include measurable goals, which can be easily modified based on various factors such as design, operation, maintenance, effectiveness, criteria, costs, and public participation. The SWMP must incorporate local applicable strategies for urban runoff control. It must have measurable goals, specific work plans for how to achieve these goals, and specific BMPs and their Standard Operating Procedures on how these measures should operate on a day-to-day basis. This will include providing a detailed schedule (month/year) for when each action should be taken and the frequency/milestones for each specific action undertaken. The SWMP must identify the person(s) in charge of implementing or coordinating the implementation of the SWMP, including the six minimum control measures.

The major stormwater systems within the County include McKinleyville, Arcata, Eureka, and Fortuna. All of these systems qualify as MS4s, but McKinleyville is the only system within the County's jurisdiction. The remaining MS4s are all incorporated cities and as such their responsibility. Aside from McKinleyville's stormwater system, for which the County developed an SWMP in 2005, the County is also responsible for maintaining systems within other unincorporated regions of the County. Major areas with County stormwater infrastructure include the areas surrounding Eureka, such as Cutten, Ridgewood, Pine Hill, and Humboldt Hill, and also Garberville and Shelter Cove. Other areas with minor amounts of drainage infrastructure include Redway, Manila, King Salmon, Fields Landing, Loleta, and Willow Creek.

McKinleyville is the only community within the County's jurisdiction for which a master drainage plan has been completed, and that study was finalized in 1982. A regional storm drainage study was also prepared for the Mid-Humboldt County Urban Planning Program in 1971. No other master drainage studies have been prepared since then.

Shelter Cove's stormwater drains to the King Range ASBS, so this discharge is regulated by the California Ocean Plan. The County has applied for an exemption to the discharge prohibition requirement for this study area, and is in the process of negotiating with the RWQCB on this issue. A likely requirement or condition of the waiver will be development of an MS4 permit and issuance of an NPDES stormwater discharge permit for Shelter Cove.

**9. Statewide Construction Permit (SWPPP)**

Potential applicants to the County must comply with the SWRCB General Construction Activity Storm Water Permit (NPDES No. CAS000002, Order No. 99-08-DWQ), adopted August 19, 1999 in addition to the Modifications to the State Construction Activity Permit, Resolution Number 2001.046, adopted by the SWRCB on April 26, 2001. Construction activities subject to the NPDES General Permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that results in soil disturbances of at least one acre of total land area. Construction activities that result in soil disturbances of less than one acre are subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses one or more acres of soil disturbance, or if there is significant water quality impairment

resulting from the activity. The applicant must ensure that a Storm Water Pollution Prevention Plan (SWPPP) is available on site and that a Notice of Intent to comply with the State Permit along with the appropriate fee is filed with the SWRCB prior to grading.

While this permit principally addresses activities during construction, it also includes a section on post-construction stormwater management. The NOI for the General Construction Permit requires a signature by an authorized person.

In addition to compliance with the Standard Urban Storm Water Mitigation Plan (SUSMP), the RWQCB is enforcing compliance with the General Construction Permit which states, "The SWPPP shall include descriptions of the BMPs to reduce pollutants in storm water discharges after all construction phases have been completed at the site (Post-Construction BMPs). Post-construction BMPs include the minimization of land disturbance, the minimization of impervious surfaces, treatment of storm water runoff using infiltration, detention/retention, biofilter BMPs, use of efficient irrigation systems, ensuring that interior drains are not connected to a storm sewer system, and appropriately designed and constructed energy dissipation devices. These must be consistent with all local post-construction storm water management requirements, policies, and guidelines. The discharger must consider site-specific and seasonal conditions when designing the control practices. Operation and maintenance of control practices after construction is completed shall be addressed, including short- and long-term funding sources and responsible parties." As a result, the RWQCB has a great deal of authority to independently enforce compliance as they see fit, consistent with the language of the General Construction Permit.

**10. Humboldt County Regulations**

As a local government's basic planning document, the Humboldt County General Plan is a key component of a local government's effort to control negative impacts to water resources. Through its policies and standards, the General Plan can be an effective tool in controlling the effects of development and is a particularly valuable tool for addressing nonpoint source pollution issues. Four mandatory elements deal with issues relating to water quality and pollution issues:

- Land Use – density and intensity of use affect nonpoint pollution sources;
- Conservation – may address watershed protection, land or water reclamation, prevention or control of the pollution of stream and other coastal waters, regulation of land uses along stream channels, etc.;
- Open Space – applies to preservation of natural resources, including fish and wildlife habitat, rivers, streams, bays and estuaries, and other open spaces; and
- Circulation – should plan not only for transportation but also for water, sewage, and storm drainage infrastructure.

***Local Coastal Plans***

Local Coastal Plans (LCP) are required by the State Coastal Act to be prepared for the County's portion of the coastal zone. The LCP consists of a local government's land use plans (LUPs), zoning ordinances, zoning district maps, and within sensitive coastal

resource areas, other implementing actions which meet the requirements of and implements the provisions and policies of the Coastal Act at the local level.

By controlling the type, location, and intensity of land uses in the coastal zone, the LCPs have a direct relation to efforts to control the impact of pollution on water bodies along the coastal zone.

***Grading, Erosion Control, Geological Hazards, Streamside Management Areas and related Ordinances.***

Completing the regulatory framework provided by local government are the ordinances that implement the General Plan and Local Coastal Plans' policies and standards. Humboldt County's ordinances dealing with grading, erosion control, geological hazards, and streamside management areas were recently strengthened with revisions adopted by the Board of Supervisors in May 2002.

Key revisions include:

1. Update of Building Regulations to incorporate updated uniform codes.
2. Creation of a subsection within the Building Regulations addressing Grading, Excavation, Erosion, and Sedimentation.
3. Modification of other sections relating to geologic hazards and processing of grading and building permits within or affecting Streamside Management or Other Wet Areas.
4. Addition of Geologic Hazards Regulations, including the incorporation of "area of demonstration of stability" provisions.
5. Establishment of a Streamside Management Ordinance, which codifies the Interim Implementation Standards for the Open Space Element of the General Plan (applicable to Non-Coastal areas only).
6. Ordinance revisions addressing vegetation removal or other land disturbing activities, and an ordinance revision needed to assure consistency between County regulations.

These revisions completed efforts to codify and implement comprehensive provisions for dealing with the development and conservation activities with potential impacts to streamside areas, as well as addressing nonpoint source pollution from runoff water. These ordinance revisions have a number of benefits including:

1. Implementation of various General Plan elements including water quality, biological resources, critical and sensitive habitats, geologic hazards, open space, conservation, and erosion and sedimentation control.
2. Additional guidance on the application of erosion and sediment control measures to various developments so that new developments incorporate BMPs.
3. Updating of existing zoning regulations which conform to all local, state, and federal requirements to protect property rights, sensitive habitats, and coastal and other sensitive resources.
4. Management of risk in geologically unstable areas and improvement of erosion control regulations to minimize the risk of building failures due to earthquakes or land movement.

## D. Hydrologic Assessment

The North Coast region generally has the most abundant water resources of any region of the State as a result of its unique location and topographic features. The high volumes of precipitation and natural runoff are a key component for most of the beneficial uses of its water bodies, including commercial and recreational fishing, shellfish harvesting, urban and agricultural use, and recreation. Many of the region's forests and watersheds support threatened and endangered species of plants and animals, and the major rivers and streams contain significant anadromous fishery resources. This region also features important coastal resources, including Trinidad Harbor, Humboldt Bay, and many small estuaries and lagoons.

### 1. Hydrology Methodology

This section provides background information on the methodology used to assess the potential hydrologic impacts of the proposed project.

### 2. Drainage Areas and Watershed

The term *watershed* describes an area of land that drains down slope to the lowest point. The water moves through a network of drainage pathways, both underground and on the surface. Generally, these pathways converge into streams and rivers, which become progressively larger as the water moves on downstream, eventually reaching an estuary and the ocean. Other terms used interchangeably with watershed include *drainage basin* or *catchment basin*. Watersheds can be large or small. Every stream, tributary, or river has an associated watershed, and small watersheds generally join to become larger ones. The Natural Resources and Hazards report includes additional information on the County's watersheds. This volume and a companion to the Natural Resources and Hazards Report (Volume II) includes more detailed treatments of each planning watershed, as well as detailed discussions of the regulatory framework and the watershed management approaches by various agencies.

Hydrologically, most land in Humboldt County falls within twelve planning watersheds and Humboldt Bay.

The portions of the watersheds that lie within the County are found in Table 13-4. The watersheds within Humboldt County are shown on Figure 13-5.

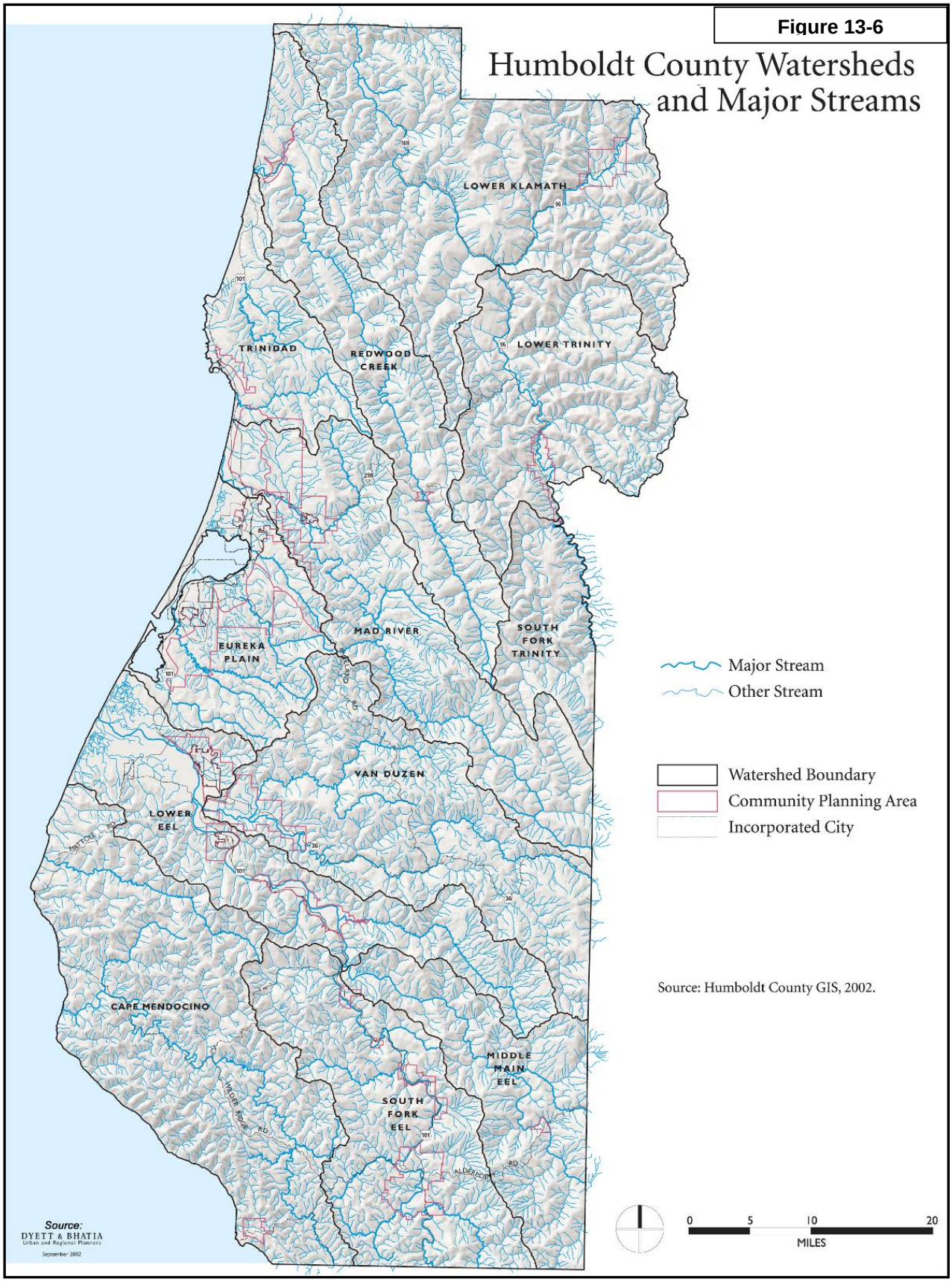
**Table 13-5. Humboldt County Watersheds**

| Watershed | Basin | Acres Within Humboldt County | Total Acres |
|---|---|---|---|
| South Fork Eel River | Eel Basin | 200,395 | 441,213 |
| Middle Main Eel River | Eel Basin | 138,509 | 333,345 |
| Lower Eel River | Eel Basin | 191,052 | 191,052 |
| Eureka Plain | Mad River-Redwood Creek | 124,617 | 124,617 |
| Lower Klamath River | Klamath-Trinity Basin | 332,787 | 493,453 |
| Mad River | Mad River-Redwood Creek | 221,337 | 322,143 |
| Redwood Creek | Mad River-Redwood Creek | 187,788 | 187,819 |
| Cape Mendocino (Mattole) | Mattole Basin | 311,774 | 319,628 |
| Trinidad | Mad River-Redwood Creek | 83,684 | 83,684 |
| Van Duzen | Eel Basin | 234,899 | 274,083 |
| Lower Trinity River | Klamath-Trinity Basin | 192,286 | 654,967 |

| Watershed | Basin | Acres Within Humboldt County | Total Acres |
|---|---|---|---|
| South Fork Trinity | Klamath-Trinity Basin | 73,205 | 596,497 |
| Source: Humboldt County GIS, 2002 | | | |

Traditionally, planning has been done based upon jurisdictional boundaries, which in most cases are different than watershed boundaries. Watershed planning and management consists of an approach for protecting water quality and quantity that focuses on the whole watershed. Watershed planning and management involve a number of activities, including: targeting priority problems in a watershed; promoting a high level of involvement by interested and affected parties; developing and implementing solutions to problems through the use of the expertise and authority of multiple agencies and organizations; and measuring success through monitoring and other data gathering. Humboldt County community watershed planning efforts can both accommodate growth and protect community and resource values if based on an integration of 'watershed infrastructure' and community desires. As a supplement to traditional land use planning processes, several agencies including the Natural Resource Services, the Redwood Creek Watershed Group, and others have applied the watershed management process in an integrated planning system. ***The Lindsay Creek Project: A Watershed and Community Based Land Use Assessment,*** is an example of watershed based planning efforts. Another is the ***Mattole Watershed Plan, by the Mattole Restoration Council.***

Figure 13-6


Humboldt County Watersheds and Major Streams
LOWER KLAMATH
TRINIDAD
REDWOOD CREEK
LOWER TRINITY
EUREKA PLAIN
MAD RIVER
SOUTH FORK TRINITY
VAN DUZEN
LOWER EEL
CAPE MENDOCINO
MIDDLE MAIN EEL
SOUTH FORK EEL
Major Stream
Other Stream
Watershed Boundary
Community Planning Area
Incorporated City
Source: Humboldt County GIS, 2002.
Source:
DYETT & BHATIA
Urban and Regional Planners
September 2002
0 5 10 20
MILES

**The North Coast Integrated Regional Water Management Plan**

An important watershed based planning effort in the North Coast region is the North Coast Integrated Regional Water Management Plan (NCIRWMP) - a seven county collaboration that relies upon an adaptive management framework to promote the conservation of north coast ecosystems, while ensuring adequate water quality and supply. The major themes of the NCIRWMP are salmonid recovery, the beneficial uses of water, and intra-regional cooperation.

Humboldt County has been a key leader and participant in the NCIRWMP, and the Water Resources Element of Humboldt County's General Plan reflects the objectives of the NCIRWMP, as well as the preferences and priorities of various state and federal agencies.

The objectives of the NCIRWMP are listed below and are consistent with the California Water Plan, the Watershed Management Initiative, the North Coast Basin Plan, the IRWM Program Preferences and other state and federal priorities and objectives.

1. Conserve and enhance native salmonid populations by protecting and restoring required habitats, water quality and watershed processes
2. Protect and enhance drinking water quality to ensure public health
3. Ensure adequate water supply while minimizing environmental impacts
4. Support implementation of Total Maximum Daily Loads (TMDLs), the North Coast Regional Water Quality Control Board's (NCRWQCB) Watershed Management Initiative, and the Non-Point Source Program Plan.
5. Address environmental justice issues as they relate to disadvantaged communities, drinking water quality and public health
6. Provide an ongoing, inclusive framework for efficient intra-regional cooperation, planning and project implementation

Local planning efforts in the North Coast Region have historically been segregated into jurisdictional planning and watershed planning. Most jurisdictional planning has been focused on county- and city-based based general plans. Although general plans often have a natural resources element, many do not fully integrate the natural resource-based water management issues in a given area.

Watershed planning in the North Coast Region has predominantly focused on natural resources – including specific species, habitats and ecosystem processes, and has largely been directed by the state natural resources agencies. In general, watershed planning does not tend to incorporate municipal considerations to the degree that is necessary for effective integrated water management planning and implementation.

There is an historic lack of a framework for integration of state priorities with local planning efforts. While cumulative impacts are felt at the regional or even statewide scale, many of these impacts tend to be caused at the local level and are most affected by local planning. It is therefore critical that the transfer of data and priorities between state and local planning efforts take place in an organized fashion. Scale issues may also be problematic, as state agencies are addressing broad statewide issues and

priorities, while local planning is high resolution and focused at the county, city or watershed scale.

**Statewide Priorities**

The State of California has developed several guidance documents that are applicable to integrated water management planning in the North Coast Region. These include the State Water Resources Control Board's Watershed Management Initiative (WMI) and the associated RWQCB Basin Plan, the Department of Water Resource's recently released California Water Plan, and the Department of Fish and Game Recovery Strategy for Coho Salmon. These documents provide technical and jurisdictional direction to the Region in terms of integrated planning to attain water quality objectives and the recovery of endangered salmonids.

Following is a list of Statewide Priorities that the NCIRWMP meets or contributes to:

- TMDL implementation
- Implementation of NCRWQCB WMI Chapter
- Implementation of SWRCB's NPS Pollution Plan
- Implementation of Recommendations of the Floodplain Management Task Force, Recycling Task Force, or State Species Recovery Plan
- Address environmental justice concerns
- Integrated projects with multiple benefits
- Support and improve local and regional water supply reliability
- Contribute expeditiously and measurably to the long-term attainment and maintenance of water quality standards
- Eliminate or significantly reduce pollution in impaired waters and sensitive habitat areas including areas of special biological significance;
- Include safe drinking water and water quality projects that serve disadvantaged communities
- Reduce Conflict Between Water Users or Resolve Water Rights Disputes, Including Interregional Water Rights Issues

**Federal Priorities**

The NCIRWMP process identifies and incorporates appropriate federal priorities. These may include species recovery plans as outlined by NOAA Fisheries, components of the US Environmental Protection Agency's NPS program and other planning information from agencies such as Natural Resources Conservation Service, U.S. Geological Survey or U.S. Fish and Wildlife Service.

**3. Watershed Boundaries**

The Natural Resources and Hazards report includes additional information on the County's watersheds including detailed mapping in Volume 2 of the Report.

The NCRWQCB has divided the North Coast region into six designated watershed management areas (WMAs), three of which are fully or partially included in Humboldt

County: Humboldt Bay WMA, Eel River WMA, and the North Coast Rivers WMA. Each of these WMAs is comprised of numerous CalWater Hydrologic Units. CalWater is a spatial dataset of watersheds in California, developed by the Interagency Watershed Mapping Committee, often referred to as the "CalWater Committee". For many years, State and Federal agencies have been working through the committee to map the watersheds and hydrologic units in the State of California. The North Coast is defined by CalWater as Hydrologic Region 1. Each Hydrologic Region is broken up into Hydrologic Units, with each unit indicating an entire major river basin. Large tributaries of major rivers are designated as Hydrologic Areas (HA). In turn, HAs are subdivided into Hydrologic Sub-Areas (HSA). Critical Coastal Areas (CCAs) located in the WMAs in Humboldt County are listed in Table 13-6.

**Table 13-7. Critical Coastal Areas, Humboldt County**

| CCA # | CCA Name | 1998 303(d) Listed Waterbodies Flowing into MMAs | SWQPA | 1995 CCA list | Notes and additional designations |
|---|---|---|---|---|---|
| 2 | Redwood Creek | X | X | X | |
| 3 | Redwood National Park | | X | | Park includes Klamath and Redwood CCAs within borders |
| 4 | Kelp beds at Trinidad Head | | X | | |
| 5 | Mad River | | | X | |
| 6 | Eel River | | | X | |
| 7 | Mattole River | X | | X | |
| 8 | King Range National Conservation Area | | X | | |

*Note: Table includes method of CCA classification: 1) 1998 303(d) listed waterbodies flowing into Marine Managed Areas (MMAs); 2) Stormwater Quality Protection Areas (SWQPAs, formerly Areas of Special Biological Significance, ASBSs); and 3) original 1995 CCA list consisting of 303(d) listed waterbodies (NCRWQCB 2005).*

The following is a summary of each Watershed Management Area in Humboldt County as defined by the Watershed Management Initiative (SWRCB), including a range of conditions for each WMA for surface water and groundwater.

**4. Humboldt Bay Watershed Management Area**

The Humboldt Bay WMA encompasses waterbodies that drain to the Pacific Ocean from Humboldt Bay north to Redwood Creek. The major river systems in the WMA are the Mad River and Redwood Creek; other waterbodies include Humboldt Bay and Mad River Slough, and coastal lagoons (Big, Stone, and Freshwater Lagoons) and streams (Elk and Little Rivers and Freshwater, Jacoby, and Maple Creeks). In the east, the terrain is elevated hill slope with coastal plain occurring in the west. Precipitation ranges from 32 to 98 inches annually. Redwood Creek, the Kelp beds at Trinidad Head, and the Mad River are the Critical Coastal Areas that occur in this WMA (NCRWQCB, 2005) (Table 13-5. CCAs) The streams support production of anadromous salmonids, including steelhead and cutthroat trout, coho and Chinook salmon. Urbanized areas include Trinidad,

McKinleyville, Arcata, and Eureka and rural residential areas are scattered throughout the WMA. The majority of the population lives in the Humboldt Bay area cities of Arcata and Eureka and their surrounding environs.

The Mad River is CWA section 303(d) listed for sediment and temperature impacts. The primary issues for water quality are forestry related, with urbanization and associated industrial and public nonpoint sources. The drinking water for most of the Humboldt Bay area is supplied by Ranney Collectors located within the Mad River with other coastal streams providing drinking water for other communities. Mad River is continuously supplied with water via releases from the Ruth Reservoir (with 48,030 acre-foot storage capacity), although these supplies are dependant on adequate precipitation and flows through the season.

The Eureka waterfront was the site of several industrial operations that left the soil and groundwater contaminated with heavy metals, petroleum products, and pentachlorophenol's (PCPs). The waterfront is now undergoing redevelopment and decontamination efforts.

Redwood Creek flows into the Pacific Ocean near the town of Orick and is located about 35 miles north of Eureka. Redwood Creek drains a 285-$mi^2$ area and is about 67 miles long. The watershed is located entirely within Humboldt County. Redwood Creek is a basin of mixed ownership and contains a rich blend of industrial and non-industrial timberlands, coastal and upland agricultural lands, state and federal national parks, other federal properties, and the unincorporated town of Orick. Redwood Creek supports three federally listed as threatened salmonid species as well as the non-listed coastal cutthroat trout (*O. clarki*) and resident fish species (RNSP 1997). The watershed also provides domestic water supplies to rural communities and recreational opportunities. At the coast, Redwood Creek discharges into a designated Water Quality Protection Area (formerly known as Areas of Special Biological Significance) (SWRCB 2001, SWRCB 2003) and a Critical Coastal Area (CCC 2003). Redwood National Park and Prairie Creek Redwoods State Park are located in the lower part of the Redwood Creek basin. This sub basin has been extensively researched and is considered a "reference watershed", and is home to significant old growth stands of coast redwood. In 1982 the park received international recognition when it was designated as both a World Heritage Site and International Biosphere Reserve.

**5. Eel River Watershed Management Area**

The Eel River and its tributaries comprise the third largest river system in California, and the largest river system draining to Humboldt County's coast. The Eel River WMA encompasses roughly 3,684 square miles (NCRWQCB, 2005). The main tributaries to the Eel River are the Van Duzen River, the Bear River, Yager, Larabee, Bull, and Salmon Creeks. Lake Pillsbury is located near the headwaters of the mainstem of the Eel River. The upper watershed is mountainous and soils are steep and highly erodable. The Eel River is designated as a Critical Coastal Area. In the west, the river meanders on a coastal plain and is joined by the Salt River. Several dairies are located on the coastal plain, as well as several small towns. Other communities in the watershed include Scotia, Garberville, Laytonville, and Willits. In many of the alluvial valleys, surface and ground water are closely connected, thus surface water withdrawals have an effect on local groundwater supplies. A Northwestern railroad line follows along the Eel River from Humboldt Bay to the southern county line and beyond. The last train traversed the portion of the tracks in the Eel River canyon in 1998. A local government agency (Northcoast Railroad Authority) was formed in 1989, with the goal of reviving the railroad.

The rail line has, at times, negatively impacted water quality due to numerous landslides. As of the date of this report rail service in this area has not resumed.

The Eel River WMA is a well-known recreation destination with numerous state and private campgrounds along its length; beneficial uses include both water contact and non-contact uses such as swimming and boating. The river also supports a large recreational fishing industry; it is the third largest producer of salmon and steelhead in the State of California (NCRWQCB 2005). Due to the erodable soils, steep terrain, and land use history, there is significant concern for the viability of this anadromous fishery resource.

**6. North Coast River Watershed Management Area**

The Mattole River and the King Range National Conservation Area are the only watershed areas in the North Coast Rivers WMA, which are listed as Critical Coastal Areas. The headwaters of the Mattole River begin in Mendocino County, and it flows north 62 river miles, through steep, forested lands in Humboldt County and into the ocean ten miles south of Cape Mendocino. Tributaries to the Mattole River include Mill, Squaw, Bear, Thompson, Honeydew, and Bridge Creeks. The watershed encompasses approximately 304 square miles and is subject to varying rainfall; near the coast, the area receives about 50 inches per year while near the headwaters, about 115 inches of rain fall per year. The largest communities are Petrolia, Honeydew and Whitethorn. There is also a population of about 2000, scattered throughout the watershed. Small landowners – those with less than 450 acres - own about 43 percent of the watershed; the Bureau of Land Management (BLM) owns about 12 percent, and commercial timber companies own most of the remaining land. Silviculture and ranching are the predominant businesses; water quality problems are those associated with timber harvest, road building, forest conversion, and overgrazing. Fish species known to inhabit the Mattole River include coho, Chinook, steelhead, rainbow trout (*Oncorhynchus mykiss*), and brook lamprey (*Ichthyomyzon fossor*); other species include the southern torrent salamander (*Rhyacotriton variegatus*) and tailed frog (*Ascaphus truei*).

There is a significant amount of watershed planning efforts currently underway in Humboldt County. Table 13-6, Multiple Scale & Jurisdiction Watershed Management Planning Efforts lists the major watershed and water resources planning efforts currently underway in Humboldt County.

As Table 13-6 illustrates, the myriad of watershed planning efforts include Federal and State Plans, Regional Plans, Tribal plans, local plans, habitat conservation plans, and plans prepared by advocacy groups. These watershed-based management planning efforts are either regulatory or are functional planning efforts that impact and/or drive Humboldt County's General Plan Update efforts. For example, the Water Quality Control Plan for the North Coast Region and the Water Quality Control Plan of the Hoopa Valley Tribe are regulatory in context as they are a Federal delegated authority under the Clean water Act. Humboldt County has influence on how these plans affect the County's water bodies, but little or no regulatory oversight.

In contrast, the Local Coastal Plans developed within Humboldt County are a sanctioned level of authority granted by the California Coastal Commission pursuant to the Federal Coastal Zone Management Act.

From a functional planning perspective, Table 13-7 is an inventory of watershed planning efforts that either directly impacts the County's General Plan Update process or involves

a strong element of the stakeholders process outlined under Government Code §65351 which provide opportunities for involvement of public agencies, public utility companies, community groups and the general public.

## Table 13-8. Multiple Scale & Jurisdiction Watershed Management Planning Efforts

**Table 13-11 Multiple Scale & Jurisdiction Watershed Management Planning Efforts**

| | Environmental Restoration and Fisheries Protection | | | | | Watershed Protection and Planning | | | | | | | | | Water Supply Reliability | | | | Clean Water and Water Recycling | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wetlands | Fisheries Enhancement | Habitat Restoration | Water Use Efficiency | Water Conservation | Water Management | Stormwater Management | Watershed Planning | NPS Pollution Control | Flood Protection | Watershed Education/Outreach | Urban Stream Restoration | Public Access | Monitoring | Drinking Water - Water Treatment | Groundwater Management | Water Supply | Desalination | Water Quality | Sanitation - Wastewater Treatment | | Water Reuse |
| **Federal Plans** | | | | | | | | | | | | | | | | | | | | | | |
| **NOAA Fisheries Salmon Recovery Plans** | | | | | | | | | | | | | | | | | | | | | | |
| Southern Oregon/Northern California Coast & North-Central California Coast TRTs | | x | x | | | | | | | | | | | | | | | | | | | |
| **Environmental Protection Agency** | | | | | | | | | | | | | | | | | | | | | | |
| EPA Underground Injection Control Program | | | | | | | | | | | | | | | | x | x | | x | | | |
| **State Plans** | | | | | | | | | | | | | | | | | | | | | | |
| **State Water Resources Control Board** | | | | | | | | | | | | | | | | | | | | | | |
| Watershed Management Initiative (WMI) | | | | | | x | x | x | x | x | x | x | x | | | | | | | | | |
| Water Quality Control Plan for the Ocean Waters of California | | | | | | | | | | | | | | | | | | | x | | | |
| Nonpoint Source Program Strategy and Implementation Plan | | | | | | x | x | x | x | | | x | | | x | | x | | x | | | |
| Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California | x | x | x | | | | | | | | | | | | | | | | x | | | |
| Water Quality Control Policy for the Enclosed Bays and Estuaries of California | x | x | x | | | x | x | x | x | | | | x | | x | | | | x | x | | |
| Rangeland Water Quality Management Plan | | | | | | x | | x | x | | x | | | | | | | | x | | | |
| **State Water Resources Control Board** | | | | | | | | | | | | | | | | | | | | | | |
| California Pesticide Management Plan for Water Quality | | | | | | | | x | x | | x | | | | x | x | | | x | | | |
| **North Coast Regional Water Quality Control Board** | | | | | | | | | | | | | | | | | | | | | | |
| Water Quality Control Plan for the North Coast Region | x | x | x | | | x | x | x | x | | x | x | x | | x | x | | | x | x | | |
| TMDLs | | | | | | x | x | x | x | | x | x | x | | x | x | x | | x | | | |
| **Department of Water Resources** | | | | | | | | | | | | | | | | | | | | | | |
| California Water Plan | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x | | x |
| Fish Passage Improvement Program | | x | x | | | | | | | | | | | | | | | | | | | |
| **California Coastal Commission** | | | | | | | | | | | | | | | | | | | | | | |
| Local Coastal Programs | x | x | x | | x | x | | x | x | x | x | x | x | | | x | x | x | x | | | x |
| California's Critical Coastal Areas Program | x | | | | | x | | x | x | x | x | x | x | | | | | | x | | | |
| Coastal Access Action Plan | | | | | | | | | | | x | | x | | | | | | | | | |
| California's Ocean and Coastal Resources Coastal Impact Assistance Program | x | | | | x | x | | x | x | | x | | | | | | | | x | | | |

## Table 13-8. Multiple Scale & Jurisdiction Watershed Management Planning Efforts (Continued)

**Table 13-11 Multiple Scale & Jurisdiction Watershed Management Planning Efforts**

| | Environmental Restoration and Fisheries Protection | | | | | Watershed Protection and Planning | | | | | | | | | Water Supply Reliability | | | | Clean Water and Water Recycling | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wetlands | Fisheries Enhancement | Habitat Restoration | Water Use Efficiency | Water Conservation | Water Management | Stormwater Management | Watershed Planning | NPS Pollution Control | Flood Protection | Watershed Education/Outreach | Urban Stream Restoration | Public Access | Monitoring | Drinking Water - Water Treatment | Groundwater Management | Water Supply | Desalination | Water Quality | Sanitation - Wastewater Treatment | | Water Reuse |
| **California Department of Fish and Game** | | | | | | | | | | | | | | | | | | | | | | |
| Recovery Strategy for California Coho Salmon | | x | x | | | | | | x | | | | x | x | | | | | x | | | |
| Steelhead Restoration and Management Plan for California | | x | x | | | | | | x | | | | x | x | | | | | x | | | |
| **California Resources Agency** | | | | | | | | | | | | | | | | | | | | | | |
| Protecting Our Ocean California's Action Strategy | | x | x | | | x | | | x | | x | | x | | | | | x | x | | | |
| California Coastal Salmon and Watersheds Program | x | x | x | | | | | x | | | x | x | x | | | | | | | | | |
| Sediment Master Plan | x | | | | | | | x | x | | x | x | x | | | | | | | | | |
| **Regional Plans** | | | | | | | | | | | | | | | | | | | | | | |
| **Forest Plans** | | | | | | | | | | | | | | | | | | | | | | |
| Northwest Forest Plan | | | x | | | | | x | | | | | | x | | | | | | | | |
| Six Rivers National Forest | | x | x | | | | | x | x | | | | | | | | | | | | | |
| Pacific Northwest Aquatic Monitoring Partnership | | | | | | | | | | | | | | x | | | | | | | | |
| Redwood National and State Park General Management Plan 1999 | x | | x | | | | | | | | | | x | | | | | | x | | | |
| **Resource Conservation District Plans** | | | | | | | | | | | | | | | | | | | | | | |
| Humboldt County RCD Long Range Plan 1999 | | | | | | | | | x | | x | | | | | | | | | | | |
| **Other Regional Plans** | | | | | | | | | | | | | | | | | | | | | | |
| Five Counties Salmonid Conservation Program | | x | x | | | | | x | x | | | | | | | | | | | | | |
| **Tribal/Reservation Plans** | | | | | | | | | | | | | | | | | | | | | | |
| Hoopa Valley Indian Reservation Water Quality Control Plan 2001 | | | | | | | | | x | | | | | x | x | x | x | | x | x | | |
| **Local Plans** | | | | | | | | | | | | | | | | | | | | | | |
| City of Arcata Urban Water Management Plan 2000 | x | | | | x | x | | | | | | | | | x | | x | | | | | |
| City of Eureka Urban Water Management Plan | | | | x | x | | | | | | | | | | x | | x | | | x | | x |
| City of Fortuna Urban Water Management Plan | | | | | x | | | | | | | | | | x | | x | | | | | |
| Humboldt County General Plan 1984 | | x | | | x | | | | | x | | | | | | | x | | x | | | |
| Humboldt Bay Watershed Action Plan and Enhancement Plan | | x | x | | | | | | | | x | | | | | | | | | | | |
| Humboldt Bay Municipal Water District Urban Water Management Plan | | | | | | | | | | | | | | | x | | x | | | | | |
| Humboldt Community Services District 2000 Urban Water Management Plan Update | | | | | x | | | | | | | | | | x | | x | | | x | | |
| McKinleyvilled Community Services District Urban Water Management Plan | | | | x | x | | | | | | | | | | x | | x | | | x | | x |
| Orick Community Plan | | | | | | | | | | | | | | | | | | | | x | | |

## Table 13-8. Multiple Scale & Jurisdiction Watershed Management Planning Efforts (Continued)

**Table 13-11 Multiple Scale & Jurisdiction Watershed Management Planning Efforts**

| | Environmental Restoration and Fisheries Protection | | | | | Watershed Protection and Planning | | | | | | | | Water Supply Reliability | | | | Clean Water and Water Recycling | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wetlands | Fisheries Enhancement | Habitat Restoration | Water Use Efficiency | Water Conservation | Water Management | Stormwater Management | Watershed Planning | NPS Pollution Control | Flood Protection | Watershed Education/Outreach | Urban Stream Restoration | Public Access | Monitoring | Drinking Water - Water Treatment | Groundwater Management | Water Supply | Desalination | Water Quality | Sanitation - Wastewater Treatment | Water Reuse |
| **Watershed Plans** | | | | | | | | | | | | | | | | | | | | | |
| Humboldt Bay Water Quality Improvement Program | | x | x | | | | | | x | | x | | | x | | | | | x | | |
| Lower Klamath River Sub-basin Watershed Restoration Plan (draft) 2003 | x | x | | | | x | | | | | | | | | | | | | | | |
| Mattole Watershed Plan 2004 (draft) | | x | x | | | | | x | x | | | | | x | | | | | | | |
| **River/Creek Restoration/Management Plans** | | | | | | | | | | | | | | | | | | | | | |
| Eel River Restoration (Action) Plan, DFG | | x | x | | | | | | x | | | | | | | | | | x | | |
| Erosion Prevention Planning Project for the Middle Van Duzen River 2003 | | | | | | | | x | | | | | | | | | | | x | | |
| Humboldt Bay Coordinated Research and Monitoring Plan – Draft | | | | | | | | | x | | | | | x | | | | | x | | |
| Draft Redwood Creek Water Quality Attainment Strategy for Sediment 1998, NCRWQCB | | | | | | | | | x | | | | | x | | | | | x | | |
| Upper Redwood Creek Watershed Updated Summary Report 2004, Redwood National Park | | | x | | | | | x | x | | | | | x | | | | | x | | |
| South Fork Eel River (Resource Conservation Strategy) Plan Humboldt County RCD | | | x | | | | | | | | | | | | | | x | | x | | |
| Salt River Enhancement Plan | | | | | | | | | x | | | | | | | | | | | | |
| Salt River Local Implementation Plan (USDA) | | | | | | | | | x | | | | | | | | x | | x | | |
| Stone Lagoon Draft Management Plan 1997 | | | | | | | | | | | | | | | | | | | | | |
| Van Duzen River Resource Conservation Strategy 2002, HCRCD | | x | | | | | | | x | | | | | | | | x | | x | | |
| Erosion Prevention Planning Project for the Middle Van Duzen River 2003 | | x | | | | | | x | | | | | | | | | | | x | | |

## Table 13-8. Multiple Scale & Jurisdiction Watershed Management Planning Efforts (Continued)

**Table 13-11 Multiple Scale & Jurisdiction Watershed Management Planning Efforts**

| | Environmental Restoration and Fisheries Protection | | | | | Watershed Protection and Planning | | | | | | | | | Water Supply Reliability | | | | Clean Water and Water Recycling | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wetlands | Fisheries Enhancement | Habitat Restoration | Water Use Efficiency | Water Conservation | Water Management | Stormwater Management | Watershed Planning | NPS Pollution Control | Flood Protection | Watershed Education/Outreach | Urban Stream Restoration | Public Access | Monitoring | Drinking Water - Water Treatment | Groundwater Management | Water Supply | Desalination | Water Quality | Sanitation - Wastewater Treatment | Water Reuse |
| **Categorical Plans** | | | | | | | | | | | | | | | | | | | | | | |
| **Habitat Conservation Plans** | | | | | | | | | | | | | | | | | | | | | | |
| Simpson Timber Aquatic Habitat Conservation Plan | | x | | | | | | | x | | | | | x | | | | | x | | | |
| Simpson Timber Company HCP | | | x | | | | | | x | | | | | x | | | | | x | | | |
| Pacific Lumber Company HCP | | | x | | | | | | | | | | | | | | | | | | | |
| **Multi-species Conservation Plans** | | | | | | | | | | | | | | | | | | | | | | |
| Southern Pacific Shorebird Conservation Plan | | | x | | | | | | | | | | | | | | | | | | | |
| Salmon and Steelhead Conservation Plan 2004 | | x | x | | | | | x | x | | | | | x | | | x | | x | | | |
| Humboldt Bay Watershed Salmon and Steelhead Conservation Plan, SSC | | x | x | | | | | x | x | | | | | x | | | x | | x | | | |
| PRBO Oak Woodland Bird Conservation Plan | | | x | | | | | | | | | | | x | | | | | | | | |
| PRBO Riparian Bird Conservation Plan | | | x | | | | | | | | | | | x | | | | | | | | |
| Eel River Salmon and Steelhead Restoration Action Plan, CDFG Inland Fisheries Division | | x | x | | | | | x | x | | | | | x | | | x | | x | | | |
| **Stormwater Management Plans** | | | | | | | | | | | | | | | | | | | | | | |
| City of Eureka Stormwater Management Plan | | | | | | | x | | | | | | | | | | | | x | | | |
| City of Arcata Stormwater Management/Master Plan | | | | | | | x | | | | | | | | | | | | x | | | |
| Arcata Drainage Master Plan | | | | | | | x | | | | | | | | | | | | x | | | |
| **Advocacy, Research, and Outreach Plans** | | | | | | | | | | | | | | | | | | | | | | |
| Institute for Fisheries Resources Pacific Salmon Restoration Program | | x | x | | | | | x | x | | x | | | | | | | | | | | |
| Institute for Fisheries Resources Sustainable Fisheries Program | | x | | | | | | | | | | | | | | | | | | | | |
| The Water Bond Coalition | x | | | x | x | x | | x | x | x | x | x | | | x | x | x | x | x | x | x | |
| Pacific Coast Joint Venture Strategic Plan | | | x | | | | | | | | x | | | | | | | | | | | |
| The Master Plan for the Redwoods | | | x | | | | | | | | | | | | | | | | | | | |
| California North Coast Ecoregional Plan, TNC | x | x | x | | | | | x | | | | | | | | | | | | | | |

### 7. Aquifers

Groundwater development in Humboldt County occurs along the coast, near the mouths of some of the region's major rivers, on the adjacent narrow marine terraces, or in the inland river valleys and basins. Reliability of these supplies varies significantly from area to area. There are four groundwater basins in Humboldt County: Hoopa Valley, Mad River Valley, Eureka Plain, and Eel River Valley. These basins underlie approximately 245 square miles). Figure 13-9 shows the major groundwater basins within Humboldt County.

Along the coast, most groundwater is developed from shallow wells installed in the sand and gravel beds of several of the region's rivers. Under California law, the water produced in these areas is either considered to be groundwater or groundwater under the influence of surface water. Water from Ranney collectors installed in the Mad River supplies most of the Humboldt Bay area and falls into the later classification, while wells in the Humboldt Hill area are considered groundwater. A recently installed Ranney collector in the Trinity River supplies most of the Hoopa Valley. Except on the Mad River, which has continuous supply via releases from Ruth Reservoir, these supplies are dependent on adequate precipitation and flows throughout the season. In drought years when stream flows are low, seawater intrusion can occur, causing brackish or saline water to enter these systems.

As a general rule, most of the wells in Humboldt County that truly rely on groundwater as the water source find that the water is often poor in quality and quantity. While there are exceptions, including some of the wells located in the Humboldt Bay Basin, these wells can have very high levels of iron and manganese and can have insufficient production during the late summer and fall. Therefore, many groundwater wells rely on the hydrologic connection to the rivers and streams of the valleys. A good example of this variability can be seen in the Cities of Fortuna and Rio Dell. Both had wells located within the Eel River Basin. The City of Rio Dell, with wells located closer to the active river channel experienced water supply problems while City of Fortuna's wells have been good producers. As a result, the City of Rio Dell recently obtained a water right and installed an intake directly in the Eel River.

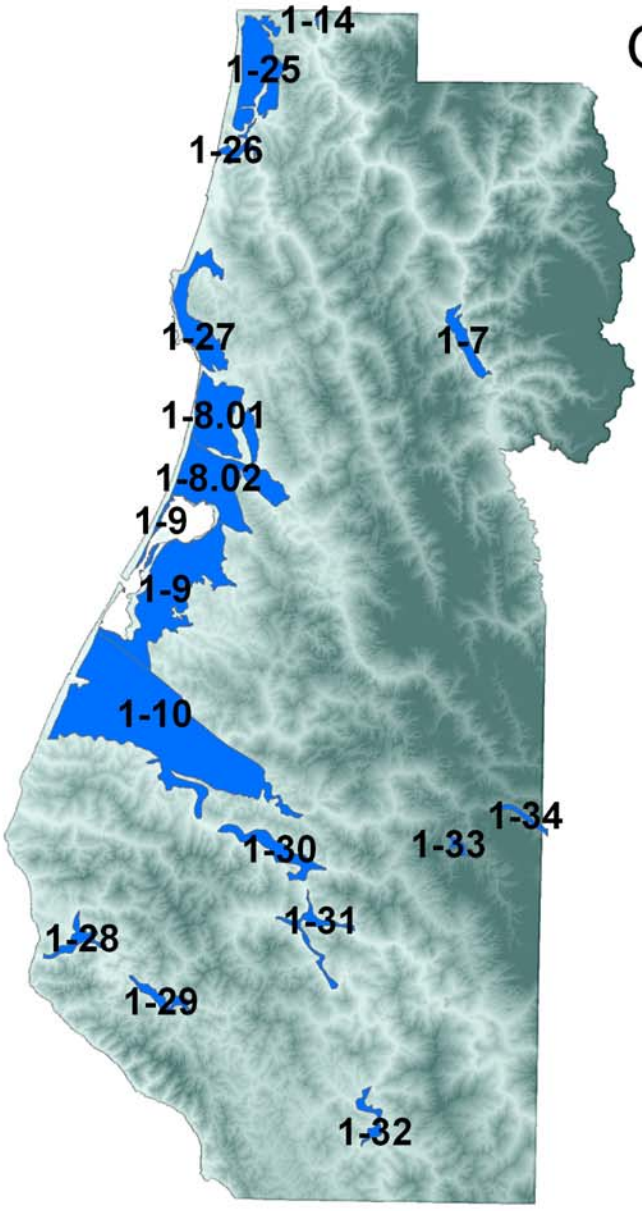
Groundwater quality characteristics and specific local impairments vary within the regional setting of Humboldt County. In general, seawater intrusion and nitrates in shallow aquifers are problems in the coastal groundwater basins; high total dissolved solids (TDS) content and iron, boron, and manganese can be problems in the inland basins of the County.

Total dissolved solids (TDS) comprise inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and some small amounts of organic matter that are dissolved in water.

TDS in drinking-water originate from natural sources, sewage, urban run-off, industrial wastewater, and chemicals used in the water treatment process. In Humboldt County, elevated TDS has been due to natural environmental features such as carbonate deposits and sea water intrusion, but other sources include stormwater and agricultural runoff, and point/non-point wastewater discharges.

Figure 13-9

# Humboldt County Groundwater Basins




Source: DWR, 2003

| Basin or Sub-basin | | Basin Name |
|---|---|---|
| 1-7 | | Hoopa Valley |
| 1-8 | | Mad River Valley |
| | 1-8.01 | Mad River Lowland |
| | 1-8.02 | Dows Prairie School Area |
| 1-9 | | Eureka Plain |
| 1-10 | | Eel River Valley |
| 1-14 | | Lower Klamath River Valley |
| 1-25 | | Prairie Creek Area |
| 1-26 | | Redwood Creek Area |
| 1-27 | | Big Lagoon Area |
| 1-28 | | Mattole River Valley |
| 1-29 | | Honeydew Town Area |
| 1-30 | | Pepperwood Town Area |
| 1-31 | | Weott Town Area |
| 1-32 | | Garberville Town Area |
| 1-33 | | Larabee Valley |
| 1-34 | | Dinsmore Town Area |

According to the California's Groundwater Update 2003 (Bulletin 118), several of the groundwater basins of the County have been monitored for Total Dissolved Solids (TDS). They include the Hoopa Valley, Mad River Valley Lowland, Eureka Plain, Eel River Valley, Lower Klamath River Valley, and the Redwood Creek Area. Total Dissolved Solids have variable ranges from 43 to 469 mg/L in the six groundwater basins sampled. These higher TDS levels have created some drinking water issues on both private wells and water providers. For example, the Eureka Plain is 37,400 acres in size but has an average of 177 mg/L of TDS and a high of 460 mg/L. The Eel River Valley is 73,700 acres in size and had an average of 237 mg/L of TDS and a high of 340 mg/L. While TDS is not considered a primary pollutant, high TDS levels typically indicate hard water and may lead to scale buildup in pipes, reduced efficiency of water filters, hot water heaters, etc., and aesthetic problems such as a bitter or salty taste.

The United States Environmental Protection Agency (EPA) recommends treatment when TDS concentrations exceed 500 mg/L, or 500 parts per million (ppm). The TDS concentration is considered a Secondary Drinking Water Standard, which means that it is not a health hazard. However, further testing may be warranted, as water with a high TDS concentration may indicate elevated levels of ions that do pose a health concern, such as aluminum, arsenic, copper, lead, nitrate and others.

Humboldt County, covering nearly 3,573 square miles, has a population of approximately 130,000 people living in an area characterized by abundant natural resources. Of these resources, Humboldt County's groundwater plays an important role in our natural environment, communities, industry sectors and agriculture. There are approximately 3,900 wells (PG&E 2002) in Humboldt County. The release of contaminants or pollutants into this resource from natural sources or human activities has the potential for adverse impacts upon human health, the environment and property, depending on the type, location, and quantity of materials released.

Many groundwater wells rely on hydrologic connection to the rivers and streams of the valleys. The City of Rio Dell experienced water supply problems in community wells in recent years and, as a result, developed infiltration galleries in the Eel River. The City's wells are now only used as a backup source.

In the north-central part of the North Coast Hydrologic Region, the major groundwater basins include the Klamath River Valley, Shasta Valley, Scott River Valley, and Butte Valley. The Klamath River Valley is shared with Oregon. The historical annual agricultural surface water supply has been about 20,000 acre-feet. As farming in the valley expanded from the early 1950s to the early 1990s, bringing nearly all the arable land in the valley into production, groundwater was developed to farm the additional acres. It has been estimated that current, fully developed demands are only about 80 percent of the available groundwater supply. By contrast, water supply issues in the other three basins are contingent upon pending management decisions regarding restoration of fish populations in the Klamath River and the Upper Klamath Basin system.

The Endangered Species Act (ESA) fishery issues include lake level requirements for two sucker fish species and in-stream flow requirements for coho salmon and steelhead trout. Since about 1905, the Klamath Project has provided surface water to the agricultural community, which in turn has provided water to the wildlife refuges. Since the early 1990s, it has been recognized that surface water in the Klamath Project is over-allocated, but very little groundwater development had occurred. In 2001, which was a severe drought year, the U.S Bureau of Reclamation (BOR) delivered a total of about 75,000

acre-feet of water to agriculture in California, about 20 percent of normal. In the Klamath River Groundwater Basin this translated to a drought disaster, both for agriculture and the wildlife refuges. In addition, there were significant impacts for both coho salmon and sucker fisheries in the Klamath River watershed. As a result of the reduced surface water deliveries, significant groundwater development occurred, and groundwater extraction increased from an estimated 6,000 acre-feet in 1997 to roughly 60,000 acre-feet in 2001. Because of the complexity of the basin's water issues, a long-term Klamath Project Operation plan has not yet been finalized.

Several USA's and WSA's depend on Humboldt County's groundwater resources. The following is a description of each water provider and the groundwater basin in which water is obtained. Following that is a description of groundwater usage for each of the identified providers.

**Arcata (Mad River Lowland)**

The primary source of Arcata's drinking water is purchased from HBMWD. HBMWD produces water drawn from wells located in the bed of the Mad River northeast of Arcata. The secondary source of drinking water is the City of Arcata's Heindon groundwater well. The Heindon well was placed on-line in 1999 to supplement purchased water from HBMWD. Based on usage records, less than 10 percent of Arcata's water is obtained from the Heindon well.

**Big Lagoon CSD (Big Lagoon Area)**

The Big Lagoon CSD manages a water system that was installed for the Big Lagoon subdivision in 1962; the Big Lagoon CSD acquired the water system from a private owner in 1999. The water system now consists of 2 wells, a 20,000 gallon redwood storage tank, booster pumps and 3,000 gallon hydro pneumatic tank with an air compressor.

**City of Fortuna (Eel River Valley)**

The City's water supply comes entirely from five groundwater wells (four active and one emergency stand-by). The well site includes disinfection and corrosion control facilities. It is believed that this water source is tied to the Eel River.

**Garberville (Garberville Town Area)**

The water system was recently purchased from private owners and consists of two water sources, a treatment plant, four water tanks, three booster stations, approximately 380 active service connections, and a waterline distribution network. One of the water sources is surface water from the South Fork of the Eel River and one is a shallow well in downtown Garberville. Approximately, 5 percent of Garberville's drinking water is obtained from the downtown well.

**Humboldt Community Services District (Eureka Plain)**

Approximately 34% of the district's water is provided from District owned wells located at the base of Humboldt Hill and Spruce Point area. These wells primarily serve Humboldt Hill, Fields Landing, King Salmon, College of the Redwoods, and some portions of the Pine Hill area, although this water can be transmitted to the main HCSD system.

**Hydesville County Water District (Eel River Valley)**

The District's water supply is obtained from two (2), twelve inch (12") wells located on District owned land near Yager Creek.

**Loleta Community Services District (Eel River Valley)**

The District operates two wells located on Peugh Road in Loleta. Water is pumped from the wells through a Green Sand filter where the iron and manganese is removed by injecting chlorine and potassium permanganate. One of the wells located on Peugh Road pumps on the average of 60,000 gallons of water a day. Development of the other well is currently in progress. The capacity of the new well is designed to produce 309,600 gallons per day (gpd). It should be noted that most of the Loleta area wells generally have low yields and water quality issues.

**Miranda Community Services District (No Groundwater Basin – Perched Groundwater)**

The District's water source comes from two wells with rated capacities of 150 gpm and 85 gpm, for a total capacity of 0.338 MGD. The pumps are operated in a lead- lag arrangement, with the larger pump leading during summer months and the smaller pump leading during winter months.

**Orick Community Services District (Redwood Creek Area)**

The initial system construction of the water system served most of the residents of the Orick Community. The original system consisted of two 60 foot wells with 10 hp submersible pumps, a 100,000 gallon redwood storage tank, and 8-inch, 6-inch, and 4-inch distribution lines. In 1978, an 8-inch line was extended southwest along the north side of Route 101 in anticipation of the 1987 expansion. The 8-inch line was extended west past Hilton Road to the National Park Service Visitors' Center in 1987.

**Palmer Creek Community Services District (No Groundwater Basin – Perched Groundwater)**

Palmer Creek CSD's water supply consists of two active wells, each capable of pumping 80 gpm. Water pumped from the wells is injected with chlorine and then sent to a contact basin prior to filtration through a Loprest package treatment plant designed to remove iron and manganese from the groundwater.

**Phillipsville Community Services District (No Groundwater Basin – Perched Groundwater)**

PCSD's water supply consists of a groundwater well of unknown capacity and a surface water spring source with variable capacity. The spring source is unable to meet summertime demands, and therefore only serves the upper portion of the system during low flows while the well supplies water to the rest of the system. The well is primarily used during dry months.

**Riverside Community Services District (Eel River Valley)**

The current system provides water service to 71 residential customers and 25 agricultural operations: dairies on the Ferndale bottoms. The District water source consists of artesian springs and wells with a maximum production capacity of approximately 60,000 gallons of water a day.

**Westhaven Community Services District (Big Lagoon Area)**

The system is supplied by three small, spring-fed tributaries of Two Creek at the eastern edge of the community and a 100-foot deep well within the residential area. The creek source represents approximately 75% of the total source capacity, with the well accounting for the remaining 25%. Source capacity currently varies between 40 – 60 gpm, compared to a maximum day demand of 0.66 MGD, or approximately 46 gpm. Recent efforts have focused on conservation – installing meters throughout the system and repairing leaks. This CSD suffers from limited source capacity. Additional sources have been sought but none identified. Without an additional source of water, development within the area will be severely limited.

**Willow Creek Community Services District (Trinity River)**

The District source of supply is from Willow Creek. It consists of six wells located in the mouth of Willow Creek. Four wells draw water from infiltration galleries in the Willow Creek flood plain acting as a natural filtration system. The water is chlorinated and treated before it is placed into the distribution system.

**8. Hydrology and Floodplain**

Flood hazards in Humboldt County are attributable to rivers, dam failure, and coastal high water hazards (tsunamis and flood tides), with river flooding being by far the most prevalent. Flooding is an important concern for many waterways in Humboldt County, including the Eel River (including the Van Duzen and South Fork), the Mad River, Eureka Plain (especially Freshwater and Jacoby Creeks), and the Trinity River. Flooding is discussed in the Chapter 11 of the Natural Resources and Hazards report, including 100-year flood zone mapping as well as in the Humboldt Operational Area Hazard Mitigation Plan (HMP).

Human activities and settlements tend to concentrate in floodplains, frequently interfering with natural processes. Human activities encroaching upon floodplains affect the distribution and timing of drainage, thereby increasing flood problems. The developed environment can create or exacerbate local flooding problems by altering or confining drainage channels. This increases flooding generally has two causes: 1) the activity reduces the stream's capacity to contain flows; and 2) increases in the impervious area results in flow rates that are higher than the drainage system, either natural or manmade can handle. Historically, many towns, homes and other buildings have been built on floodplains where they are more susceptible to flooding, for several reasons; 1) This is where water is most available, 2) Floodplain land is usually the most fertile for farming, 3) Historically, rivers and other waterways represented an easy and inexpensive sources of transportation, and 4) The flatter land is easier to develop than hilly land.

Approximately seventy percent of the precipitation in Humboldt County occurs from November to March. Major floods have resulted from a succession of intense rainstorms during these months. The two worst flood events in Humboldt County occurred in December 1955 and December 1964. These events caused tens of millions of dollars in damages and also caused numerous fatalities. According to the California State Hazard Mitigation plan, there were nine State proclaimed states of emergency for flood events between 1950 and 1997.

Some land uses are more vulnerable to flooding, such as single-family homes, while others are less vulnerable, such as agricultural land or parks. Table 13-10 shows the

existing land use of all parcels in the 100-year floodplain, including vacant parcels and those in public/open space uses, broken down for the planning area. For parcels in cities; residential, commercial and public/open space are the dominant land use. In the unincorporated County, residential, and Timber/Forest are the dominant land uses. This assessment also found that 24% of the parcels within the 100-year floodplain were vacant, or undeveloped. When you combine the vacant lands with those parcels with open space or low density land uses, 57% of the parcels within the 100-year floodplain have existing uses considered to be more favorable, less risky uses for the floodplain.

**Table 13-10. General Land Use of Parcels in 100-Year Floodplain**

| Land Use | Parcels in 100-Year Floodplain | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Arcata | Blue Lake | Eureka | Ferndale | Fortuna | Rio Dell | Trinidad | Unincorporated County | Total |
| Residential | 277 | 1 | 44 | 74 | 162 | 70 | 4 | 2969 | 3601 |
| Commercial | 17 | 3 | 24 | 11 | 57 | 3 | 0 | 81 | 196 |
| Light Industrial | 14 | 1 | 22 | 0 | 5 | 0 | 0 | 28 | 70 |
| Heavy Industrial | 1 | 0 | 4 | 0 | 2 | 0 | 0 | 24 | 31 |
| Agricultural | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 94 | 95 |
| Timber/Forest | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1474 | 1474 |
| Public Lands | 59 | 10 | 146 | 9 | 23 | 12 | 0 | 1229 | 1488 |
| Vacant lands | 62 | 2 | 64 | 17 | 50 | 17 | 3 | 1929 | 2144 |
| **Total** | **431** | **17** | **304** | **111** | **299** | **102** | **7** | **7828** | **9099** |

The number and type of structures exposed to the 100-year and 500-year floods was estimated from the Level 2 HAZUS-MH analysis and is illustrated in Table 13-11. For planning purposes, these estimates represent a fair gauge of vulnerability.

**Table 13-11. Structures Within 100-Year/500-Year Floodplain Humboldt County**

| Jurisdiction | 100-Year | | | 500-Year | | |
|---|---|---|---|---|---|---|
| | Residential | Other | Total | Residential | Other | Total |
| Arcata | 242 | 13 | 255 | 464 | 23 | 487 |
| Blue Lake | 17 | 4 | 21 | 100 | 4 | 104 |
| Eureka | 106 | 9 | 115 | 172 | 9 | 181 |
| Ferndale | 13 | 1 | 14 | 16 | 1 | 17 |
| Fortuna | 237 | 20 | 257 | 376 | 20 | 396 |
| Rio Dell | 170 | 2 | 172 | 192 | 2 | 194 |
| Trinidad | 4 | 0 | 4 | 4 | 0 | 4 |
| Tribes | 117 | 0 | 117 | 121 | 0 | 121 |
| Unincorporated County | 3005 | 54 | 3059 | 3056 | 53 | 3109 |
| **Total** | **3911** | **103** | **4014** | **4501** | **112** | **4613** |

Roads or railroads that are blocked or damaged can prevent access throughout the County and can isolate residents and emergency service providers needing to get to vulnerable populations or to make repairs. Bridges washed out or blocked by floods or debris from floods also can cause isolation. Water and sewer systems can be flooded or backed up, causing further health problems. Underground utilities can also be damaged during flood events. Thus it is critical to identify which infrastructure is exposed to flooding to determine what is vulnerable and who may be at risk if that infrastructure is damaged.

Several roads in Humboldt County have been affected by past flood events, both inside and outside the 100-year floodplain. Major roads in Humboldt County that pass through the 100-year floodplain are also exposed to flooding. Many of these roads are built above the flood level, and many others function as levees to prevent flooding. Nonetheless, in certain events these roads may be blocked or damaged by flooding, preventing access to many areas.

Flooding events can significantly impact road bridges. These are important because often they provide the only ingress and egress to some neighborhoods. An analysis showed that there are 73 bridges that are in or cross over the floodplain.

Water and sewer systems can be affected by flooding events. Floodwaters can back up drainage systems, causing localized flooding. Culverts can be blocked by debris from flood events, also causing localized urban flooding. Floodwaters can get into drinking water supplies, causing contamination. Sewer systems can also be backed up, causing wastes to spill into homes, neighborhoods, rivers and streams.

Flooding is a natural event, and floodplains provide many natural and beneficial functions. Nonetheless, with human development factored in, flooding can impact the environment in negative ways. Migrating fish can wash into roads or over dikes into flooded fields, with no possibility of escape. Pollution from roads, such as oil, and hazardous materials can wash into rivers and streams. During floods, these can settle onto normally dry soils, polluting them for agricultural uses. Human development such as bridge abutments and levees, and logjams from timber harvesting can increase stream bank erosion, causing rivers and streams to migrate into non-natural courses.

Recently, Assembly Bill 162 was approved by the Governor (October 10, 2007). This bill would require the land use element to identify and annually review those areas covered by the general plan that are subject to flooding as identified by flood plain mapping prepared by the Federal Emergency Management Agency or the Department of Water Resources. The bill also would require, upon the next revision of the housing element, on or after January 1, 2009, the conservation element of the general plan to identify rivers, creeks, streams, flood corridors, riparian habitat, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management. For development activities within a flood zone, this new legislation has specific requirements involving the 200-year flood plain as opposed to the previous requirements regarding developments within a 100-year flood zone.

Under the new law Government Code 65300.2 now defines (a) For the purposes of this article, a “200-year flood plain” is an area that has a 1 in 200 chance of flooding in any given year, based on hydrological modeling and other engineering criteria accepted by the Department of Water Resources.

**9. Normal, Wet, and Drought Years**

Humboldt County is an area of moderate temperatures and considerable precipitation. Temperatures along the coast vary only 10 degrees from summer to winter, although a greater range is found over inland areas. Temperatures of 32 degrees or lower are experienced nearly every winter throughout the area, and colder temperatures are common in the interior. Maximum readings for the year often do not exceed 80 on the coast, while 100 degree plus readings occur frequently in the mountain valleys.

In most years, rainfall is experienced each month of the year, although amounts are negligible from June through August. Seasonal totals average just under than 40 inches in the driest area, and exceed 100 inches in the zones of heavier precipitation. Because of the moisture and moderate temperature the average relative humidity is high. Largely as a result of the proximity of the cool Pacific Ocean, the adjoining coastal area has one of the coolest, most stable temperature regimes to be found anywhere. With increasing distance from the ocean, the marine influence is less pronounced, and inland areas experience wider variations of temperature and lower humidity's.

Humboldt Bay Municipal Water District (HBMWD) provides wholesale water to the majority of the County's population (approximately 70%). During an average normal water year, the area around Ruth Lake receives 70 inches of rainfall. 173,000 acre-feet of water flow into the HBMWD's reservoir via the Mad River, and the runoff from the Mad River watershed above the District's diversion facilities near Arcata is over 1,000,000 acre-feet.

**Single Dry Water Year**

According to the HBMWD, the water year between October of 1976 and September of 1977 was the driest year recorded by the District, far drier than any other. Rainfall in the Ruth area was 29 inches, or 41% of normal. Flows into the reservoir totaled 26,000 acre-feet or 15% of normal and the run off from the Mad River watershed above the District's diversion facilities 165,000 acre-feet or 16% of normal. The average reservoir volume for the water year was 21,000, which is 44% of capacity and 52% of the normal average volume. The reservoir was drawn to 27% of its capacity at the end of the water year. Fall storms arrived in November of 1977 and quickly refilled the reservoir.

This water year was severely dry throughout the entire State of California, and was a very exceptional year in the District's history. In 32 years of record keeping, it was the only year in which rainfall was less than 50% of normal. It was also the only year in which the reservoir was never filled to capacity. Total flows into the reservoir via the Mad River were half the amounts of the next driest year. Runoff from the watershed and average reservoir volume were each 60% of the next driest year.

**Multiple Dry Water Years**

According to HBMWD records, the three water years between October 1989 and September 1992 represent the driest multiple years recorded for the District. Rainfall for this period averaged 42 inches per year, 60% of normal. Of these three water years, the driest year for rainfall was water year 1990/1991 with 37 inches (53% of normal).

Flows into Ruth Lake via the Mad River averaged 69,000 acre-feet per year, 40% of normal. The runoff from the Mad River watershed above the District's diversion facilities was 371,000 acre feet, or 37% of normal. Despite the diminished rainfall and runoff, rainfall was more than sufficient to refill the reservoir each year. Reservoir capacity during this period averaged 77% of capacity, or 91% of normal.

**Three Year Minimum Water Supply**

According to HBMWD records, using the data from the multiple dry years previously discussed, water years 1989 through 1992, the minimum water supply volumes for the next three years would be 252,000 acre-feet, the District's full allocation of 75 MGD. As concluded by the District, even multiple years of reduced rainfall will not necessarily affect water supplies. More crucial than total rainfall is the occurrence of moderate to

heavy storms in the late winter or early spring. One or two of these storms bringing 3 to 5 inches of rain is sufficient to fill the reservoir to capacity. Based on the HBMWD's information discussed above, the District's sole source of water, the Mad River, has been very consistent. Based on this consistency there is no demonstrated need to replace or supplement this source.

**Drought Impacts on Other Water Sources**

Droughts affecting the more rural areas of Humboldt County historically occurred after two or three consecutive years of below average rainfall for the period between November and March when about 75 percent of the County's average annual precipitation falls. The months of December, January, and February are usually when approximately 50 percent of the rainfall occurs.

The 1977 extreme California drought conditions likely affected water supplies for community and industrial interests countywide in Humboldt and were some of the worst felt in the County's written history. While detailed data on the water supply for systems other than HBMWD is extremely limited or non existent, it is reasonable to assume that not only were these water supplies compromised to some extent but, the drought forced neighboring counties to petition for additional drawdown of water resources allotted from Humboldt County. Over 70% of the Trinity River is dammed and diverted for the central valley agricultural projects. Significant percentages of the Eel River are diverted to the three moderately drought stricken and rapidly developing counties south (Mendocino, Sonoma, Marin) serving over 350,000 people, not including agricultural interest. If Humboldt County was to experience a drought like that of 1975-77 seasons, the economic, cultural, environmental, and social impact could be significant not only to Humboldt County but to those counties and state projects that depend on water received from Humboldt County.

Insufficient data exists on the water supplies (other than HBMWD) to perform any quantitative analysis of multiple dry year impacts. While there is some stream flow monitoring, the source of supply for each water provider represents a unique hydrologic unit and they generally do not have historic information that would show their ability to provide sufficient water under drought or multiple dry year conditions. Although it would be desirable to have detailed hydrogeologic studies of each systems source of supply, it may not be practical due to the cost of the analysis and the size of these communities. Instead, we recommend that when a community's maximum day of usage approaches 70% of the capacity of it's source of supply, it should begin to develop and implement a plan for either increasing it's supply or decreasing it's peak day usage. Conservation should be the first course of action; however, additional source supply may be required. For a groundwater source, this could entail construction of a new well or increasing the pump size in an existing well. For a surface water source, this would require increasing the output from the existing intake and may require obtaining additional water rights. Having multiple wells or sources of supply is obviously preferable to having a single source. As this is interrelated to the Infrastructure element, we have included policy recommendations regarding conservation and source capacity in the Water Resources Element.

With the exception of the 1940s through the 1960s, California's drought history indicates that there have been multiyear droughts every decade between 1900 and 2000, all of which had mild to serious effects in Humboldt County. Conservatively speaking, Humboldt County can experience the direct effects of drought at least once every decade. This does not include the effects that could result from droughts impacting water dependent counties that rely on Humboldt County water.

The biggest impact in the County during drought conditions will likely be on one or more of the smaller water systems outside of the Humboldt Bay Municipal Water District. Those include the districts located in Willow Creek, Orick, Trinidad, Westhaven, Indianola, Hydesville, Loleta, Riverside, Myers Flats, Phillipsville, Miranda, Weott, Shelter Cove, Redcrest, Benbow, Briceland, and Orleans. Water supply or capacity issues are unique in each of these areas. However, they all share similar characteristics of being small districts with generally limited source capacity.

An extreme multiyear drought more intense than the 1977 drought could impact the County, beyond the impact to community water systems. Within the County, drought conditions could impact agricultural operations, fisheries, and timber production. Intensified by such conditions, extreme wildfires could break out throughout the County. Surrounding Counties, also in drought conditions, would likely increase their demand for Humboldt County water, potentially causing social and political conflicts. If such conditions persisted for several years, the agricultural, fisheries, gravel and sand, and timber industries could experience major setbacks, with increased levels of unemployment and potential property damage.

**10. Water Import and Export**

For years, Humboldt County has had a significant amount of water exported outside of the County borders. As statewide water supplies are falling behind demand, areas with relatively abundant water supplies are likely to be targeted for additional exports. While such proposals are within the jurisdiction of the SWRCB, Humboldt County needs to be proactive in protecting its water resource interests.

Water portfolios are prepared for the North Coast Hydrological Region by the State Water Resources Control Board. The 2005 Water Plan Update portfolio shows that for 2001, which was a drier year with precipitation at 60 percent of average, 32,244,000 acre-feet entered the region from, precipitation and inflows from Oregon. Of the inflows, 32,882,000 acre-feet left the region in the form of consumptive use (647 TAF), exports to other regions (703 TAF), outflows to Oregon (66 TAF), statutory required outflows to Salt Sink (8,021 TAF), evaporation and natural runoff (23,323 TAF), and other outflows (122 TAF). The difference between outflows and inflows for 2001 (638 TAF) represented a net decrease in surface water available for storage in 2001.

Two of the largest water supply reservoirs in the North Coast region are the U.S. Bureau of Reclamation's 2.437 million acre-foot Trinity Lake on the Trinity River, and the U.S. Corps of Engineer's 380,000 acre-foot Lake Sonoma in the Russian River watershed. These facilities provide water for in stream flows, recreation, hydropower, and water supply purposes.

Water from Trinity Lake is exported from the North Coast region to the Sacramento River region through the U.S. Bureau of Reclamation's Clear Creek Tunnel. Lake Sonoma is operated to provide flood control and in stream flows in the Lower Russian River in Sonoma County. Another intra-basin water transfer system known as the Potter Valley Project has been in existence since 1908 and diverts water from the upper reaches of the Eel River at Cape Horn Dam through a tunnel to the East Fork of the Russian River upstream from Lake Mendocino. The water stored behind Coyote Dam (Lake Mendocino, built in 1958) is used to meet in stream flow requirements, as well as urban and agricultural needs in the lower Russian River watershed and the Santa Rosa area.

As part of the efforts to restore the Trinity River fishery, the Secretary of the Interior in December 2000 under the leadership of the Hoopa Valley Tribe approved a significant change in use of Trinity River Basin water. As part of an effort to restore Trinity River fish habitat, the river's in stream flows were increased from 340,000 acre-feet per year (roughly 25 percent of average annual flow at the Central Valley Project diversion point on the Trinity River) to an average of 595,000 acre-feet per year. This decision, which would reduce the amount of water available for export from the Trinity River to the Central Valley, was challenged by water and power interests in U.S. District Court in 2001. On July 13, 2004, the 9th U.S. Circuit Court of Appeals overturned the injunction imposed by the district court, and ruled that the original year 2000 Record of Decision was adequate. The water allocated to downstream fish flows is now being increased to the new flow schedule, which ranges from a minimum of 368,600 acre-feet in a critically dry year up to 815,000 acre-feet in an extremely wet year.

While such proposals are within the jurisdiction of Federal agencies and the SWRCB, Humboldt County needs to continue to be proactive in protecting its water resource interests.

**11. Hydropower Projects Relicensing**

Under the Federal Power Act (FPA), the Federal Energy Regulatory Commission (FERC) has exclusive authority to license the construction, operation and maintenance of nonfederal hydropower projects located on navigable waterways or that affect interstate commerce.

A hydropower project license contains terms and conditions that specify how the project may be constructed and operated and requires that the project is properly maintained and operated safely. The FPA mandates that FERC issue licenses for a period of 30 to 50 years. Original licenses are typically issued for a 50-year license term. A "new" license - which is also called a "relicense" - is typically issued for a period of 30-40 years, depending on the extent of proposed new development or environmental mitigation and enhancement measures proposed by the licensee. The length of the license term is typically long enough for the owner to recover their economic investment.

At least 5 years before the license expires, the licensee must declare a notice of intent to relicense to the FERC. The total process of preparing a license application, undergoing the National Environmental Policy Act (NEPA) process and the issuance of a "new" license by FERC is called relicensing.

Water supply impacts of relicensing are difficult to quantify, in part because impacts are site-specific. Some plants subject to relicensing, for example, currently have no bypass flow requirements. It is likely that relicensing would establish bypass flows at these sites. Other plants subject to relicensing already have substantial bypass flows, and it is not clear what changes relicensing would bring.

Relicensing projects have significantly impacted Humboldt County and future relicensing must be thoroughly reviewed to avoid further impacts. The relicensing of the Potter Valley Project and the Klamath River projects are two examples.

The Potter Valley Project is located in the North Coast Range on the Eel River in Mendocino and Lake Counties. Since the dam's construction in 1908, water from the upper Eel River has been diverted to Potter Valley - where it drops 450 feet to generate a small amount (9 megawatts) of hydroelectric power - and then gets "abandoned" near

the headwaters of the Russian River. The Potter Valley Project diverts half of the water produced in the Eel River annually and about 98 percent of the upper Eel's natural summer and autumn flow. This provides significantly increased flows in the Russian River basin while the Eel River is often left with inadequate flows.

The project's diversions have contributed to the depletion of the Eel River's historically abundant salmon and steelhead stocks. All three affected species (coho, Chinook, and steelhead) are listed as "threatened" or "candidate" species under the Federal Endangered Species Act. Restoring this spawning and rearing habitat – primarily through returning flows to the Eel – is crucial to the survival of these anadromous fish runs. FERC, PG&E, Humboldt and Sonoma Counties, environmental groups and others are engaged in negotiations to determine what environmental measures are necessary to help the salmon and steelhead, restore flows to the Eel River, and protect the water supplies of the southern counties. Parties are worried that the sale of the Potter Valley Project to a new owner would upset years of work and progress, and that a new owner may resist accountability for past environmental damages. The Federal Energy Regulatory Commission (FERC), the agency that issues and regulates hydropower licenses, in 2006 ruled against the National Marine Fisheries Service and the US Forest Service regarding the amount of water they deemed necessary to protect salmon and steelhead in the Eel River. FERC ignored repeated pleas from these agencies, Humboldt County, the Round Valley Indian Tribes and environmental groups, and chose to favor water supply deliveries and the project's minimal electricity benefits over fisheries restoration. As a consequence, the project was re-licensed by FERC and the expiration date for the Potter Valley Project is now September 30, 2033.

On the Klamath River, FERC staff prepared a Draft Environmental Impact Statement (DEIS) for relicensing of PacifiCorp's 161-megawatt Klamath Hydroelectric Project, located primarily on the Klamath River in Klamath County, Oregon and Siskiyou County, California. On average, the project generates 757,000 megawatt-hours of electricity annually. The project occupies facilities between river mile 190 and 254 including some lands of the United States, which are administered by the U.S. Bureau of Reclamation and the U.S. Bureau of Land Management.

The existing project consists of eight developments, seven of which are located on the Klamath River. PacifiCorp proposes to decommission the upstream-most East Side and West Side developments and to remove the Keno development, which has no generating facilities, from the project. The remaining project developments on the main stem of the Klamath River are J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate. The proposed project also includes the existing Fall Creek development, located on a Klamath River tributary.

The Humboldt County Board of Supervisors unanimously approved a resolution supporting the removal of the four dams on the Klamath River on November 14, 2006. The resolution aims to allow the county to officially weigh in during the public comment period for the Draft Environmental Impact Statement as part of the Federal Energy Regulatory Commission's re-licensing review of the dams. As of the date of this report, this issue is still undecided.

### 12. Global Warming

The issue of global climate change has begun to play an increasing role in scientific and policy debates over effective water management. In recent years, the evidence that global climate change will have significant effects on water resources in California has

continued to accumulate. More than 150 peer-reviewed scientific articles on climate and water in California have now been published, with many more in preparation, addressing everything from improvements in downscaling of general circulation models to understanding how reservoir operations might be adapted to new conditions.

Some of the most significant impacts of climate change will be on water resources—impacts that are of special concern to regions like the North Coast where water policy is already of great interest and concern.

Evidence of climate change impacts on California's hydrologic system have already appeared in various forms. Water agencies around the State have begun to consider the implications of climate change for the reliability and safety of water systems, and professional water organizations have begun urging managers and planners to integrate climate change into long-term planning. Although many uncertainties remain, responsible planning requires that the California water community work with climate scientists and others to reduce those uncertainties and to begin to prepare for those impacts that are well understood, already appearing, or likely to appear.

The Pacific Institute as part of the California Water Update 2005 surveyed existing literature on climate change and its impacts on water resources in California. The study reviewed projected effects of climate change on the state's water supply, delivery, and quality, and explored the economics involved in meeting the challenges that those affects could bring about.

The study concluded that managing water resources to address climate change impacts could prove different than managing for historical climate variability because:

1. Climate changes could produce hydrologic conditions and extremes of a different nature than current systems were designed to manage;
2. They may produce similar kinds of variability but outside of the range for which current infrastructure was designed;
3. Traditional water resource management assumes that sufficient time and information will be available before the onset of large or irreversible climate impacts to permit managers to respond appropriately;
4. Traditional management assumes that no special efforts or plans are required to protect against surprises or uncertainties.

The study identified the following information and recommendations:

**Water Planning and Management**

Water planners and managers must increase emphasis on trying to understand the consequences of climate change on the state's water resources.

**Modifying Operation of Existing Systems**

Managers must determine if existing facilities can handle the impacts that will occur under future climate change, and at what economic cost. Precise information on future climate impacts is unavailable, so water managers must explore the sensitivity of their system to a wider range of conditions, and develop methods or technologies to improve operational water management. They should also determine quantitative impacts from climate change on water supply and flood control, and evaluate alternative water

management options. In addition, water managers should closely examine the design practices of hydraulic infrastructure, because of the many uncertainties in predicting peak flows under climate change scenarios. Rainfall depth-duration-frequency data widely used for designing local storm water control and drainage facilities should be updated at least every 20 years or so, to gradually incorporate climate change data into the record and in the rainfall statistics.

#### New Supply Options

Supply designs and operations must consider climate change impacts and incorporate wastewater reclamation and reuse, water marketing and transfers, and limited desalinization, where it is cost-effective. Designs for new construction must be robust enough to permit satisfactory operation under a wide range of conditions.

#### Demand Management, Conservation, and Efficiency

Demand management is critical to mitigate loss of water supply. Efficient management should continue to be developed and implemented, because such improvements have been shown to be more economical than developing new supply.

#### Economics, Pricing, and Markets

New pricing mechanisms should be used to better recognize the true costs of water supply and to support water markets. In general water has been under priced.

#### State Water Law

Current water laws were written without considering climate change impacts on water supply. They are predicted to conflict with one another as water resources diminish.

#### Hydrologic and Environmental Monitoring

Good hydro-meteorological data is the starting point for evaluating the capabilities of water supply and flood protection systems. Important data gaps need to be filled in the following areas: measurements of precipitation and related climate data, stream flow, snow pack, and ocean and Delta water levels; water quality sampling; systematic sea-level measurements; and land use and cover monitoring.

## E. Stormwater Quality Assessment

This section provides an overview of existing storm water quality conditions within Humboldt County and is based in part from data obtained from the North Coast Stormwater Coalition. The North Coast Stormwater Coalition was formed in 2004, is a partnership of the City of Eureka, City of Arcata, City of Fortuna, County of Humboldt, Redwood Community Action Agency, California Coastal Commission, Caltrans, and Humboldt Baykeeper. The primary goal of the North Coast Stormwater Coalition is to reduce stormwater pollution in local streams, rivers, Humboldt Bay and the ocean through public education and outreach, coordinating pollution prevention efforts and implementing pollution control measures.

#### 1. Pollutants of Concern

Pollutants of concern include the likely pollutants in stormwater from a particular land use. These are known as nonpoint source pollution. Nonpoint source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural, animal and human-

made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. These pollutants include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas;
- Oil, grease, and toxic chemicals from urban runoff and energy production;
- Sediment from improperly managed construction sites, crop and forest lands, and eroding stream banks;
- Salt from irrigation practices and acid drainage from abandoned mines;
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems;
- Atmospheric deposition and hydromodification are also sources of nonpoint source pollution.

Water leaving urban roads as stormwater runoff has long been assumed to be a major contributor to the total quantities of diffuse or non point source pollutant load from urban areas. This runoff is typically associated with elevated levels of heavy metals, petroleum hydrocarbons and nutrients. Road surfaces represent a potentially significant source of contamination to streams, particularly during the initial portion of a rainfall event, when contaminants collected during drier periods are washed into adjacent waterways.

The major stormwater systems within the County include McKinleyville, Arcata, Eureka, and Fortuna. All of these systems qualify as MS4s, but McKinleyville is the only system within the County's jurisdiction. The remaining MS4s are all incorporated cities and as such are the City's responsibility. Aside from McKinleyville's stormwater system, for which the County developed an SWMP in 2005, the County is also responsible for maintaining stormwater systems within other unincorporated regions of the County. Major areas with County stormwater infrastructure include the areas surrounding Eureka, such as Cutten, Ridgewood, Pine Hill, and Humboldt Hill, and also Garberville and Shelter Cove. The County also has drainage infrastructure along their entire road system.

McKinleyville and Manila are the only communities within the County's jurisdiction for which a master drainage plan has been completed. McKinleyville's master drainage study was finalized in 1982. A regional storm drainage study was also prepared for the Mid-Humboldt County Urban Planning Program in 1971. No other master drainage studies have been prepared since then.

Shelter Cove's stormwater drains to the King Range ASBS, so this discharge is regulated by the California Ocean Plan. The County has applied for an exemption to the discharge prohibition requirement for this study area, and is in the process of negotiating with the RWQCB on this issue. A likely requirement or condition of the waiver will be development of an MS4 permit and issuance of an NPDES stormwater discharge permit for Shelter Cove.

**CAMMPR**

California's Management Measures for Polluted Runoff (CAMMPR) is designed to assist California in improving implementation of the California's Nonpoint Source (NPS) Pollution Control Program (Program). Management measures (MMs) form the core of the State's Plan for California's Nonpoint Source Pollution Control Program 1998-2013 (Program Plan)

and provide goals for the management of NPS pollution to which various management practices are applied.

The measures are organized into six categories or sectors, all of which are present in California:

1. Agriculture;
2. Forestry (Silviculture);
3. Urban Areas;
4. Marinas and Recreational Boating;
5. Hydromodification activities; and
6. Wetlands, Riparian Areas, and Vegetated Treatment Systems.

To help states develop sound and effective NPS programs, the U.S. Environmental Protection Agency (USEPA) developed a guidance document pursuant to the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), section 6217(g) titled *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (g-Guidance)* (USEPA[1993]). USEPA and the National Oceanic and Atmospheric Administration (NOAA) expect state programs to implement MMs "in conformity" with the *g-Guidance.* This MM approach is technology-based rather than water-quality based. Because nonpoint sources of pollution are so diverse and since each individual source may contribute only a small quantity of contaminants, identifying the exact sources of nonpoint source pollution can be very expensive and time-consuming. Implementation of technology-based MM's allows states to concentrate their resources initially on implementing measures that are proven to be effective in preventing and controlling NPS pollution.

Pursuant to the Clean Water Act (CWA) and CZARA, the Program Plan addresses two types of MM's:

**Minimum Management Measures**

These measures are based on the federal guidance and will apply to the land use activities known to be major causes of NPS pollution. For example, keeping grazing animals out of streams is a minimum MM for agricultural sources of NPS pollution. State programs will ensure that people and organizations conducting these specified land use activities implement the appropriate MM's. The goal of implementing these measures is to protect water quality and habitat.

**Additional Management Measures**

Where nonpoint source pollution continues to prevent critical areas from meeting CWA requirements, even when minimal MM's are used, additional MM's may be necessary. These measures will be targeted directly at reducing the NPS pollution activities that prevent State waters from meeting appropriate water quality standards, such as ensuring the water is safe for drinking, fishing, or swimming.

Implementation of MMs can be achieved through the implementation of management practices (MPs). MPs are structural and nonstructural solutions, used singularly or in combination, that are aimed at reducing the input of particular NPS contaminants into

surface waters. An example of a structural MP is an infiltration basin (a structure that is built to hold runoff and filter contaminants from that runoff before the water is absorbed into the ground). Nonstructural MPs include buffer strips (areas of natural vegetation) that are left as protection between streams or other surface water bodies and farmlands or construction sites.

**PROSIP**

The *Plan for California's Nonpoint Source Pollution Control Program* is the first significant upgrade of California's Nonpoint Source Pollution Control Program (NPS Program) since its inception in 1988. California is required to have its Program conform to the Clean Water Act (CWA) and section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA). The lead State agencies for upgrading the Program are the State Water Resources Control Board (SWRCB) (designated lead water quality agency), the nine Regional Water Quality Control Boards (RWQCBs), and the California Coastal Commission (CCC) (designated lead coastal zone management agency). Known as the Nonpoint Source Program Strategy and Implementation Plan (PROSIP), the Plan is intended to protect the water resources of the coastal zone by assessing pollutant sources, target efforts, identify five-year goals, coordinate lead and partner agencies, implement financial and technical assistance, and to track and monitor the implementation of MM's and MP's.

The legal framework within which California cities and counties exercise local planning and land use functions that can play a critical role in addressing NPS pollution is provided in the California Planning and Zoning Law (Government Code §§65000 et seq.) and the Subdivision Map Act (SbMA) (Government Code §§66410 et seq.), as well as in the Coastal Act.

**2. Adequacy of Existing Standards**

While the standards and plans outlined above are designed to mitigate the impacts of stormwater discharges, they are regional in context. For the purposes of Humboldt County's general Plan update, site specific stormwater standards for General Plan land use build-out, and development standards should be considered. Standards that prohibit projects from altering the hydrologic regimes of streams by increasing peak flows or decreasing summer low flows by treating all stormwater from at least a two-year rain event on-site through detention and percolation are recommended by Department of Fish and Game. Additionally, for the unincorporated areas of the County that are not covered by existing community plans uniform standards are recommended.

Municipal members of the North Coast Stormwater Coalition such as the Cities of Eureka and Arcata have promulgated adequate standards and BMPs regarding stormwater management. Highlights of which include:

The City of Arcata's Best Management Practices for Stormwater Management considers runoff performance standards that result in site planning and design techniques to reduce storm flows, capture runoff water, and allow percolation or filtering before being discharged to channels, streams, or lakes. A significant portion of the manual information on Best Management Practices (BMPs) activities has been obtained from the California Stormwater Quality Task Force's Best Management Practice Handbook and modified to suit the needs of the City of Arcata.

The City of Eureka's Storm Water Quality Management and Discharge Control Ordinance, contains detailed BMP requirements that are comprehensive, are consistent with the Federal Clean Water Act and the Porter-Cologne Water Quality Control Act , and are a very effective means of reducing stormwater pollution that are a result of development activities.

Uniform standards should be implemented in the unincorporated areas of Humboldt County. Review of the General Plan Framework Plan and various community plans that have been prepared since the mid-1980 indicates inconsistencies regarding stormwater management.

The California Stormwater Best Management Practice Handbook has provided excellent guidance to the stormwater community since their publication by the Stormwater Quality Task Force (SWQTF) in 1993. Humboldt County should consider following the process that the City of Arcata used by adopting the California Stormwater Quality Task Force's Best Management Practice Handbook, modified to suit the needs of the unincorporated areas of the County. If it is not possible to adopt a modified version of the California Stormwater Best Management Practice Handbook, the following policies and standards should be considered:

*Policies*

1. Natural drainage courses, including ephemeral, intermittent, and perennial streams, shall be retained and protected from development which would impede the natural drainage pattern, increase erosion or sedimentation, or have a significant adverse effect on water quality or wildlife habitat.

2. Protection shall be given to all Humboldt County rivers and their tributaries.

3. Stormwater discharges from outfalls, culverts, gutters and other drainage control facilities which discharge into natural drainage courses shall be dissipated so that they make no contribution to additional erosion, and include BMPs to reduce impacts.

4. Natural vegetation within and immediately adjacent to the bank full stream channel shall be maintained except for flood control and public safety purposes.

5. Where it is necessary to develop additional drainage facilities, they shall be designed to be as natural in appearance and function as is feasible. All drainage facilities shall be designed to withstand the 100-year storm events and designed and managed to maintain maximum natural habitat of streams and their streamside management areas and buffers.

6. The County shall encourage restoration projects aimed at reducing erosion and improving existing habitat values in Streamside Management Areas. These projects may be pursued utilizing community volunteer programs and urban stream renewal grants. Close cooperation among the County and fish and wildlife agencies will also be sought.

7. Where possible, any new construction will seek to refrain from increasing the rate of runoff.

8. he following erosion and sediment control measures shall be incorporated into development design and improvements:

    a. Minimize soil exposure during the rainy season by proper timing of grading and construction;

    b. Retain natural vegetation where feasible;

    c. Vegetate and mulch denuded areas to protect them from winter rains;

    d. Divert runoff from steep denuded slopes and critical areas with barriers or ditches, and discharge diverted runoff onto stable, non-erodable areas;

    e. Minimize length and steepness of slopes by benching, terracing or constructing diversion structures;

    f. Trap sediment-laden runoff in basins to allow soil particles to settle out before flows are released to receiving waters;

    g. Inspect sites frequently to ensure control measures are working properly and correct problems as needed;

    h. Allowance for the construction of public roads, trails, and utilities, when properly mitigated with proper design to withstand the 100-year storm events and designed and managed to maintain maximum natural habitat of streams and their streamside management areas and buffers.

    i. Roads shall be properly maintained through Road Maintenance Agreements or County Assessment Areas. At a minimum, Road Maintenance Agreements shall be required for all new subdivisions.

*3 Standards*

1. The County shall develop an ordinance to implement the above policies.

2. All commercial, industrial, multi-family, quasi-public, and public parking facilities shall, whenever possible, provide storm water treatment for parking lot runoff using bio-retention areas, filter strips, and/or other practices that be integrated into required landscaping areas and traffic islands. In all other cases, oil/water separators shall be required. A maintenance plan for oil/water separators shall be required.

# III. Growth Impacts

## A. Summary of General Plan Development Estimates

The County has defined specific Urban Study Areas (USAs), areas where water and/or sewer systems exist or may be appropriate to consider, for the purpose of evaluating development potential and infrastructure capacity within the County. Study areas are further broken down into two main sub-categories: Urban Service Study Areas and Water Study Areas (WSAs). Urban Service Study Areas are areas where sewer and water service exist or may be feasible to provide, and development densities greater than one unit per acre are appropriate to consider. Water Study Areas are areas where only water service exists or may be feasible to provide, and development densities less than one unit per acre are appropriate to consider.

The County has developed estimates of growth potential for each individual USA and WSA based on recent population and housing growth rates. The county building permit database in conjunction with 1990 and 2000 census data were used to identify the housing and population growth that has occurred over the past ten years within Humboldt County. Analysis of future water demands based on General Plan land use build-out, and projected cumulative demands in the region are described in detail in the Community Infrastructure and Services Technical Report. Summary descriptions are included in this report.

An adequate and sustainable water supply is essential if Humboldt County is to serve projected increases in population, housing, employment, business, and agriculture. The main purpose of this section is to address water supply services provided by public and private entities. The following is a discussion on the various public water systems that serve Humboldt County communities and Figure 13-12 illustrates those portions of Humboldt County that are served by public water suppliers. Table 13-13 is an analysis of production capacity for drinking water, current demand, the current excess or shortfall, and future housing capacity for each service provider based on current system availability. It should be noted that Table 13-13 does not account for infrastructure development to service the projected future housing capacity or the development of additional water treatment systems or the location of future housing. A separate analysis of the future development potential is discussed in the Community Infrastructure and Services Technical Report and the Community Infrastructure and Services Element. Table 13-13 is totally based on gross water capacity availability, includes a deduction for industrial/commercial use at 30% of demand, and is based on the historical (1990 to 2000 average) housing consumptive use of 415 gallons per day per housing unit (average per capita consumption was 129.54 gpd). Actual usage within each community system may differ from this amount.

Existing General Plan densities and a proposed higher density alternative were used to estimate a low and high estimate of the development potential that could occur on residential land within urban study areas, also shown in Table 13-14. It is important to note that the existing development densities DO NOT take into account natural constraints on a parcel, such as steep slopes or wetlands, while the future development numbers do eliminate these acres from the density calculation. Therefore, resulting densities for existing development will appear low compared to proposed densities.

# Public Water Sources in Humboldt County

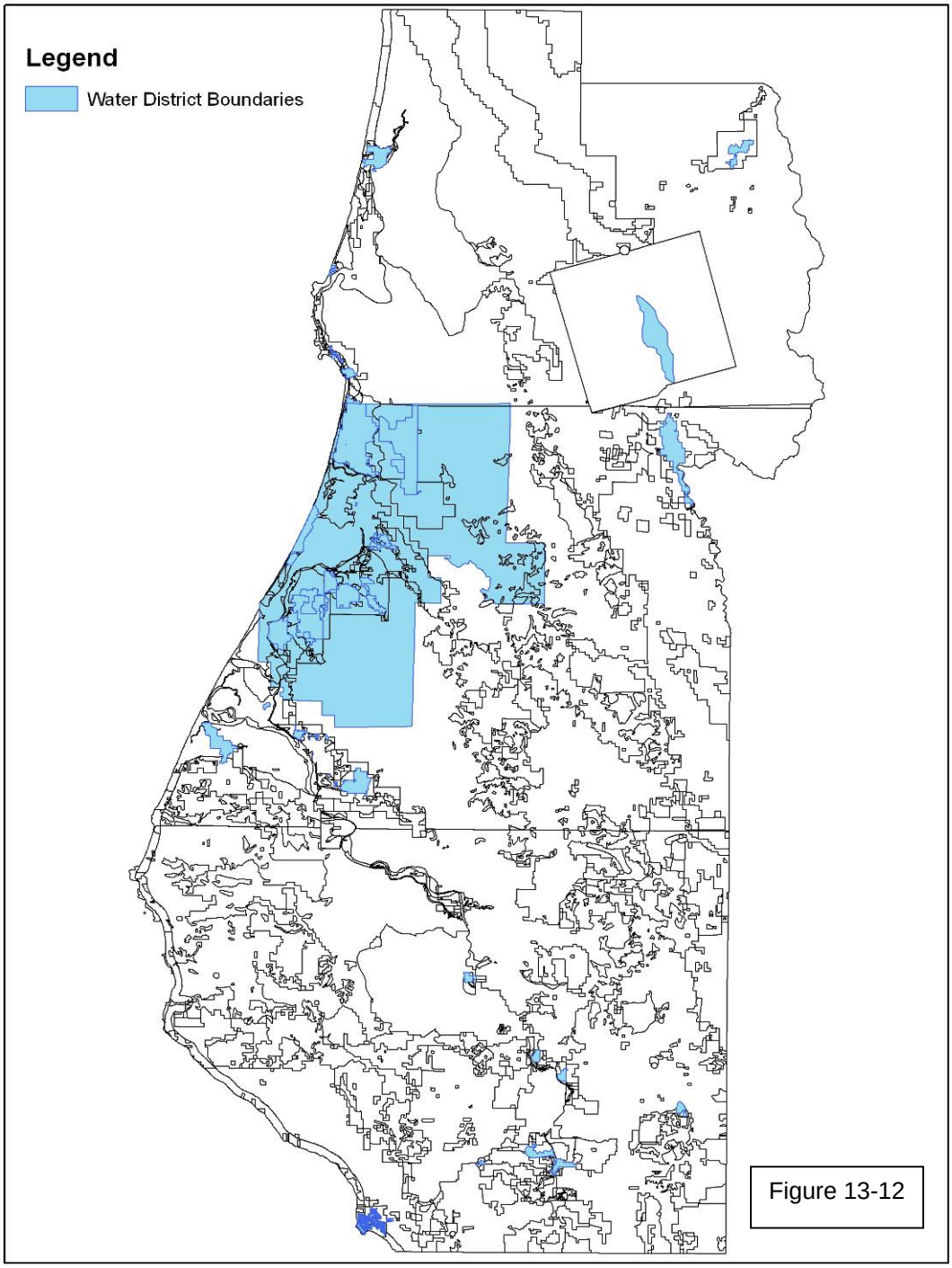



Figure 13-12

**Table 13-13. Gross Estimate of Future Housing Capacity**

| Provider | Primary Groundwater or (Water Basin) | Current Production Capacity [1] | Current Demand[2] | Current Excess (Shortfall) | Future Housing Capacity (Units)[3] | Projected Excess/(Shortfall) GPD |
|---|---|---|---|---|---|---|
| HBMWD | Mad River | 45 MGD | 21 MGD | 24 MGD | | 24,000,000 |
| Alderpoint Water District | (Eel River) | 432,000 GPD | 80,000 GPD | 352,000 GPD | 66 | 324,610 |
| City of Arcata* | Mad River Valley | | 2,800,000 MGD | | 205 | |
| City of Blue Lake* | Mad River Valley | | 280,000 GPD | | 161 | |
| Big Lagoon CSD | Big Lagoon Area | 70,000 GPD | 11,650 GPD | 58,350 GPD | 14 | 52,540 |
| Briceland CSD | (Eel River) | 10,080 GPD | 40,000 GPD | (29,920 GPD) | 26 | (-40,710) |
| City of Eureka* | Eureka Plain | | 4,400,000 MGD | | 8898 | |
| City of Ferndale | Eel River Valley | 500,000 GPD | 190,000 GPD | 310,000 GPD | 150 | 247,750 |
| City of Fortuna | Eel River Valley | 5,760,000 GPD | 2,300,000 GPD | 3,460,000 GPD | 450 | 3,273,250 |
| Fieldbrook/Glendale CSD* | Mad River Valley | | 325,000 GPD | | 575 | |
| Garberville Sanitary District | Garberville Town Area | 460,800 GPD | 310,000 GPD | 150,800 GPD | 211 | 63,235 |
| Hoopa Valley PUD | Hoopa Valley | 3,200,000 GPD | 1,190,000 GPD | 2,010,000 GPD | 465 | 1,817,025 |
| Humboldt CSD** | Eureka Plain | | 2,430,000 MGD | | 4386 | |
| Hydesville County WD | Eel River Valley | 518,400 GPD | 280,000 GPD | 238,400 GPD | 166 | 169,510 |
| Jacoby Creek CSD* | Mad River Valley | | 90,000 GPD | | 101 | |
| Loleta CSD | Eel River Valley | 276,000 GPD | 210,000 GPD | 66,000 GPD | 116 | 17,860 |
| Manila CSD* | Eureka Plain | | 150,000 GPD | | 269 | |
| McKinleyville CSD* | Dows Cr | | 1,190,000 MGD | | 4249 | |
| Miranda CSD | (Eel River) | 338,000 GPD | 220,000 GPD | 118,000 GPD | 74 | 87,290 |
| Orick CSD | Redwood Creek | 274,000 GPD | 216,000 GPD | 58,000 GPD | 66 | 44,610 |
| Orleans CSD | (Klamath River) | 950,000 GPD | 513,000 GPD | 437,000 GPD | 220 | 345,700 |
| Palmer Creek CSD | Eel River Valley | 230,400 GPD | 84,000 GPD | 146,400 GPD | 25 | 136,025 |
| Patrick Creek CSD* | Dows Prairies Area | | 7,500 GPD | | 58 | |
| Phillipsville CSD | (Eel River) | 40,000 GPD | 40,000 GPD | 0 | 11 | (-4,565) |
| Redway CSD | Garberville Town Area | 838,000 GPD | 475,000 GPD | 363,000 GPD | 589 | 118,565 |
| Shelter Cove | (Cape Mendocino) | 360,000 GPD | 331,000 GPD | 29,000 GPD | 1481 | (-585,615) |
| City of Rio Dell | Eel River Valley | 792,000 GPD | 474,000 GPD | 318,000 GPD | 223 | 225,455 |
| Riverside CSD | Eel River Valley | 74,000 GPD | 46,000 GPD | 28,000 GPD | 5 | 25,925 |
| City of Trinidad | Big Lagoon Area | 62,000 GPD | 40,000 GPD | 12,000 GPD | 221 | (-79,715) |
| Weott CSD | Weott Town Area | 202,000 GPD | 258,000 GPD | (56,000 GPD) | 61 | (-81,315) |
| Westhaven CSD | Big Lagoon Area | 57,600 GPD | 66,000 GPD | (8,400 GPD) | 424 | (-175,960) |
| Willow Creek CSD | (Trinity River) | 3,760,000 GPD | 1,800,000 GPD | 1,960,000 GPD | 580 | 1,719,300 |
| | | Totals | | | 24,546 | 31,700,770 |

[1] Current Capacity for HBMWD reduced by 30% for industrial/commercial use.

[2] As a measure of consumption, current flows can be seen as equivalent to demand.

[3] Based on high estimates from Table 13-12

*Denotes Water Supply obtained totally from HBMWD

** Denotes Water Supply obtained partially from HBMWD (67%)

**Table 13-14. Housing Development Potential**

| USA/WSA | Development Potential | | | Estimate of Potential Dwelling Units | | Estimates of Resulting Densities | |
|---|---|---|---|---|---|---|---|
| | Vacant /Under-developed Acres | Constrained Acres | Net Developable Acres | Low | High | Low | High |
| Alderpoint WS | 210 | 79 | 130 | 44 | 66 | 0.34 | 0.51 |
| Arcata USA | 22 | 10 | 12 | 2 | 205 | 0.16 | 16.73 |
| Benbow WS | 103 | 52 | 51 | 55 | 56 | 1.08 | 1.10 |
| Big Lagoon WS | 63 | 11 | 53 | 10 | 14 | 0.19 | 0.27 |
| Blue Lake USA | 73 | 23 | 50 | 46 | 143 | 0.92 | 2.85 |
| Blue Lake WS | 91 | 6 | 85 | 6 | 18 | 0.07 | 0.21 |
| Briceland WS | 53 | 0 | 53 | 13 | 26 | 0.25 | 0.49 |
| Fieldbrook WS | 5,138 | 1,383 | 3,755 | 138 | 575 | 0.04 | 0.15 |
| Fortuna USA | 1,414 | 527 | 888 | 294 | 450 | 0.33 | 0.51 |
| Freshwater WS | 1,637 | 613 | 1,024 | 130 | 335 | 0.13 | 0.33 |
| Garberville USA | 129 | 51 | 79 | 63 | 108 | 0.80 | 1.37 |
| Garberville WS | 1,099 | 616 | 483 | 61 | 103 | 0.13 | 0.21 |
| Glendale USA | 284 | 66 | 218 | 20 | 1,189 | 0.09 | 5.46 |
| Glendale WS | 59 | 12 | 47 | 1 | 1 | 0.02 | 0.02 |
| Humboldt Hill USA | 1,937 | 713 | 1,224 | 963 | 2,070 | 0.79 | 1.69 |
| Hydesville USA | 243 | 65 | 178 | 96 | 554 | 0.54 | 3.12 |
| Hydesville WS | 1,044 | 456 | 588 | 70 | 246 | 0.12 | 0.42 |
| Indianola WS | 1,269 | 434 | 835 | 99 | 162 | 0.12 | 0.19 |
| Jacoby Creek WS | 338 | 53 | 286 | 28 | 101 | 0.10 | 0.35 |
| Loleta USA | 34 | 3 | 31 | 87 | 116 | 2.79 | 3.72 |
| Manila USA | 172 | 41 | 131 | 142 | 233 | 1.08 | 1.78 |
| McKinleyville USA | 2,038 | 356 | 1,683 | 2,224 | 4,112 | 1.32 | 2.44 |
| McKinleyville WS | 836 | 166 | 670 | 123 | 137 | 0.18 | 0.20 |
| Miranda USA | 113 | 27 | 86 | 48 | 74 | 0.56 | 0.86 |
| Myers Flat WS | 13 | 5 | 8 | 4 | 4 | 0.51 | 0.51 |
| Myrtletown USA | 278 | 29 | 249 | 466 | 1,021 | 1.87 | 4.09 |
| Myrtletown WS | 18 | 2 | 16 | 55 | 81 | 3.43 | 5.06 |
| Orick USA | 47 | 28 | 18 | 19 | 30 | 1.03 | 1.63 |
| Orick WS | 660 | 482 | 178 | 36 | 36 | 0.20 | 0.20 |
| Orleans WS | 428 | 155 | 273 | 50 | 220 | 0.18 | 0.81 |
| Phillipsville WS | 114 | 80 | 34 | 11 | 11 | 0.32 | 0.32 |
| Redcrest WS | 23 | 3 | 20 | 12 | 16 | 0.59 | 0.79 |
| Redway USA | 850 | 381 | 469 | 298 | 589 | 0.64 | 1.26 |
| Rio Dell USA | 6 | 2 | 4 | 2 | 8 | 0.48 | 1.93 |
| Rio Dell WS | 46 | 6 | 40 | 7 | 7 | 0.18 | 0.18 |
| Riverside WS | 56 | 22 | 34 | 5 | 5 | 0.15 | 0.15 |
| Samoa USA | 69 | 0 | 68 | 0 | 318 | 0 | 4.66 |
| Scotia USA | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Shelter Cove USA | 160 | 5 | 155 | 1,088 | 1,214 | 7.03 | 7.85 |
| Shelter Cove WS | 230 | 143 | 87 | 108 | 267 | 1.24 | 3.06 |
| South Eureka USA | 3,207 | 929 | 2,279 | 2,687 | 8,048 | 1.18 | 3.53 |
| South Eureka WS | 651 | 477 | 175 | 13 | 47 | 0.07 | 0.27 |
| Weott USA | 31 | 5 | 26 | 34 | 61 | 1.31 | 2.35 |
| Westhaven WS | 668 | 128 | 541 | 79 | 424 | 0.15 | 0.78 |
| Willow Creek USA | 24 | 9 | 15 | 12 | 76 | 0.79 | 5.00 |
| Willow Creek WS | 1,482 | 757 | 726 | 215 | 504 | 0.30 | 0.69 |

## B. Domestic Water Availability

Small community water systems supply water to a wide variety of uses such as rural businesses, residences and schools, mobile home parks and small unincorporated communities. Most water systems are operated by Community Service Districts or other public entities. Some are owned by private companies or corporations. There are also mutual water companies or associations, which are shareholder owned and operated systems (where shares are based on acreage owned within the service area) that are only authorized to provide water to shareholders. Most of these systems have small revenue bases and relatively high per capita costs and often have difficulty financing major capital investments needed to replace aging facilities or accommodate growth.

Four County water districts serve Humboldt County: Alderpoint County, Hydesville County, Jacoby Creek County, and Humboldt Bay Municipal Water Districts. The largest of the water suppliers is Humboldt Bay Municipal Water District (HBMWD) serving the greater Humboldt Bay Area, including Eureka, Arcata, and Blue Lake as well as community service districts serving the unincorporated areas of McKinleyville, Cutten (HCSD), Fairhaven, Fieldbrook, and Manila. HBMWD serves about 65,000 people a day and can currently deliver up to 20 million gallons daily for domestic purposes. The rest of the county's unincorporated areas are served by community service districts or some form of private system. The water for these systems comes from rivers, springs and wells.

HBMWD has the highest level of excess water available for future developments in Humboldt County, HBMWD water issues are not projected to be problematic for future growth. There are however critical shortages of domestic water now or projected in the future for several USAs/WSAs, many of which are in the Eel River Basin. The following is a discussion of those systems that are projected to have a shortfall, assuming the high estimate of potential development occurs. Additional information regarding each water provider can be found in II B, Public Water Systems.

### Briceland CSD

The sole water source for the Briceland CSD is a spring on private property, where the District receives 90% of the spring's flow. The spring's flow is variable and dependent on rainfall. However, in the summertime, the spring outputs 5 – 7 gpm, or between 7,200 and 10,080 gpd. Based on Table 13-11, future high estimates of housing growth would create a domestic water shortfall of about 40,700 gallons per day by the year 2025.

### City of Trinidad

Potable water for the City system is currently supplied from Luffenholtz Creek With a project high growth of 221 new housing units by 2025, the City could experience a water deficit of around 79,700 GPD if capacity problems are not solved.

### Phillipsville CSD

PCSD's water supply consists of a groundwater well of unknown capacity and a surface water spring source with variable capacity. The spring source is unable to meet summertime demands, and therefore only serves the upper portion of the system during low flows while the well supplies water to the rest of the system. Average daily use for the entire District is estimated at 0.024 mgd, and peak daily use is estimated at approximately 0.085 mgd. The Phillipsville area has approximately 65 active service connections. The system does not have a master meter to monitor production. This system could experience a shortfall in its source of supply of around 4,500 gpd.

### Shelter Cove

The District's water supply system consists of a diversion facility and treatment plant on Telegraph Creek. Although the distribution system was installed District-wide, the initial water appropriation rights were not sufficient to meet projected demand for full build-out. Given this situation, the District would face a major water deficit of around 585,000 GPD by 2025 if the projected 223 housing units for the area were to occur.

### Weott CSD

WCSD's water system consists of two surface water sources located across the Eel River and south of Bull Creek. The total rated capacity of these sources is approximately 0.202 MGD. By the year 2025, the District is expected to experience a water deficit of around 81,000 GPD.

### Westhaven CSD

The system is supplied by three small, spring-fed tributaries of Two Creek at the eastern edge of the community and a 100-foot deep well within the residential area. The Westhaven Community Service District currently provides domestic water service to 207 connections. Nineteen (19) idle WMWC services represent a future obligation, making a total of 226 service connections possibility at full capacity. Projected growth within the District includes up to 424 housing units creating a drinking water shortfall of around 176,000 GPD by 2025. Source capacity currently varies between 40 – 60 gpm, compared to a maximum day demand of 0.66 MGD, or approximately 46 gpm. Recent efforts have focused on conservation – installing meters throughout the system and repairing leaks. This CSD suffers from limited source capacity. Additional sources have been sought but none identified. Without an additional source of water, development within the area will be severely limited.

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