



County of Humboldt General Plan Update

Climate Action Plan

A Strategy for Greenhouse Gas
Reduction and Adaptation to Global
Climate Change



January 2012 Draft

Prepared by

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County of Humboldt
Draft Climate Action Plan
For The
General Plan Update

January 2012

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Introduction

Background

Call for Climate Action Plan

On December 4, 2007, the Humboldt County Board of Supervisors resolved to join the International Council for Local Environmental Initiatives (ICLEI) and participate in the Cities for Climate Protection Campaign. As part of the resolution, the County of Humboldt will undertake the Cities for Climate Protection Campaign's five milestones to reduce both greenhouse gas and air pollution emissions throughout the community, and specifically commits to progress through the five milestones: 1) conduct a greenhouse gas emission inventory and forecast to determine the sources and quantity of greenhouse gas emissions in the County; 2) establish a carbon dioxide or greenhouse gas emissions reduction target; 3) develop an action plan with both existing and future actions that, when implemented, will help meet the local greenhouse gas reduction target; 4) implement the action plan; and 5) monitor and report progress.

Global climate change refers to alterations in weather features which occur across the Earth as a whole, such as temperature, wind patterns, precipitation, and storms. Global temperatures are modulated by naturally occurring atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide. These gases allow sunlight into the Earth's atmosphere, but prevent radiative heat from escaping into outer space, thus altering the Earth's energy balance in a phenomenon called the greenhouse effect.

The global climate is continuously changing, as evidenced by repeated episodes of warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily

retreated across the globe. Scientists have observed, however, an unprecedented increase in the rate of warming in the past 150 years.

This recent warming has coincided with the global Industrial Revolution, which has seen the widespread destruction of forests to accommodate urban centers and agriculture and the use of fossil fuels, primarily burning of coal, oil, and natural gas for energy, which in turn has released substantial amounts of greenhouse gases into the atmosphere. Carbon dioxide accounts for approximately 85% of total emissions, and methane and nitrous oxide account for almost an additional 14%.

Concentrations of carbon dioxide in the atmosphere have risen approximately 30% since the Industrial Revolution. Because greenhouse gases persist and mix in the atmosphere, emissions anywhere in the world impact the climate everywhere. During the past 100 years, average global temperatures have risen by more than one degree Fahrenheit (F). Meteorologists have documented that the past ten years have been the hottest decade since 1850. Warming has not been uniform, with temperatures at the poles experiencing the greatest increase, with up to a 9 degree increase observed in large areas of the Arctic over the 20th century. In response to warming, the growing season has lengthened and trees are flowering earlier; some animal and plant species ranges have been migrating toward higher latitudes and altitudes; plant and animal species adapted to cold temperatures have declined; and species adapted to warm temperatures have increased.

Human Influence on Climate

The world's leading climate scientists have reached consensus that global climate change is underway, is "very likely" caused by humans, and hotter temperatures and rises in sea level "would continue for centuries," no matter how much humans control future emissions. The

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latest report of the Intergovernmental Panel on Climate Change (IPCC) – an international group of scientists and representatives of 113 governments – released February 2, 2007, concludes

“The widespread warming of the atmosphere and ocean, together with ice-mass loss, support the conclusion that it is extremely unlikely that global climate change of the past 50 years can be explained without external forcing, and very likely that it is not due to known natural causes alone.”

The IPCC predicts temperature increase of between 2.0 and 11.5 degrees F by the year 2100, with the most likely scenario between 3.2 and 7.1 degrees F. The IPCC report projects sea level rises of seven to 23 inches by the end of the century, with an additional 3.9 to 7.8 inches possible depending upon the rate of polar ice sheets melting from increased warming. The IPCC report states that an increase in hurricane and tropical cyclone strength since 1970 “more likely than not” can be attributed to human-generated greenhouse gases.

According to the 2006 California Climate Action Team Report, the following climate change effects are predicted, based on the IPCC trends described above, the following conditions can be expected in California over the course of the next century:

- A diminishing Sierra snowpack declining by 70% to 90%, threatening the state’s water supply;
- Increasing temperatures from 8 to 10.4 degrees F under the higher emission scenarios, leading to a 25 to 35% increase in the number of days ozone pollution levels are exceeded in most urban areas;
- Coastal erosion along the length of California and sea water intrusion into the Sacramento River Delta from a four- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;

- Increased challenges for the state’s important agriculture industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta; and
- Increased electricity demand, particularly in the hot summer months.

Greenhouse Gases

“Greenhouse gases” are so called because of their role in trapping heat near the surface of the earth; they are emitted by human activity are implicated in global climate change, commonly referred to as “global warming.” These greenhouse gases contribute to an increase in the temperature of the earth’s atmosphere by preventing the escape of heat in much the same way as glass in a greenhouse. Thus, this condition is often referred to as the “greenhouse effect.” In its “natural” condition, the greenhouse effect is responsible for maintaining a habitable climate on earth, but human activity has caused increased concentrations of these gases in the atmosphere, thereby contributing to an increase in global temperatures.

The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Of these gases, carbon dioxide and methane are emitted in the greatest quantities from human activities. Emissions of carbon dioxide are largely by-products of fossil fuel combustion, whereas methane predominantly results from off-gassing associated with agricultural practices and landfills. Other GHGs – with much greater heat-absorption potential than carbon dioxide – include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes.

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming, although there is much uncertainty concerning the magnitude and rate of the warming.

Some of the potential impacts in California of climate change may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires,

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and more drought years. Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. On a global level, the projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects:

- Snow cover is projected to contract, with permafrost areas sustaining thawing.
- Hot extremes, heat waves, and heavy precipitation events are likely to increase in frequency.
- Future tropical cyclones (typhoons and hurricanes) will likely become more intense.
- Non-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns. Increases in the amount of precipitation are very likely in high-latitudes, while decreases are likely in most subtropical regions.
- Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic ocean.

There are also many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

The California Energy Commission estimated that in 2004 California produced 500 million gross metric tons (about 550 million U.S. tons) of carbon dioxide-equivalent GHG emissions. The CEC found that transportation is the source of 38 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 23 percent and industrial sources at 13 percent.

In the San Francisco Bay Area, fossil fuel consumption in the transportation sector (on-

road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of the Bay Area's GHG emissions, accounting for just over half of the Bay Area's 85 million tons of GHG emissions in 2002. A similar trend, though on a lesser scale, is expected for the Humboldt Bay region. Industrial and commercial sources were the second largest contributors of GHG emissions with about one-fourth of total emissions. Domestic sources (e.g., home water heaters, furnaces, etc.) account for about 11 percent of the Bay Area's GHG emissions, followed by power plants at 7 percent. Oil refining currently accounts for approximately 6 percent of the total Bay Area GHG emissions.

Regulatory Context for Global Climate Change

Global climate change resulting from greenhouse gas emissions is an emerging environmental concern being raised and discussed at the international, national, and statewide level. At each level, agencies are considering strategies to control emissions of gases that contribute to global warming.

California has taken a leadership role in addressing the trend of increasing GHG emissions, with the passage in 2006 of California Assembly Bill 32 (AB 32), the Global Warming Solutions Act. This legislation is discussed, under Regulatory Setting.

At the present time, there are no rules or regulations in place from the ARB, State Clearinghouse, or other resource agency applicable to the Proposed Project that define what is a "significant" source of greenhouse gas (GHG) emissions, and there are no applicable facility-specific GHG emission limits or caps. The NCAQMD has not yet established thresholds for greenhouse gas emissions. And, as of the time of this writing, no other air districts within California have established emission thresholds for determining the significance of GHGs from industrial projects. Also, while the goal of AB 32 is to reduce in-state GHG emissions to 1990 levels by the year 2020, there is no clear metric that would

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determine if a single project advances toward or away from this goal.

Because global warming is a global issue, a pound of GHGs emitted in California would presumably have the same effect, individually and cumulatively, as a pound of GHGs emitted anywhere else in the world.. However, no agency has yet assumed jurisdiction to regulate greenhouse gases and there are no established standards for gauging the significance of greenhouse gas emissions. Neither CEQA nor the CEQA Guidelines provide any methodology for analysis of greenhouse gases.

In the fall of 2006, Governor Schwarzenegger signed AB 32, the global warming bill, into law. The Bill requires the state Air Resources Board (ARB) to adopt regulations by January 1, 2008 to require reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with that program. The bill requires achievement by 2020 of a statewide greenhouse gas emissions limit equivalent to 1990 emissions, and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions.

CEQA requires public agencies to evaluate whether a project that requires discretionary approval may have significant environmental effects and, if so, to impose feasible mitigation measures. In general, when it determines in the first instance that a project may have a significant effect on the environment, the public agency must prepare an environmental impact report (EIR).

After the passage of AB 32, the California Global Warming Solutions Act of 2006, lead agencies began receiving comments on draft EIRs – including from the Attorney General’s office demanding that the project’s contribution to global climate change be assessed by estimating the project’s GHG emissions. In the fall of 2006, Attorney General Lockyer

submitted lengthy comments on the draft EIR for the County of San Bernardino’s General Plan update arguing that it must evaluate GHGs and climate change in light of the Legislature’s adoption of AB 32. Earlier this year, Attorney General Brown took the further step of challenging in a CEQA lawsuit San Bernardino County’s failure to analyze climate change issues in the EIR.

The Attorney General’s demand to analyze global warming issues was not easily met. AB 32 requires the California Air Resources Board (CARB) to adopt by 2012 regulations to reduce GHG emissions to 1990 levels by 2020. Consequently, CARB had not taken any substantive actions pursuant to AB 32 by the time San Bernardino certified its EIR. Moreover, while recent air quality modeling software (URBEMIS 2007) provides a methodology for estimating a project’s carbon dioxide emissions, there are no established thresholds or standards for determining whether a project’s GHG emissions are significant. Global warming and climate change impacts are by definition global in scope, and no one study has been able to predict where, or if, particular global warming effects (e.g., wildfires, loss of endangered or threatened species, increase or decrease in precipitation) will occur in any region, much less any local area.

In August 2007, Attorney General Brown announced his office had settled with San Bernardino County. The settlement requires San Bernardino to amend its General Plan to add a policy that describes its goal to reduce GHG emissions “reasonably attributable to [San Bernardino’s] discretionary land use decisions” and internal operations, and that calls for adoption of a “Greenhouse Gas Emissions Reductions Plan.” The Plan must include: (a) a current inventory of sources of GHGs within San Bernardino, and a current baseline inventory of GHG emissions from those sources; (b) an inventory of greenhouse gas emissions from the same sources in San Bernardino in 1990; (c) a projection of new GHG emissions in San Bernardino in 2020 from its discretionary land

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use decisions and governmental operations; and (d) a target for the reduction of those emissions.

The settlement with San Bernardino is significant because it establishes a precedent for how public agencies that prepare long-term planning documents should address GHG emissions and climate change. The settlement does not, however, resolve or even materially advance the debate over how to judge the significance of a project's GHG emissions. The regulated community may gain greater insight into those issues as the Office of Planning and Research develops its guidelines.

Another recent piece of legislation, SB 97, requires the Office of Planning and Research to promulgate by July 1, 2009 guidelines for feasible mitigation of GHG emissions. By July 1, 2010, the California Resources Agency must adopt those guidelines nearly 1 ½ years before CARB adopts its regulations implementing AB 32. Therefore, mitigation measures must be imposed through the CEQA process before CARB, which is charged by AB 32 to impose GHG emissions regulations, has acted.

The Attorney General's press release announcing the settlement with San Bernardino identifies a number of "feasible" mitigation measures that can be used to minimize GHG emissions. The more feasible measures include high-density development to reduce vehicle trips; promotion of carpooling, alternative fuel vehicles, public transportation, and transportation impact fees; energy efficient design for buildings, appliances and lighting; solar panels, water reuse systems and on-site renewable energy production.

California Greenhouse Gas Emissions

To provide a context for the Humboldt County General Plan Update greenhouse gas emissions, it is useful to consider the state of California as a whole. California is a substantial producer of greenhouse gas emissions. As mentioned previously, carbon dioxide accounts for approximately 85% of total emissions, and

methane and nitrous oxide account for almost an additional 14%. Each gas contributes to global warming at a different relative rate. Methane has a global warming potential 21 times that of carbon dioxide, while nitrous oxide is 310 times that of the same amount of carbon dioxide.

According to the California Climate Action Team, in 2002, total carbon dioxide emissions in California from fossil fuel combustion were 360 million tons, accounting for approximately seven percent of U.S. emissions from this source. According to the California Energy Commission, California is the second largest emitter of greenhouse gases in the U.S. (trailing only Texas) and the 12th largest in the world. In 2004, California produced 492 million metric tons of total carbon dioxide-equivalent emissions. California has relatively low carbon emissions intensity, however, ranking fourth lowest of the 50 states in carbon dioxide emissions per capita from fossil fuel combustion in 2001. California was also the fifth lowest of the 50 states in carbon dioxide emission from fossil fuel combustion per unit of gross state product in 2001, largely as a result of the state's energy efficiency and renewable energy programs.

California Air Resource Board Scoping Plan

When AB 32 was enacted it set in motion a requirement that the California Air Resources Board (CARB) determine greenhouse gas reduction targets and adopt, by the end of 2008, a "Scoping Plan" that provides a detailed pathway to meet these targets by the year 2020. Regulations to implement the Scoping Plan are to be in effect not later than 2012. The draft Scoping Plan (June 2008) was developed by several working groups, and was released for comment on June 26th. The following is a summary of the draft Scoping Plan, including how it could affect local governments.

Background. California is the 15th largest emitter of greenhouse gases (GHG) on the planet, representing 2% of worldwide emissions. The transportation sector is responsible for nearly 40% of GHG emissions in California, and electricity in the commercial and residential

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sectors follows closely with 30%. Although only 22% of our electricity is produced out of state, this imported electricity is largely produced at coal-fired power plants and accounts for over 50% of GHG emissions in this sector.

The goal of AB 32 is to reduce GHG emissions in California in 2020 to the level they were in 1990. The ARB calculates that emissions were 427 million metric tons of CO₂ equivalents (MMT_{CO2E}) in 1990 and that there will be 596 MMT_{CO2E} in 2020 under a “business as usual” scenario. The Scoping Plan identifies how the state can accomplish the reduction of 169 MMT_{CO2E} to reach the 1990 level.

In 2005, in recognition of California’s vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of greenhouse gas would be progressively reduced, as follows:

- By 2010, reduce greenhouse gas emissions to 2000 levels;
- By 2020, reduce greenhouse gas emissions to 1990 levels; and
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), which requires CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide greenhouse gas emissions are reduced to 1990 levels by 2020 (representing an approximate 25-percent reduction in emissions).

In June 2007, CARB directed its staff to pursue 37 early actions for reducing greenhouse gas emissions under AB 32. The broad spectrum of strategies to be developed – including a Low Carbon Fuel Standard, regulations for refrigerants with high global warming potentials, guidance and protocols for local governments to facilitate greenhouse gas reductions, and green ports – reflects that the serious threat of climate

change requires action as soon as possible (CARB, 2007d).

In addition to approving the 37 greenhouse gas reduction strategies, CARB directed its staff to further evaluate early action recommendations made at the June 2007 meeting, and to report back to CARB within 6 months. The general sentiment of CARB suggested a desire to try to pursue greater GHG reductions in California in the near-term. Since the June 2007 CARB hearing,

CARB staff has evaluated all 48 recommendations submitted by several stakeholder and several internally generated staff ideas and published the *Expanded List of Early Action Measures To Reduce Greenhouse Gas Emissions In California Recommended For Board Consideration* in October 2007 (CARB, 2007). Based on its additional analysis, CARB staff is recommending the expansion of the early action list to a total of 44 measures, which are listed in Table IV.C-3.

The 2020 target reductions are currently estimated to be 174 million metric tons/year of CO₂ equivalent (CO_{2e}). In total, the 44 recommended early actions have the potential to reduce GHG by at least 42 million metric tons/year of CO_{2e} emissions by 2020, representing about 25 percent of the estimated reductions needed by 2020. CARB staff is working on 1990 and 2020 greenhouse gas emission inventories in order to refine the projected reductions needed by 2020. The 44 measures are in the sectors of fuels, transportation, forestry, agriculture, education, energy efficiency, commercial, solid waste, cement, oil and gas, electricity, and fire suppression.

In addition to identifying early actions to reduce greenhouse gases, CARB is also developing mandatory greenhouse gas reporting regulations pursuant to requirements of AB 32. The regulations are expected to require reporting for certain types of facilities that make up the bulk

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of the stationary source emissions in the state. Currently, the draft regulation language identifies major facilities as those that generate more than 25,000 metric tons/year of CO₂e. Cement plants, oil refineries, electric-generating facilities/providers, cogeneration facilities, and hydrogen plants and other stationary combustion sources that emit more than 25,000 metric tons/year of CO₂e make up 94 percent of the point source CO₂e emissions in California (CARB, 2007f).

AB 32 also requires CARB to prepare a Scoping Plan to achieve GHG reductions in California. On June 26, 2008, CARB released the initial draft of the AB 32 Scoping Plan for public review

(CARB, 2008). The Scoping Plan contains the main strategies the State intends to use to reduce GHGs. Key elements of CARB's preliminary recommendation for reducing California's GHG emissions to 1990 levels by 2020 include:

- Expansion and strengthening of existing energy efficiency programs and building and appliance standards;
- Expansion of the Renewables Portfolio Standard to 33 percent;
- Development of a California cap-and-trade program that links with other WCI Partner programs to create a regional market system;
- Implementation of existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Targeted fees to fund the State's long-term commitment to AB 32 administration.

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CARB Scoping Plan Recommended GHG Reduction Measures¹

SECTOR	MMTCO _{2e} REDUCTION	% OF TOTAL REDUCTION
STATE GOVERNMENT	1 TO 2	1%

The state will demonstrate leadership by reducing emissions by a minimum of 30% by 2020 from its own buildings, vehicles, investments via PERS and STRS, purchasing policies, employer practices such as encouraging alternate commute options, and by examining and adjusting all legislative, executive, and financial practices that affect Californians.

CAP AND TRADE	35.2	21%
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The state has established a “cap and trade” system through a partnership (the Western Climate Initiative, consisting of California, Arizona, New Mexico, Oregon, Washington, Utah, Montana, British Columbia, Manitoba, and Quebec) to place a upper limit (“cap”) on GHG emissions from these states and provinces, with the limit decreasing each year. Capped sectors would include electricity, transportation fuels, natural gas, and large industrial sources. Emission credits would be in the form of “allowances.” It has not been decide whether these allowances would be distributed for free to capped firms or auctioned to produce capital to fund other GHG emission reduction programs. The cap and trade system would require efficiencies from energy producers and providers--- “upstream” of consumers. The cap and trade system would be in addition to other sector requirements for GHG reductions.

CARS AND SMALL TRUCKS	31.7	19%
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In 2002, California enacted AB 1493 (the “Pavley bill” named after its author, Fran Pavley) to require, beginning with model year 2009, cars and trucks sold in California to meet emission standards set by the ARB for GHGs out the tailpipe. The federal government is required by the Clean Air Act to grant a waiver for these regulations to go into effect and has, to date, refused to do so.

ENERGY EFFICIENCY	26.4	16%
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Utilities such as PG&E are currently required by law to prioritize energy efficiency first (instead of new power plants) when energy needs. The bulk of the 26.4 MMTCO_{2E} GHG reductions required for this sector will be met through demand reduction. The PUC and California Energy Commission will require that utilities offer incentives and programs for building and appliance energy efficiency, as well as through solar water heating systems. All new schools built starting in 2010, and schools applying for modernization funds, will be required to meet Collaborative for High Performance Schools criteria.

¹ May not total to 169 or 100% due to rounding.

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RENEWABLES PORTFOLIO STANDARD 21.2 13%

Current law requires utilities to provide a minimum of 20% of retail electric load from “renewable” sources, including wind, solar, geothermal, small hydroelectric, biomass, and biogas by the year 2010. The current level is estimated to be 12%. The Scoping Plan proposes to increase it to 33% by 2020.

LOW CARBON FUEL STANDARD 16.5 10%

Executive Order S-1-07 requires that the “carbon intensity” of motor vehicle fuel be reduced by at least 10% by 2020. This standard is performance based, rather than prescribing a specific technology, and relies on the market to determine which non-petroleum fuel alternative is most efficient. Examples of potential low carbon fuels include ethanol, natural gas, biodiesel, hybrid and neighborhood electric, and propane.

HIGH GWP GAS MEASURES 16.2 10%

Some gases have a much higher effect on global warming than CO₂. For example, the Scoping Plan indicates that one pound of ‘blowing agents’ used to make insulating foam released into the atmosphere has a “global warming potential” equal to 5 metric tons of CO₂. The Scoping Plan identifies actions to regulate refrigerants in air-conditioning and fire-suppression systems that are currently in use, as well as how new systems may be used in the future. Strategies include requirements for checking for leaks in air-conditioning systems at the time a vehicle undergoes a smog check and limits on sulfur hexafluoride (a gas used primarily in the electrical industry with a GWP 22,000 times that of CO₂).

SUSTAINABLE FORESTS 5.0 3%

The Scoping Plan identifies reductions through sustainable forest management, reducing the risk of fires, and avoidance of loss of forest land to other uses.

WATER 4.8 3%

The Scoping Plan places a high level of emphasis on water use efficiencies, since it is estimated that nearly one-fifth of electricity used in California is associated with pumping, transporting, using, and treating water. Measures to reduce water use will also reduce electricity use. Water efficiency measures are embedded in other parts of the scoping plan, so the reduction target are not included in the 169 MMTCO₂E state goal for 2020. The state has set a goal of 20% reduction in water use by 2020 that will be accomplished by establishment of a “public goods: charge on water bills that will fund investments in water efficiency.

MISCELLANEOUS VEHICLE MEASURES 11.0 7%

The Scoping Plan identifies three separate sets of measures, which I have combined into this one category. These are: (1) Vehicle Efficiency measures, estimated to reduce GHG emissions by 3.7 MMTCO₂E through such things as tire inflation programs; (2) Goods Movement Measures, estimated to provide a reduction of 3.7 MMTCO₂E primarily through port-related efficiencies;

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and, (3) Heavy and Medium Trucks, estimated to reduce emissions by 2.5 MMTCO₂E through retrofit programs to reduce rolling resistance and increase aerodynamic efficiency of large trucks AND increased fuel efficiency.

MILLION SOLAR ROOFS	2.1	1%
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The state has set a goal of installing 3,000 megawatts of new solar electric power by 2017 through a ratepayer financed program that offsets electricity that would otherwise have to be produced by utilities.

LOCAL GOVERNMENT	2.0	1%
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The Scoping Plan envisions “encouraging” but not requiring local governments to “set quantifiable emission reduction targets for their jurisdictions.” The plan also recommends that the state establish regional, rather than city or county specific, GHG reduction targets. Local governments “should” develop climate action plans,” set 2020 reduction goals, and incorporate GHG reduction measures into General Plans. The land use and other measures are expected to be low by 2020 but increase over time as the percentage of new construction built under new land use policies increases. The plan indicates that “infill development, mixed use communities, and improved mobility options” will be important implementation strategies. The plan also includes specific emphasis on the “Blueprint” process and coordination of local and regional planning, as well as an indication that CEQA documents and General Plans address greenhouse gas reduction targets.

The plan states that: “Although not quantified at this time, actions taken by local government are expected to provide significant greenhouse gas reduction that ARB will track and account for as the Scoping Plan is implemented, ARB, along with relevant State agencies, will work with the California Climate Action Registry, ICLEI-Local Government for Sustainability, Local Government Commission, and the Institute for Local Governments “California Climate Action Network,” to develop measurement and tracking protocols, planning tools, and best practices to assist local governments in planning for, quantifying, and reporting greenhouse gas emission reductions. Using these tools, ARB encourages local governments to set municipal and community-wide 2020 greenhouse gas reduction goals and adopt measures and best practices to meet those goals. ARB will work with local governments to reconcile local level accounting with state and regional emissions tracking as the Scoping Plan is implemented.”

MISCELLANEOUS	3.0	2%
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The Scoping Plan envisions GHG reductions of 1 MMTCO₂e from each of the following: high speed rail; landfill methane control; and, methane capture at large dairies.

The Climate Change Scoping Plan

The Climate Change Scoping Plan (Scoping Plan) was approved by ARB in December 2008 and outlines the State’s plan to achieve the GHG reductions required in AB 32. The Scoping Plan contains the primary strategies California will implement to achieve a reduction of 169 MMT CO₂e, or approximately 28% from the State’s projected 2020 emission levels.

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Global Warming Legislative And Agency Actions

Executive Order S-3-05

Executive Order S-3-05 (EO-S-3-05) states that California is vulnerable to the effects of climate change, including reduced snowpack in the Sierra Nevada Mountains, exacerbation of California's existing air quality problems, and sea level rise. To address these concerns, the executive order established statewide targets to reduce GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

Senate Bill 375 (2008)

Senate Bill (SB) 375 aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations to reduce vehicle emissions. The State has assigned passenger vehicle per capita GHG reduction targets to each Metropolitan Planning Organization (MPO). Within the Sacramento Area Council of Governments (SACOG) region, these targets are a 7% reduction by 2020 and a 16% reduction by 2030 compared to 2005 baseline levels of 23.0 lbs of CO₂ per capita per weekday. This effort was not applicable to unincorporated Humboldt County.

AB 811

AB 811 (2007) authorizes all local governments in California, if they so choose, to establish special districts that can be used to finance energy efficiency, solar, or other renewable energy improvements to homes and businesses in their jurisdiction. As a result of opposition by Fannie Mae and Freddie Mac, federal regulators have effectively put most of the local programs dealing with residential properties on hold. It may take additional federal legislation to

get residential programs fully back on track, although programs designed for commercial properties face no similar roadblocks. A handful of programs in California are continuing but at the time of publication, uncertainty remains.

Senate Bill 97 (2007)

SB 97 acknowledges that climate change is a prominent environmental issue that requires analysis under the California Environmental Quality Act (CEQA). Pursuant to SB 97, the State CEQA Guidelines were updated in 2010 to include provisions for mitigating GHG emissions and/or the effects of GHG emissions. The amended CEQA Guidelines (Section 15183.5) allow jurisdictions to analyze and mitigate the significant effects of GHGs at a programmatic level by adopting a plan for the reduction of GHG emissions. Later, as individual projects are proposed, projectspecific environmental documents may tier from and/or incorporate by reference that existing programmatic review in their cumulative impacts analysis. This CAP has been developed specifically for this purpose.

International Council for Local Environmental Initiatives

The International Council for Local Environmental Initiatives (ICLEI), is a worldwide membership organization of local governments and their associations working to achieve tangible improvements in global environmental and sustainable development conditions.

ICLEI's Cities for Climate Protection program (CCP) began working with local governments in 1993 to reduce local sources of greenhouse gas (GHG) emissions. ICLEI developed software to quantify GHG emission reduction efforts, providing tools

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to inventory, categorize, and quantify past, present and future conditions. The software helps identify opportunities and priorities for reducing GHG emissions. The County has used this software to develop a GHG emissions baseline for 1990 and to assess the current level of GHG emissions for compliance with AB32.

Humboldt County General Plan Update

The Humboldt County General Plan, rewritten in 2011, contains numerous policies and programs aimed at reducing GHG emissions in the unincorporated County and responding to the potential effects of climate change. The General Plan Update would implement land use patterns that strongly encourage mixed use development, compact communities, and

alternative transportation for new growth planned through 2030 in the unincorporated County. General Plan Update policies also provide direction regarding agricultural preservation, habitat conservation, open space protection, sustainable building design standards, and other smart growth concepts.

On December 4, 2007, the Board of Supervisor adopted a resolution to join the International Council on Local Environmental Initiatives (ICLEI) campaign to reduce local carbon emissions by development and adoption of a Climate Action Plan (CAP). This CAP builds on the foundation provided in the General Plan Update and defines specific actions necessary to achieve GHG reduction and climate adaptation goals.

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Part I. GHG Emissions Inventory



A. Assessment – 1990 Baseline and Existing Conditions

Table 1 shows the GHG inventory developed for unincorporated Humboldt County using the CACP software package of ICLEI, including a 1990 baseline, and 2006 CEQA NOP baseline which represent current emissions data. In terms of overall GHG emissions, the County has seen a significant decline in industrial emissions since 1990. This may be attributed to a steady and significant decline in the lumber industry and closure of major industrial facilities related to timber processing, including numerous lumber mills and several pulp mills. Currently (2006 data), the overall GHG emissions in unincorporated Humboldt County in terms of carbon dioxide equivalents (eCO₂) is approximately a half million metric tons less than in 1990.

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County of Humboldt Community Greenhouse Gas Emissions Time Series Report

Year	1990	2003	2004	2005	2006
Residential					
eCO2 (tonnes)	113,269.6	126,030.7	104,661.1	100,523.2	101,794.6
Energy (MMBtu)	1,992,390.3	2,196,928.6	1,741,803.9	1,629,161.4	1,705,746.6
Commercial					
eCO2 (tonnes)	142,355.5	140,688.1	118,714.1	118,461.1	128,404.8
Energy (MMBtu)	2,259,203.0	2,232,386.9	1,915,459.5	2,002,654.6	2,220,796.0
Industrial					
eCO2 (tonnes)	817,364.3	236,365.2	168,817.5	378,084.3	272,233.6
Energy (MMBtu)	42,772.9	38,266.2	40,116.1	41,528.0	59,492.5
Transportation					
eCO2 (tonnes)	641,049.1	623,948.5	646,515.7	643,689.4	711,963.1
Energy (MMBtu)	8,205,263.9	8,011,688.4	8,306,655.3	8,274,638.5	9,158,070.5
Waste					
eCO2 (tonnes)	40,965.6	13,357.7	13,967.1	14,412.8	14,558.9
Other					
eCO2 (tonnes)	66,528.3	84,013.8	77,927.6	81,162.6	81,037.9
Total					
eCO2 (tonnes)	1,821,532.4	1,224,404.1	1,130,603.1	1,336,333.4	1,309,993.0
Energy (MMBtu)	12,499,630.1	12,479,270.1	12,004,034.7	11,947,982.5	13,144,105.7

This report has been generated for County of Humboldt, California using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

Table 1. Unincorporated Humboldt County GHG Emission Report.

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B. Projection: Humboldt County General Plan Update Contributions to GHG Emissions

Humboldt County's Proportional Reduction Target

Under the CARB draft scoping plan, local government's reduction share of GHG comes to 2 million metric tons of carbon dioxide equivalent (MMT_{CO2e}). In June 2007 the California total population was 37,700,000. The estimated population for unincorporated Humboldt County in 2007 was 70,620 (interpolated from Building Communities Table 1-1, Dyett and Bahtia, 2002). Taking Humboldt County's unincorporated population as a proportion of the statewide population and multiplying this by the local government target under the CARB scoping plan results in a reduction target of 3,746 metric tons of CO_{2e} for the unincorporated County. On a per capita basis, that equals 0.05 metric tons per person in the unincorporated County.

The following is excerpted from the General Plan Update Chapter on Air Quality:

California is the fifteenth largest emitter of greenhouse gases (GHG's) in the world, representing about two percent of worldwide emissions. In an effort to help curb global warming, new state laws regulating GHG's were enacted in 2006. Assembly Bill 32, the Global Warming Solutions Act, requires the State to implement a series of actions to achieve a reduction in GHG emissions to 1990 levels by 2020.

Through AB 32, the statewide cap for 2020 GHG emissions has been set at 427 million metric tons of carbon dioxide equivalents (MMT_{CO2E}). Reducing GHG emissions to this level means cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 10 percent from today's levels. On a per-capita basis, that means reducing our annual emissions of 14 tons of carbon dioxide for every person in California down to about 10 tons per person by 2020.

California's draft Climate Change Scoping Plan (June 2008) recommends 2 MMT_{CO2E} reduction in GHG emissions by 2020 from local government actions. The Scoping Plan believes local government can directly influence:

- ***Energy.** The energy used in local government buildings, equipment, and infrastructure as well as the amount of energy used by community businesses and residents through building codes, conservation programs and other mechanisms.*
- ***Waste and Recycling.** Local government's own waste and recycling activities and the carbon footprint of their jurisdiction's waste and recycling operations through collection system adjustments and promotion of waste reduction and recycling.*

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- **Water and Wastewater Systems.** *Water use in municipal operations and through community-wide water conservation and reclamation program efforts.*
- **Transportation.** *Increases in the carbon efficiency of government fleets and local transportation planning processes to increase the use of transit, carpooling, biking, and walking. Population growth can be planned and distributed in a carbon-efficient way.*
- **Design.** *Siting and design of new developments in a way that reduces greenhouse gases associated with energy, water, waste, and vehicle travel.*

On December 4, 2007, the Board of Supervisor adopted a resolution to join the International Council on Local Environmental Initiatives (ICLEI) campaign to reduce local carbon emissions using a five step process:

- 1) *Conduct a baseline emissions inventory and forecast of emissions growth.*
- 2) *Set an emissions reduction target.*
- 3) *Develop a climate action plan to meet the emissions reduction target.*
- 4) *Implement the action plan.*
- 5) *Monitor and verify progress and results.*

Through this process the County intends to lead by example and reduce GHG emissions in its own operations to 10% below 2003 levels by 2020. Through this General Plan and participation in a County-wide Climate Action Plan the County intends to reduce GHG emissions in the unincorporated area resulting from its discretionary land use decisions to 10% below 2003 levels by 2020. The County will also partner with the Redwood Coast Energy Authority and local cities to attain this level of reduction for the entire County.

CEQA requires public agencies to identify the potentially significant effects on the environment of projects they intend to carry out or approve, and to mitigate significant effects whenever it is feasible to do so. AB 32 establishes by law that greenhouse gas emissions cause significant adverse impacts to the environment, so the General Plan must include feasible mitigations to offset the GHG emissions associated with the Plan.

The Plan includes a range of mitigations for reducing GHG emissions and mitigations to achieve increased carbon storage within the County. Increasing carbon storage on timber and agricultural lands may be the County's most effective means to combat global warming

The State's 2020 target for California's forest lands is to retain the current carbon storage capacity of California's forests through sustainable management

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practices, reducing the risk of wildfire, and the avoidance or mitigation of land-use changes that reduce carbon storage. This equates to 5 MMTCO₂E of carbon storage, which is more than 10 percent all of non-transportation reductions planned through 2020, underscoring the role that forest lands will play in California's efforts to reduce GHG emissions.

The state's first forest carbon storage project to be verified through the California Climate Action Registry was located in Humboldt County on 2,100 acres owned by the van Eck Forest Foundation. The project generated more than 500,000 tons of carbon credits that are being sold to interested purchasers. Under AB32, California is planning to implement a cap-and-trade program by 2012 that could increase the demand for verifiable carbon credits. This may create increased financial opportunities for forest and agricultural land owners in Humboldt County willing to manage their lands consistent with accepted carbon storage protocols.

While timber management is regulated by the State under the Forest Practices Act, this Plan proposes the development of a program that could provide carbon credits to local forest landowners who voluntarily agree to long-term restrictions on land uses that increase GHG emissions. These carbon credits could be registered and potentially sold under a GHG emissions cap-and-trade program and provide a financial incentive to maintain lands in resource production.

Project Greenhouse Gas Emissions Impacts

The primary sources of the General Plan Update greenhouse gas emissions are anticipated to be combustion of fossil fuels from grid-delivered electricity use and from motor vehicles. Additional water and wastewater treatment and distribution facilities, as described in the Capital Improvements and Public Facilities Element, could someday be located in the project area. These plants could generate some amount of greenhouse gas emissions associated with operations, pumping and emergency back-up generators. No other significant stationary source generators, e.g. fossil-fuel burning power plants, are anticipated in the project area.

Implementation of the proposed project would contribute to long-term increases in greenhouse gases (GHGs) as a result of traffic increases (mobile sources) and residential building heating (area sources), as well as indirectly, through electricity generation. According to a study conducted by the Rocky Mountain Institute, the average household (approximately 2.6 residents) would generate 22,287 pounds of CO₂ per year from transportation vehicles and equipment, and 23,159 pounds of CO₂ per year from heating, condition, lighting, and appliances, for a total of 22.7 tons of CO₂ per year per household.

Table 2 presents the estimated baseline and incremental increases in CO₂ emissions associated with development of additional residential households for the projected population increase for the unincorporated County.

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Table 2. Humboldt County Households CO2 Emissions Increases.

Humboldt County Households Projections					
Year	Projected Population	Portion of Population in Unincorporated County (53%)	Estimated Households (at 2.39 persons per household)	Increased Number of Households Over Baseline (Unincorp. Co.)	Projected Increase in CO2e emissions in 1,000s of tons
2007	132,760	70,362	29,440	CEQA baseline	-
2010	134,785	71,436	29,890	450	1.94
2015	138,681	73,501	30,754	1,314	56.7
2020	142,167	75,348	31,526	2,086	90.0
2025	145,004	76,852	32,156	2,716	117.2

The project's incremental increases in GHG emissions associated with traffic increases, residential space heating, and increased energy demand would contribute to regional and global increases in GHG emissions and associated climate change effects. The 2006 level of GHG emission is approximately 511,539 metric tons less than 1990 levels. The projected increase of 117,200 tons of CO2e emissions from residential development could also result in a increase of 137,100 metric tons of CO2e emissions from commercial development and 285,900 metric tons of CO2e emissions from industrial development for total increased CO2e emissions of 540,268 metric tons. This results in a target reduction of 28,720 metric tons of CO2e to be met under AB 32. It should also be noted that the project proposes to accommodate growth within Urban Study Area of unincorporated Humboldt County. An urban development boundary is an officially adopted and mapped line that separates an urban area from its surrounding greenbelt of open lands, including farms, watersheds and parks. Growth boundaries are set to discourage speculation at the urban or suburban fringe. As such, it discourages urban sprawl by keeping development contained, and thus limiting vehicle emissions by geographically keeping development within the urban study areas.

Other Emissions Sources

Additional unknown quantities of greenhouse gases would be emitted as part of the project related residential construction process from the manufacture and transport of building materials and the operation of construction equipment.

The actual number of trees to be removed as a consequence of the project remains to be determined pending development details concerning the design and location of public and

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private developments. Given this uncertainty, no attempt is made at a quantitative analysis of the global climate change effects from project related tree removal. At a qualitative level, trees absorb carbon dioxide and produce oxygen, while their shade provides a cooling effect in urban environments. As trees are removed, there would be an interim loss of a decade or more of an important source of carbon dioxide absorption capacity, and loss of cooling from tree canopies. These effects would be mitigated over time as replacement trees matured and provided the above described beneficial effects.

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Part II. Establish a Carbon Dioxide or Greenhouse Gas Emission Reduction Target

The goal of this climate action plan is achievement by 2020 of an unincorporated Humboldt County greenhouse gas emissions limit equivalent to 1990 emissions. An additional goal is to have a net increase of zero CO₂ emissions compared to business as usual (1984 General Plan projected emissions) as a consequence of new residential development in the unincorporated Humboldt County by the year 2025 compared to current baseline. As noted above, this target can be reached by adoption of measures that would reduce CO₂ emissions by 28,720 metric tons of CO₂e by 2025. It is estimated that between 56,800 and 123,596 tons of CO₂ emissions (depending on the Plan Alternative selected) will be avoided as a consequence of more compact, higher-density community development related reductions in vehicle miles traveled (see Table 3 below). This would serve to meet the AB32 CO₂e reduction target.



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Part III. Develop An Action Plan With Both Existing And Future Actions That, When Implemented, Will Help Meet The Local Greenhouse Gas Reduction Target

Strategies to Reduce Greenhouse Gas (GHG) Emissions

Given the global nature of climate change, the ultimate solution is a national policy addressing greenhouse gas emissions and global climate change, rather than piecemeal state-by-state or city-by-city approaches. A meaningful national policy by the United States, as the world's largest economy and greenhouse gas producer, would likely lead to other nations doing their part. At the local scale of land use decision-making, this is truly a situation where Humboldt County can 'think globally, and act locally' and lead by example in adopting policies and programs to limit the production of greenhouse gases associated with the project.



General Plan Land Use Planning and Policies Designed to Reduce GHG Emissions

The approach taken with the Humboldt County General Plan Update is to adopt land use designations and general plan policies that result in overall GHG emission reductions compared to "business as usual" or the previous general plan. Policies that are responsive to the GHG emission reduction are contained in almost every element of the General Plan Update (GPU). In this sense, the Unincorporated Humboldt County Climate Action Plan is essentially built in to the General Plan Update itself. The strategy taken in this Climate Action Plan is to identify all of the GPU policies related to climate change and provide a list of implementation measures that can be evaluated in time through monitoring. The following section (3.A) summarizes key provisions of the plan elements that are responsive to GHG emission reductions. The next section (3.B.) lists the specific policies from each chapter that is related to GHG emission reductions.

A. General Plan Elements GHG Reduction Strategies

Land Use Element

The land use element is the heart of the General Plan Update and addresses the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, and open space, including agriculture, forestry, natural resources, and recreation. The Humboldt County GPU land use element includes a statement of the standards of population density and building intensity recommended for the various land

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use designations covered under the plan. In addition, the land use and safety elements identify those areas covered by the plan that are subject to flooding.



In drafting the Humboldt County GPU, the following GHG reduction strategies were incorporated into the land use element:

- Foster land use intensity near, along with connectivity to, retail and employment centers and services to reduce vehicle miles traveled and increase the efficiency of delivery of services through adoption and implementation of focused growth principles and policies.
- Improve the local jobs/housing balance to reduce vehicle miles traveled.
- Zone for appropriate mixed use development to encourage walking and bicycling for short trips, rather than vehicles.
- Identify existing and potential future urban growth boundaries to limit sprawling development patterns and to foster more compact urban forms.

Community Design (Land Use Element – Urban Lands)

The design of subdivisions, buildings, streetscapes and open spaces contribute to community character and, if done well, can lead to aesthetic new development that enhances communities and minimizes adverse neighborhood reactions during the permitting process. Community design also presents opportunities related to GHG reductions, including:

- Incorporate urban design principles that promote higher residential densities in attractive forms with easily accessible parks and recreation opportunities.

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- Use urban design standards to facilitate clustered, higher-density, mixed use communities with greater potential for transit ridership, alternatives to vehicle travel, and shorter vehicle trips.
- Promote water-efficient and energy efficient housing and commercial areas.

Agriculture and Forest Resources (Land Use – Rural Lands)

Agriculture and forest resource sections of the land use element identify the highest quality farmlands and forest lands within the county and establish policies that protect that land from premature conversion to other uses. Key opportunities for these rural resource lands related to GHG reductions include:

- Establishment of minimum parcel sizes for resource lands and restrictions on non-agriculture or forestry related development and uses to enhance the viability of local agriculture and forestry and prevent additional sprawl development that increases dependence on and emissions from private vehicles.
- Development of policies and incentives (e.g. carbon credit programs) to promote voluntary preservation of resource lands for carbon sink purposes.
- Support for agricultural industries that reduce the need to move agricultural products long distances for processing and packaging.
- Adoption of policies and programs that facilitate local farmers markets and farmer co-ops that allow residents to purchase local farm goods and reduce emissions from transportation of agricultural products.



Conservation and Open Space Elements

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Generally, the conservation element addresses the conservation, development, and utilization of natural resources. Chapter 10 of the GPU combines the Plan's required Conservation Element and Open Space Elements. The Conservation Element guides the conservation, development, and utilization of natural resources (water, forests, soils, rivers, mineral deposits, and others), while the Open Space Element guides the comprehensive and long-range preservation and conservation of open-space lands. Together, these elements present a framework of goals and policies for use and protection of all the natural resource and open space assets of the county. Because these two elements naturally overlap, they have been combined into a single chapter, which has been organized into six related sections: Open Spaces, Biological Resources, Mineral Resources, Waste Management, Cultural Resources, and Scenic Resources. The following GHG reduction strategies were incorporated into the open space element portion of this chapter:

The following GHG reduction strategies were incorporated into the conservation and open space elements:

- Conserve natural lands for carbon sequestration.
- Identify lands suitable for wind power generation (see Energy Element).
- Conserve water to promote energy efficiency (see also Water Resources Element).
- Promote recycling and waste recovery (Waste Management Section).
- Promote forestry and reforestation as feasible (see also Forest Resources section of the land use chapter).
- Encourage the production and conservation of minerals, while preserving to the maximum extent feasible the values relating to recreation, watershed, wildlife, range and forage, science, and aesthetic enjoyment (Mineral Resources Section).
- Waste reduction, re-use and recycling programs should be implemented countywide on a continuous basis to achieve waste diversion goals (Waste Management Section).

Telecommunications Element

Telecommunications infrastructure and services include basic telephone, wireless telephone, and broadband internet. This chapter of the General Plan Update addresses telecommunications access, reliability, and capacity. The following GHG reduction strategies were incorporated into the circulation element:

- Telecommuting and home-based businesses that use internet shall be considered principally permitted accessories to residential uses when operated in compliance with cottage industry performance standards.
- Advocate for development of telecommunications infrastructure and services to facilitate the use of the best available technology for business, households, and government.
- Encourage telecommunications infrastructure improvements as a means to reduce transportation impacts and improve air quality.

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- Promote the provision of broadband infrastructure in all communities.

Circulation Element

The circulation element identifies the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, airports, ports and other local public utilities and facilities. The following GHG reduction strategies were incorporated into the circulation element:

- Promote linkages between development locations and transportation facilities.
- Identify and prioritize infrastructure improvements needed to support reductions in vehicle miles traveled.
- Support public transit service.
- Coordinate with adjacent jurisdictions and the regional transportation planning agency to develop mutual policies and funding mechanisms to increase the use of alternative transportation.

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Housing Element

The housing element facilitates the improvement and development of housing to make adequate provision for the housing needs of all economic segments of the community.

The following GHG reduction strategies were incorporated into the housing element:

- Identify sites for higher density housing closer to employment centers, retail and services, and transit facilities.
- Identify sites for affordable housing for workers close to employment centers.

Air Quality Element

The purpose of the air quality element is to describe the county's existing air quality, sources of air pollution, and strategies for improving air quality. Policies to reduce greenhouse gas emissions and mitigate climate change are included in this element.

- Reduce length and frequency of vehicle trips (also contained in Land Use Element).
- Minimize fireplace and wood stove emissions.
- Reduce air quality impacts from wild fires.
- Provide incentives for increased carbon sequestration on forest lands and encourage the use of forest biomass for sustainable energy generation.
- Encourage and provide incentives to increase solar-electric capacity in residential, commercial, and industrial sectors.
- Encourage and provide incentives for construction of LEED (Leadership in Energy and Environmental Design) certified (or equivalent) buildings and energy saving measures beyond Title 24 requirements for residential and commercial projects (also addressed in Energy Element).
- Encourage and provide incentives for commercial and residential design that supports the charging of electric vehicles.
- Projects requiring discretionary review should preserve large trees where possible and mitigate for carbon storage losses attributable to significant removal of trees.

Energy Element

The General Plan Update includes an Energy Element which is primarily concerned with the conservation of energy. The following GHG reduction strategies were incorporated into the energy element:

- Decrease energy consumption through increased energy conservation and efficiency in building, transportation, business, industry, government, water and waste management.
- Recognize the Redwood Coast Energy Authority (RCEA) as the regional energy authority, which will foster, coordinate, and facilitate countywide strategic energy planning and education. Direct RCEA to administer the Comprehensive Action Plan for Energy.
- Support revitalization and infilling of Urban Development Areas to reduce long-term vehicle miles traveled as an energy conservation strategy. Favor rehabilitation and

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revitalization of older existing buildings over replacement when doing so would conserve energy resources.

- Provide incentives for discretionary development incorporating renewable energy sources and conservation measures consistent with this Plan.



Economic Development Element

This Element provides an overview of the economy, characterizing the trends, land, and infrastructure needs that will shape the future. A set of goals, policies, and implementation measures are included to promote and sustain economic prosperity. The following GHG reduction strategies were incorporated into the energy element:

- Develop housing at a price commensurate with income levels as reflected in the County Regional Housing Needs Assessment, and a transportation system to provide efficient connectivity between housing and places of employment to minimize commute travel times and distances.
- Promote the revitalization of communities in transition due to the decline of resource-based industries.
- Pursue and distribute funding and technical assistance to assess, clean up, and reuse brownfields. Streamline regulatory review for proposed development in commercial and industrial zoned brownfields.

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- Identify and protect prime employment lands from conversion and encroachment of conflicting uses.

Water Resources Element

This water resources element addresses water planning issues including river and stream water quality, stormwater runoff, groundwater management, water needs of fish and wildlife, water consumption, conservation and re-use methods, and state and federal regulations. . The following GHG reduction strategies were incorporated into the energy element:

- Promote the use of water conservation and re-use as a strategy to lower the cost, minimize energy consumption, and maximize the overall efficiency and capacity of public water systems.
- All new export proposals and renewal of licenses for existing water exports shall include a full assessment of impacts on the environment, economy, and water supply needs of the county.
- Encourage small hydroelectric development when impacts to surface water flows and habitat are in conformance with state and federal standards.
- Ensure that land use decisions conserve, enhance, and manage water resources on a sustainable basis to assure sufficient clean water for beneficial uses and future generations.



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Given the predominant contribution of emissions from vehicles and electricity generation, efforts to reduce project greenhouse gas emissions should focus on reducing vehicle trips and on reducing electricity demand through energy efficient building design and operations, as described below.

Strategic Energy Planning

The 1984 Humboldt County Framework Plan included the following statement:

Currently there is a substantial economic drain on the County's economy for energy; in excess of 100 million dollars annually. Energy conservation could help keep a substantial portion of this capital in the County, which would then be spent with other businesses stimulating the local economy. Alternative energy production and conservation could potentially spawn numerous businesses and industries, thereby aiding the diversification of the County's economic base. (Framework 2310)

This statement remains relevant for the General Plan update and was used as a starting point for building on the previous general plan policies related to energy extraction, energy conservation, and alternative energy sources.

Elevating issues relevant to energy is a new approach and the Energy Element is a new addition to the Humboldt County General Plan. The Redwood Coast Energy Authority (RCEA) saw that an exceptional opportunity existed for Humboldt County to develop important and timely regional energy policy for consideration during development of the Humboldt County 2025 General Plan update. In response to RCEA's recommendation on September 13, 2004 the Humboldt County Board of Supervisors directed staff to prepare an Energy Element as a part of their review and adoption of the *Sketch Plan Alternatives* report for the General Plan update.

RCEA was formed in 2003 as a joint powers association (JPA), representing seven municipalities (the Cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Trinidad, and Rio Dell) and Humboldt County. As a JPA, RCEA is governed by a Board composed of a representative from each jurisdiction. RCEA's mission statement is:

The Redwood Coast Energy Authority's purpose is to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient, and renewable resources available in the region.

One objective of RCEA's Redwood Coast Regional Comprehensive Energy Information and Education Program is to assist local governments with the adoption of energy efficiency policies. RCEA coordinated the preparation and submission of technical

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information and proposed policies to be used in this Energy Element. The planning process included background and technical research; a series of public meetings; drafting a vision, goals, policy language and implementation strategies; and presenting the draft Energy Element policies to the Humboldt County Board of Supervisors.

As the regional energy authority, the Board of Supervisors has designated RCEA to implement much of the Energy Element's strategies. Consistent with this approach, the initially proposed policies, standards, and implementation measures proposed by RCEA were sorted into categories appropriate for County administration under the General Plan and those appropriately administered by RCEA under their charter. With this division of authority, a Comprehensive Action Plan for Energy was developed that includes policies and implementation measures specific to the functions of RCEA as the regional energy authority for Humboldt County. This action plan shall be periodically updated by the RCEA Board and presented to the Humboldt County Board of Supervisors for review.

With regards to energy conservation, the Energy Element's planning approach is to be proactive; to foster self-sufficiency, independence, and local control in energy management; to support diversity and creativity in energy resources, conservation, and efficiency; and to be based realistically on constrained resources.

This approach is reflected in the Comprehensive Action Plan for Energy (Appendix A), which is specifically designed as a proactive approach to energy planning issues. As with the Energy Element, this approach includes fostering self-sufficiency, independence, and local control in energy management and supporting diversity and creativity in energy resource, energy conservation, and energy efficiency. The policies of the Energy Element and the CAPE, because they reduce and conserve energy usage, have a direct effect on the reduction of greenhouse gas emissions which are a byproduct of energy usage. This type of approach must be based realistically on constrained reserves, and the monitoring of the outcomes of adopted policies to assess their effectiveness. Policies regarding the development of existing and potential energy resources have been designed to mitigate impacts and allow communities to enjoy the benefits of such development.

Electricity

As described in the Energy Element, the General Plan Update encourages solar energy and other non-fossil fuel energy sources. These sources tend to support the energy needs of individual developments; however, during the build-out of the general plan, locally generated "alternative" sources are encouraged.

The mitigation measures described in the Energy Element include incorporating Green Building policies to mitigate impacts associated with electricity and natural gas consumption would reduce greenhouse gas emissions.

Vehicle Trips

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The Circulation Element, Land Use Element and Community Design Element of the General Plan Update have been designed to promote non-auto modes of transportation and thereby reduce greenhouse gas emissions. The planned land use intensity/urban-form and an extensive network of transit service, trails, and bike routes encourage non-auto trips. Nonetheless, the project will generate increased daily vehicle trips at build-out. The mix of land uses, however, encourages a large degree of internalization of trips within the urban study areas, which leads to shorter trip lengths and reduced vehicle emissions for those vehicle trips that start and end in the urban study areas.

In the following analysis, 6,000 residential units were proportionally distributed based on the development potential in each community planning area and in the unincorporated County outside of the community planning areas. Annual vehicle miles traveled were estimated using the Density-VMT calculator tool (This View of Density Calculator: www.sflev.org/density). On a comparative basis, it can be seen that the proposed General Plan Update can be expected to have a 16.1% reduction in CO₂e emissions from vehicle miles traveled (compared to similar development under the 1984 General Plan) due to increased density.

Table 3. Estimated Annual VMT for distributed 6000 units based on Proportional Development Potential.

		Annual VMT for distributed 6000 units based on Proportional Development Potential			
		(based on density and number of units)			
Community Planning Area	Total Acres	Alternative A VMT Estimate	Alternative B VMT Estimate	Alternative C VMT Estimate	Alternative D VMT Estimate
Alderpoint CPA	575	343,925	306,991	274,131	319,820
Arcata CPA	4,928	1,234,084	1,146,101	1,305,935	1,553,410
Avenues CPA-Miranda	1,753	566,465	511,652	428,176	365,508
Avenues CPA-Myers Flat	323	20,466	20,466	21,409	22,844
Avenues CPA-Phillipsville	1,383	80,924	61,398	64,226	68,533
Avenues CPA-Stafford-Redcrest	4,527	60,693	40,932	42,818	45,689
Avenues CPA-Weott	795	80,924	61,398	42,818	68,533
Blue Lake CPA	7,762	890,159	1,841,947	1,584,249	753,861
Eel River CZAP	34,469	828,466	716,313	599,446	776,705
Eureka CPA	10,054	27,756,765	27,792,939	28,054,498	19,851,662
Fieldbrook-Glendale CPA	12,452	1,112,698	1,944,278	1,669,885	2,124,516
Fortuna CPA	1,940	971,082	839,109	727,898	639,639
Freshwater CPA	8,964	768,773	675,381	663,672	753,861
Garberville-Redway-Benbow CPA	12,017	2,771,630	2,312,667	1,969,607	2,261,582
Humboldt Bay CZAP	23,921	6,190,649	5,546,308	4,838,384	3,632,237
Hydesville-Carlotta CPA	12,010	2,002,857	1,739,617	685,081	1,027,992
Jacoby Creek CPA	11,404	849,697	757,245	685,081	936,615

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McKinleyville CPA	9,554	9,629,898	9,025,542	7,193,349	6,145,106
McKinleyville CZAP	3,455	1,092,467	1,043,770	1,241,709	571,107
North Coast CZAP	22,347	1,072,237	941,440	792,125	982,303
Orick CPA	1,349	182,078	143,263	107,044	137,066
Orleans CPA	6,379	647,388	634,449	535,219	685,328
Rio Dell CPA	2,545	141,616	122,796	107,044	205,598
Shelter Cove CPA	1,563	809,235	716,313	599,446	731,016
Shelter Cove CZAP	1,139	7,121,269	6,344,485	5,180,924	6,716,213
South Coast CZAP	18,536	263,001	225,127	192,679	228,443
Trinidad CZAP	3,718	465,310	409,322	363,949	434,041
Trinidad-Westhaven CPA	1,835	263,001	225,127	342,540	342,664
Willow Creek CPA	4,297	1,234,084	1,739,617	1,027,621	776,705
Within CPA's Total	225,993	69,451,841	67,885,993	61,340,963	53,158,597
Outside CPA's Total	2,059,187	681,751,839	696,960,931	776,541,246	858,478,378
Unincorporated Co. Totals	2,292,640	751,203,680	764,846,924	837,882,209	911,636,975

Metric tonnes CO ₂ e	578,720	589,230	645,496	702,316
Metric tonnes CO ₂ e decrease from 1984 GP	123,596	113,086	56,820	
Percent reduction from 1984 GP	17.60	16.10	8.10	

B. General Plan Policies that Address GHG Reduction Strategies

Air Quality Element

- AQ-P1. Reduce Length and Frequency of Vehicle Trips.** Through land use and transportation policies, encourage mixed-use development, a compact development pattern in areas served by public transit, and alternative modes of travel to reduce the length and frequency of vehicle trips.
- AQ-P5. Air Quality Impacts from New Development.** Reduce emissions of air pollutants from new commercial and industrial development by requiring feasible, workable, measurable, and cost-effective mitigation measures based on standards of the District during environmental review of discretionary permits.

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- AQ-P8. Reduce Air Quality Impacts from Wildfires.** Support and encourage fire suppression of wildfires that may have an acute air quality health impact on local population centers.
- AQ-P10. County Government Greenhouse Gas Emission Reductions.** To lead by example, the County of Humboldt shall reduce greenhouse gas emissions from governmental operations consistent with the state Global Warming Solutions Act and subsequent implementing legislation.

Telecommunications Element

- T-P1. Development of-Communication Infrastructure and Services.** Support the development of communications infrastructure and services to facilitate the use of the best available technology for business, households, and government.
- T-P6. Telecommuting.** Telecommuting and home-based businesses that use internet shall be considered principally permitted accessories to residential uses when operated in compliance with cottage industry performance standards.
- T-P7. Broadband Internet.** Promote the provision of broadband infrastructure throughout the County.
- T-PX. Local Government Broadband Communications Services.** Encourage and support the efforts of community based organizations or community services districts to construct, own, improve, maintain, and operate broadband facilities and to provide broadband services within communities where communications service providers are unwilling or unable to so do.
- T-P8. Broadband Internet.** The County shall support the expansion and delivery of redundant, open broadband internet service throughout the county and support the use of public resources to serve community anchors such as court houses, schools, libraries, civic and media access centers, public safety and health care facilities.
- T-P15. Trip Reduction.** Encourage telecommunications infrastructure improvements as a means to reduce transportation impacts and improve air quality.

Circulation Element

Public Transportation

- C-P22. Public Transit.** The County shall support the guiding goals, policies, and objectives of the Public Transit and Paratransit Service Element of the Regional Transportation Plan as amended.

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- C-P23. Public Transit Service.** Public transportation systems in the County shall be coordinated and integrated so that a full range of travel patterns and connectivity with other modes of transportation can be supported.
- A. Existing and future public transit services should be coordinated so that service from rural areas is effectively integrated with urban service. Schedules should be designed for a smooth transfer between rural and urban buses. Fares should be integrated so that a person pays only once for the full trip. Convenience facilities should be made available so that transfer areas are protected from the weather and have bus information posted.
 - B. Automobile and bicycle transport should be integrated with public transit by developing adequate parking facilities at major bus stops and, where feasible, transporting bicycles on intercity and regional buses.
 - C. Multi-family housing, public uses such as libraries, schools and community centers, and commercial uses should be encouraged or located in areas serviced by or planned for public transit.
 - D. Public transportation should support access to social services and mitigate the impacts of service changes to social service clients.
 - E. Public transportation should provide access to recreation areas.
- C-Pxx. Long Term Transit Plan.** The County shall encourage the development of a long term transit plan with the goal of increasing the percentage of public transit trips compared to automobile trips. The Long Term Transit Plan should be coordinated with the Pedestrian and Bicycle System Plan.
- C-Pxxx. Long Term Transit Plan.** The County shall encourage the development of transit hubs with waiting areas protected from weather, covered and secure bike parking in areas which allow the co-location of commercial facilities, and in close proximity to housing for seniors, low-income and disabled persons.
- C-Pxxxx. Investment in Public Transportation.** The County shall utilize Transportation Development Act funds for public transit operations and improvements on active transportation facilities.

Bicycle and Pedestrian Travel

- C-P24. Investment in Improvements.** The County's Capital Improvement Plan shall include an assessment of the needs of bicycles and pedestrians and allocate funds consistent with the goal of increasing the safety, functional network and facility efficiency, and capacity of pedestrian and bike routes. The level of service and quality of service for pedestrians and bicycles shall not be diminished, and where practical, shall be increased, when expanding roadway

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capacity for motorized circulation. Road resurfacing projects should provide improved access and safety for bicycles.

- C-P25. Multimodal Level of Service and Quality of Service Standards.** Use objective Multimodal Level of Service and Quality of Service Standards; for example, the Florida Department of Transportation's "Quality/Level of Service Handbook" (FDOT, 2002) or the Transportation Research Board's "Highway Capacity Manual" (TRB, 2000) to assess and plan the multi-modal quality and capacity of county roads and intersections. Analyze neighborhood level conditions using objective methods and criteria such as "walkability audits" and "bikeability audits".
- C-P26. Bicycles and Pedestrian Facilities in New Subdivisions.** Sidewalks: In urban areas, sidewalks should be provided. When feasible sidewalks should be separated from the road with a landscape strip. When feasible, sidewalks or trails (Class 1) should be provided to connect neighborhoods. Bike lanes: In urban areas, bike lanes (Class 2) should be provided on all collector and arterial roads. In rural areas, bike lanes (Class 2) or bike routes (Class 3) should be provided when demand warrants separated facilities.
- C-P27 Right-of-Way Design Standards.** Right-of-way design standards shall incorporate specifications for bicycles, pedestrians, public transit facilities, and buffers.
- C-P28. Landscape Buffer Strips.** Landscape buffer strips shall be used, where feasible, to segregate pedestrian walkways from arterial and collector roadways.
- C-P29. Removal of Obstacles in Pathways.** Where feasible, new pathways and sidewalks shall be free of obstacles such as utility poles and mailboxes. Where obstacles are unavoidable on existing sidewalks or pathways, they shall be widened or otherwise designed to provide the least amount of obstruction to users.
- C-P30. On-Street Parking.** Design on-street parking to minimize conflicts with bicycles and pedestrians. Where appropriate, creative on-street parking arrangements such as parking pockets or bays shall be considered to improve design flexibility.
- C-P31. Design Standards for All Pathways.** Published design standards, such as the Caltrans Highway Design Manual, the San Francisco Bicycle Plan Supplemental Design Guidelines (2005) VTA's Bicycle Technical Guidelines (1999) and VTA's Pedestrian Technical Guidelines (2003) or equivalent, shall be used by the County Public Works Department for the design and construction of pedestrian and bicycle facilities. All new hard surfaced walkways shall be wheelchair accessible. Existing hard surfaced walkways should be improved to

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be wheelchair accessible when funding is available or when development projects occur on adjacent parcels.

- C-P32. Traffic Calming.** Use traffic calming measures, where appropriate, as a means of improving safety for pedestrians and bicycles. Traffic calming measures include, but are not limited to, roundabouts, chicanes, curb extensions, and traffic circles.
- C-P33. Protection of Designated Pedestrian and Bicycle Routes.** The County shall review land development along and adjacent to designated pedestrian and bicycle routes to ensure that adjacent new development is consistent with established right-of-ways and compatible with the safety and capacity of the corridor.
- C-P34. Bicycle Facilities.** Strongly encourage the placement of secure, weather-protected bicycle storage facilities at bus stops, businesses, and public buildings. Encourage the addition of bicycle transport racks on public buses.
- C-P35. Development of Railroad Right-of-Ways for Bicycles and Pedestrians.** Encourage development of the Annie and Mary Railroad rights-of-way as Class 1 bikeway (bike and pedestrian path) provided those uses do not conflict with regional rail transportation system plans. The County shall work to preserve railroad rights-of-way as a contiguous public use transportation corridor.
- C-P36. Develop a Regional Trails System.** Support efforts to establish and connect a regional trails system extending from Trinidad to Garberville and east to Willow Creek and the Hoopa Valley, with linkages to the California Coastal Trail system.
- C-P36. Develop a Regional Trails System.** Support efforts to establish and connect a regional trails system extending from Orick to Garberville and east connecting Willow Creek and the Hoopa Valley areas. The System should include the California Coastal Trail system and incorporate multi-use trails where feasible.
- C-P37. Encourage Equestrian Trails.** Encourage the development of equestrian recreation trails and a multi-use trail system that supports equestrian use where appropriate.

Economic Element

- ED-P2. Job Growth and Workforce.** Collaborate with economic development entities in the region to promote job growth, technological innovations, and entrepreneurship in base and emerging industries. Work with the education and

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private sectors to promote education, vocational training, professional development, and lifelong learning in the workforce.

- ED-P3. Affordable Housing** Ensure housing at a price commensurate with income levels as reflected in the County Regional Housing Needs Assessment, and a transportation system to provide efficient connectivity between housing and places of employment to minimize commute travel times and distances.
- ED-P7. Broadband Internet.** Support broadband improvements necessary to maintain the County's business competitiveness and serve remote communities.
- ED-P13. Prime Employment Land Protection.** Plan and zone sufficient land to maintain a 20 year supply of industrial and commercial properties and protect prime employment land.
- ED-P15. Revitalization.** Promote the revitalization of communities in transition due to the decline of resource-based industries.
- ED-P16. Brownfields.** Pursue and distribute funding and technical assistance to assess, clean up, and reuse Brownfield's. Streamline regulatory review for proposed development in commercial and industrial zoned Brownfields.

Housing Element

- H-P1. Promote Infill, Reuse and Redevelopment.** The County shall prioritize infill, re-use and redevelopment of vacant and under-developed land within Urban Development Areas as a strategy to create affordable housing, provide an economic stimulus and re-vitalize community investment.
- H-P2. Housing Opportunity Zones.** The County shall adopt policies, standards and programs to stimulate residential and infrastructure development within Board adopted Housing Opportunity Zones.
- H-P4. Residential Units in Commercial Zones.** Residential units shall be principally permitted when consistent with adopted performance standards in specified commercial zones.
- H-P5. Minimum Development Requirement Based on Mid-point Density.** Residential parcels shall be developed equal to or greater than the mid-point density of the parcel based on the applicable Plan designation and zoning standards unless specific findings are made.

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- H-P6. Protecting Multifamily Uses in the Affordable Multifamily Land Inventory.** Sites identified in the residential land inventory as being suitable for meeting extremely low, very low and low multifamily uses shall be protected by ordinance standards or zoning overlay from non-multi-family use development.
- H-P7. Encourage Second Units.** The County shall stimulate the construction of second units by relaxing second-unit development standards in order to provide low-cost housing and to make more efficient use of existing infrastructure.
- H-P8. Retain Legal Non-Conforming Housing.** The County shall support the retention of legal non-conforming housing through modifications to the land use and building codes.
- H-P11. Residential Development in Proximity to Transportation and Work.** Locate residential development, particularly development affordable to those earning less than median income, near transportation corridors, transit stops, employment centers, schools and public services.
- H-P12. Preservation of Mobile Home Parks and Long-Term Occupancy Recreational Vehicle Parks.** The County shall support continuation of existing mobile home and long term occupancy recreational vehicle parks as an important source of affordable housing through actions such as legislative changes, zoning consistency determinations, analysis of legal-non-conforming status, Plan amendments or zone reclassifications.
- H-P16. Siting of Multifamily Housing Developments.** The County shall Plan and support development proposals that locate multi-family uses along major transportation corridors, near transit stops, public services, recreation areas, neighborhood commercial centers and work opportunities.

Conservation and Open Space Element

- CO-P1. Conservation and Open Space Program.** The County shall inventory and appropriately zone conservation and open space lands and work to protect these lands through development review; Williamson Act programs; TPZ zoning designations; conservation easement and recreation programs; and support for continued resource production.
- CO-P2. Support for Working Lands.** The County shall support policies that maintain profitable resource production on timber and agricultural lands as a means to secure long-term protection and sustainability of open space lands through programs such as the Williamson Act and TPZ incentive programs.
- CO-P3. Conservation Easements.** Support conservation easement programs that protect natural resource and open space assets. Develop mechanisms to accept

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voluntary offers of conservation easements associated with permissible development on open space lands.

CO-P4. Greenbelts. Maintain separation of urbanized communities through appropriate land use designations and zoning density. Avoid merging urban development boundaries of adjacent communities.

MR-P1. Production and Conservation. Encourage the production and conservation of minerals, while preserving to the maximum extent feasible the values relating to recreation, watershed, wildlife, range and forage, science, and aesthetic enjoyment.

WM-P1. Implementation of Waste Reduction Programs. Waste reduction, re-use and recycling programs should be implemented countywide on a continuous basis to achieve waste diversion goals using the following criteria for program prioritization and selection:

- A. Achieves the maximum feasible reduction in volume and/or weight of waste requiring landfill disposal;
- B. Maximizes the economic value of materials heretofore discarded;
- C. Benefits the environment and health and safety of county citizens;
- D. Is able to be implemented on a timely, practical, and cooperative basis;
- E. Lowers impacts to existing or planned waste diversion programs;
- F. Is supported by and is sustainable over the long-term by residents, businesses, and jurisdictions;
- G. Allows cost-effective achievement of the above criteria.

Water Resources Element

WR-P11 Small and Micro Hydroelectric. Encourage small and micro hydroelectric development when impacts to surface water flows, aquatic species, and habitat have been adequately mitigated and are in conformance with state and federal permits and standards.

WR-P17. Watershed Planning. Use watersheds as the geographic planning framework for water resource planning and coordination with other regional, state, and federal planning, implementation, and funding efforts. Maintain relevant land use data on watershed basis to support watershed based management and decision-making processes. Encourage and support continued research, investigation, and analysis of the County's water resources by federal and state water resource agencies, and local watershed restoration groups.

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Encourage compilation of data, such as the National Marine Fisheries Services and Department of Fish and Game coho recovery plans, on a watershed basis.

WR-P23. Conservation and Re-use Strategy. Promote the use of water conservation and re-use as a strategy to lower the cost, minimize energy consumption, and maximize the overall efficiency and capacity of public and private water systems. Encourage the installation of water storage, rain catchment and greywater systems to support domestic and outdoor water needs. Encourage and support conservation for agricultural activities that increase the efficiency of water use for crop irrigation and livestock. Support the use of treated water for irrigation, landscaping, parks, public facilities, and other appropriate uses and coordinate with cities and other wastewater treatment entities in planning uses and minimizing impacts for treated water in unincorporated areas. Avoid water reuse that could adversely affect the quality of groundwater or surface water.

WR-P25. Compliance with Water Code Export Law. Water export projects will not be approved or supported unless the specific requirements of California Water Code Section 10505 protecting development rights and Section 11460 protecting beneficial uses of the watersheds are met and substantiated through a scientifically based public process.

Land Use Element

GP-P2 Urban Development Areas. Establish and maintain Urban Development Areas within Community Plan Areas to reflect areas that are served with existing or planned to be served with public wastewater systems.

GP-P3 Urban Levels of Development. Lands located within the Urban Development Area are intended to be developed at a density of one or more dwelling units per acre.

GP-P4. Urban Service Area. Urban Service Areas are located Within Urban Development Areas where sewer services are available.

GP-P5 Connection to Public Wastewater Systems within Urban Service Areas. All new development within Urban Service Areas shall connect to public wastewater systems.

GP-P8 Urban Expansion Areas. Establish and maintain Urban Expansion Areas within Community Planning Areas that consists of land not provided with public sewer services, but expected to be developed to urban densities and provided with public water-and sewer services beyond the 20-year planning horizon of the General Plan.

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- GP-P9 Urban Expansion Area Review.** Review Urban Expansion Areas during Community Plan or comprehensive General Updates to determine if the boundaries reflect current conditions and community needs. The boundaries of an Urban Expansion Area shall remain fixed until modified through a General Plan amendment.
- GP-P10 Conversion of Resource Lands.** Parcels of timber site quality III or higher and prime agricultural lands suitable for resource production should not be included within Urban Expansion Areas unless the County makes a finding that there are no alternatives to increase the Urban Expansion Area on lands less suitable for resource production.
- UL-P5 Community Identity.** Preserve community features that residents value and create development that compliments or adds to community identity and character.
- UL-P6 Mixed-Use Zoning.** Utilize mixed-use zoning to help create town centers that are community focal points. The mixed-use zone shall promote higher density urban housing in concert with retail commercial uses, day care centers, and shopfronts, and shall include an abundance and variety of open spaces.
- UL-P7 Neighborhood and Town Centers.** Within designated neighborhood and town centers, the County shall:
- A. Allow buildings with commercial uses on the ground or lower floors and residential uses on upper floors and in other designated areas, as long as residential use is subordinate to commercial uses.
 - B. Reduce the County's off-street parking requirements to encourage new business development and to reflect multi-modal access options.
 - C. Allow ministerial approval of development that conforms to performance standards adopted by ordinance.
 - D. Encourage and provide incentives for the following design characteristics:
 - 1) Pedestrian-oriented scale and character.
 - 2) Orientation of buildings toward the street or central open space areas rather than parking lots.
 - 3) Parking areas to the side or rear rather than between buildings and the street edge.
 - 4) Placement of buildings that create a central open space, or plaza, where passive activity can occur.
 - 5) Transparent ground-level façades designed for pedestrian-oriented sidewalks.

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6) Landscaped pedestrian walkways.

UL-P8. Neighborhood Connectivity. Subdivisions shall be designed to promote road and trail circulation between neighborhoods, schools, parks, and open space areas. The subdivision ordinance shall specify standards and limitations for cul-de-sacs, dead end roads, and block sizes.

UL-P15. Pedestrian-Friendly Streetscape. Encourage streetscape and pedestrian oriented residential design by using techniques such as:

1. Windows and front porches overlooking front yards and sidewalks.
2. Using alley systems or courtyards to minimize driveways facing the street.
3. Make the placement and design of garages subordinate to the house from a streetscape view.

UL-P20 Landscaping. All designs shall use landscaping to enhance the appearance of neighborhoods, control erosion, conserve water, improve air quality and improve pedestrian and vehicular safety.

RL-P1 Compatible with Resource Production. Development on rural residential lands adjacent to designated agricultural and timberlands shall be planned to be compatible with agriculture and timber production.

RL-P7 Clustered Rural Residential Development. Clustered rural residential development is encouraged on rural lands suitable for development consistent with planned densities. Density bonuses may be provided where significant permanent land dedications are secured.

AG-P1 Planned Rural Development. The County shall provide a Planned Rural Development (PRD) Program for lands designated Agricultural Grazing (AG) and Ranchland (AGR) that allows voluntary clustering of homesites at a density above what would otherwise be allowed when lands most suitable for agricultural production are retained for permanent continued production. To qualify, identified homesite parcels must be clustered to avoid increasing use conflicts and not be in conflict with any applicable conservation plan. Right-to-Farm agreements shall be secured on lands proposed for conversion to residential uses. The remaining lands most suitable for continued agricultural production shall be retained solely for permanent production.

AG-P5 Conservation of Agricultural Lands. Agricultural lands shall be conserved and conflicts minimized between agricultural and non-agricultural uses through all of the following:

- A. By establishing stable zoning boundaries and buffer areas that separate urban and rural areas to minimize land use conflicts.

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- B. By promoting in-filling to achieve a more logical urban/agricultural boundary.
- C. By developing available lands not suited for agriculture, or those located within Urban Development Areas, prior to the conversion of agricultural lands outside of those areas.
- D. By assuring that public service facility expansions and non-agricultural development do not inhibit agricultural viability, either through increased assessment costs or degraded air or water quality.
- E. By increasing the effectiveness of the Williamson Act Program.
- F. By not allowing residential subdivision of lands planned Agricultural Exclusive (AE).
- G. By allowing lot-line adjustments for agriculturally designated lands only where planned densities are met and there is no resulting increase in the number of building sites.

AG-P6 No Net Loss of Prime Agricultural Lands. The permanent conversion of prime agricultural lands to non-agricultural uses shall be mitigated to less than significant effects with offsetting permanent protections of prime agricultural land so there is a no net loss of prime agricultural land.

AG-P7 Agricultural Production in Conservation Areas. The County shall support continued agricultural production on lands placed into conservation easements or acquired by public agencies for conservation purposes. Enforceable provisions contained in terms of sale, deeds and conservation easements which require continued management for agricultural production can be considered mitigation of agricultural land conversion impacts.

AG-P13 Agricultural Zoning and Parcel Size. Utilize Agricultural Exclusive (AE), Agricultural Grazing (AG), and Ranchland (AGR) land use classifications to ensure appropriate parcel sizes and land use for continuing availability of the necessary agricultural land base.

FR-P7 Innovative Forestland Programs. Support development of innovative forest and rangeland programs that facilitate production and conservation goals. Support forest management and wood product certification and foster development of markets for new forest products and services; including using bio-mass for energy and carbon storage.

FR-P8 Protection of High Quality Timberlands. Parcels of Timber Site Quality III or higher shall be planned to maintain timber production as the primary use.

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FR-P9 Residential Construction on TPZ Zoned Parcels. Require continued viability of timber production on TPZ zoned parcels containing residences by mitigating the impacts of residences on timber harvesting, water resources, biological resources, wildland fire potential and public services.

FR-P15 Conservation Easements. Support voluntary easement programs that combine conservation management with sustainable timber production.

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Part IV. Implementation of the Action Plan

The following measures are proposed for implementation of the action plan.

A. General Plan Update Implementation Measures

Air Quality Element

AQ-IM3. County-wide Climate Action Plan. Through its association with the RCEA, the County shall participate in the development and implementation of a multi-jurisdictional Climate Action Plan that effectively mitigates the carbon emissions attributable to this Plan, consistent with the requirements of the state Global Warming Solutions Act and subsequent implementing legislation and regulations.

AQ-IM4. County Government Greenhouse Gas Emission Reductions. The County shall prepare a Climate Action Plan for its governmental operations consistent with the Countywide Climate Action Plan that seeks emission reductions in the following areas:

- A. Energy Efficiency and Conservation
- B. Green Building
- C. Waste Reduction and Recycling
- D. Climate-Friendly Purchasing
- E. Renewable Energy and Low-Carbon Fuels
- F. Efficient Transportation
- G. Offsetting Carbon Emissions
- H. Promoting Community and Individual Action

AQ-IM5. Greenhouse Gas Emissions. Update the General Plan and Land Use Ordinances as appropriate to reflect the adopted countywide Climate Action Plan and new state laws and regulations for greenhouse gas emissions when they become available.

AQ-IM6. Programs to Reduce Air Quality Impacts of Wildland Fires. Support and encourage programs such as fuel reduction, prescribed fires, and vegetation

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management as recommended in the County's Fire Plan to reduce air quality impacts of wildfires.

Telecommunications Element

- T-IM1. Telecommunications Facilities Ordinance.** Adopt a Communications Facilities Ordinance that: ensures compatibility of communications facilities with nearby land uses, is proactive in the design and siting of wireless communications facilities, provides incentives for unobtrusive and compatible wireless antennas, and establish clear standards for such facilities.
- T-IM2. Broadband Deployment.** Revise subdivision regulations to require the provision, where feasible, facilities for broadband communications network deployment”.
- T-IM3. Improvement Specifications within Road Rights-of-Way.** Review the Standard Improvement Specifications for Public Improvements to determine if a location for the placement of conduit for communications use can be designated and to develop safe zones for installing new telecommunications infrastructure.
- T-IM4. Telecommunications Infrastructure Inventory.** Create and maintain an inventory of communications infrastructure located within and outside public rights-of-way and all existing and proposed communications facilities and their locations in the county, including all available tall structures that
- T-IM5. Public Conduit.** Work with other local, state and tribal jurisdictions to develop a standard for installing publicly owned communications conduit as part of capital construction projects.
- T- IM6. Ongoing Communications Planning.** Prepare and periodically update a communications improvement program based on existing local, countywide, and regional communications planning studies that identifies existing conditions, needed improvements, and funding programs and that establishes criteria for prioritizing projects.
- T- IM7. Pre-planning Facility Locations.** Establish and utilize wireless and wireline telecommunications siting standards, in coordination with other jurisdictions, to identify areas where future commercial or public communications facilities can be located.
- T- IM8. Communications for Under Served Communities.** Advocate for and seek grant funding to deliver improved telecommunications to outlying rural areas and other under served communities. Provide technical assistance to community service districts, other local government jurisdictions and

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community based organizations interested in offering broadband communications services for public, education and government purposes.

- T- IM9. Broadband Reliability.** Advocate for and seek grant funding to support broadband service diversity and redundant network capacity to and from the county.
- T- IM10. e-Government.** Continuously improve County government's use of broadband communications and digital technology to educate and provide public services with a focus on internet services, geographic information systems, public safety and emergency communications.
- T-IMX Remote Deployment Planning.** Seek funding to undertake a study and environmental review to determine appropriate places to deploy wireless communication facilities that would provide reliable coverage to every community within the county. Areas approved in the report should receive expedited and streamlined permitting.
- T-IMX1 Increasing PEG Access.** Work with local, state, tribal and federal government-community based organizations and private sector entities to develop, improve, and maintain high quality communications service providing increased community access to affordable, broadband media services for public, education and government purposes.

Circulation Element

- C-IM7. Transit Infrastructure.** Work with regional transit providers (K-T Net, Blue Lake Rancheria Transit, Humboldt Transit Authority, Arcata & Mad River Transit System and Redwood Coast Transit) to situate transit stops and hubs at locations that are convenient for transit users, and promote increased transit usage through the provision of shelters, benches, and other amenities.
- C-IM8. Park and Ride Facilities.** Support Caltrans' efforts to add park-and-ride lots at locations as appropriate.
- C- IM11. Transit Service to East, South and North County.** Pursue funding and partnerships with the Humboldt Transit Authority, Native American tribes, and non-profit transportation organizations to establish and sustain transit services to rural communities.
- C-IM12. Pedestrian and Bicycle System Plan.** Prepare a Pedestrian and Bicycle System Plan consistent with the Regional Transportation Plan and incorporate appropriate implementation standards in Title III—Land Use and Development Division 2 Subdivision Regulations. The Pedestrian and Bicycle System Plan should be coordinated with a Long-term Transit Plan.

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Conservation and Open Space Element

CO-IM1. Conservation and Recreation Easement Program. Provide staffing and secure continued funding to support the Williamson Act Program and expand the County's Conservation and Recreation Easement Program as a means to protect working landscapes, priority open space lands, and outdoor recreational opportunities.

CO-IM2. Working Landscapes. Advocate for state and federal regulatory policy that sustains profitable resource production as a means to sustain the conservation and open space values of forest and agricultural land. Support market development efforts that maximize financial returns to the landowner for agriculture and timber products, recreation, and ecological services.

WM-IM4. Support for Waste Diversion and Recycling Operations. The County shall provide technical and permitting assistance to waste diversion activities, particularly those that reduce illegal disposal activities; for example, junk yards and car recycling operations.

Energy Element

E-IM10. Energy Conservation in General Plan Elements. Incorporate energy conservation objectives and policies in applicable General Plan elements, including but not limited to the Circulation, Land Use, Growth Management, Design, Water Resources, and Waste Management elements.

E-IM18. Energy-conserving Landscaping. Develop a water-conserving landscape ordinance, requiring use of natural and drought-resistant planting materials and efficient irrigation systems in new development. Provide information handouts and education to residents on tree selection and preferred siting of trees to reduce energy demand.

E-IM23. Alternative Energy Use. Develop or modify regulations that eliminate obstacles to alternative energy use. Regulations may include, but are not limited to:

- A) Allowing height exceptions for solar equipment.
- B) Allowing alternative heating and cooling systems components such as collectors, shading louvers, or reflectors to project into yards in a manner similar to cornices and canopies.
- C) Defining solar heating systems and cogeneration facilities as accessory uses.
- D) Preventing planned development covenants, conditions, and restrictions (CC&R) from unreasonably restricting alternative energy systems.

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- E-IM28. Government Energy Consumption Reduction.** Develop a comprehensive program to reduce government energy consumption in operations including: public buildings and facilities, street lighting, vehicle fleet management, equipment procurement, and employee energy awareness program.
- E-IM35. Shared Energy Facilities.** Support amendment of Building Code as necessary to eliminate barriers that may inhibit major commercial, industrial, and public uses from installing and/or using shared energy facilities, such as district heating/cooling systems, solar water heating, photovoltaic grids, and cogeneration systems.
- E-IM44. Develop County Facility Guidelines.** For County facilities, establish guidelines for designing and installing renewable energy; cogeneration; distributed energy; and/or district heating systems in existing, new, and acquired County facilities.
- E-IM45. Install County Systems.** Pursue the installation of cost-effective renewable energy systems, cogeneration systems, distributed energy systems, and district heating systems in County facilities. Systems considered to be cost-effective shall be those that exhibit a net dollar savings (compared to reasonable alternatives) over the life of the project.
- E-IM53. Wind Energy Development.** Develop wind-permitting guidelines for residential and small commercial-scale wind energy systems. Adopt and modify, as appropriate, the guidelines established in California State Law AB 1207. Educate the public about the benefits of small-scale wind energy systems.
- E-IM56 (p). Small Hydroelectric Development.** Support local efforts to develop cost-effective, environmentally sensitive, small-scale, run-of-the-river hydroelectric facilities in the county.

CAPE Implementation Measures – See Appendix A

Water Resources Element

- WR-IM8. Watershed Planning.** The County shall maintain relevant land use data on watershed basis to support watershed based management and decision-making processes.
- WR-IM15. Coordinate and Support Watershed Efforts.** Seek funding and work with land and water management agencies, community-based watershed restoration groups, and private property owners to implement programs for

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maintaining and improving watershed conditions that contribute to improved water quality and supply.

WR-IM21. Long-term Water Supply Planning. Work with Humboldt Bay Municipal Water District and other public water suppliers in the development and implementation of long-term plans for water supply, storage, and delivery necessary to first meet existing water demands and, secondly, to meet planned growth within the designated service areas, consistent with the sustainable yield of water resources.

WR-IM22. Promoting Water Conservation and Re-use. Encourage water conservation and re-use practices by providing information resources for permit applicants on:

- A. Water-conserving design and equipment in new construction.
- B. Water conserving landscaping and other land management practices.
- C. Water conserving retrofit options for existing buildings.
- D. Residential water re-use options including graywater systems.
- E. Off-stream water storage systems including tanks and ponds.

WR-P24. Restoration of Flow Rates. The County shall actively participate in decision-making processes that affect water flows in the Trinity, Klamath, Eel, Mad and Van Duzen rivers to advocate for the goals and policies of this Plan.

Economic Element

ED-IM5. Commercial and Industrial Sites. Maintain and update the commercial and industrial sites database, including identification of prime employment sites, on a two-year cycle and provide online maps of vacant industrial and commercial properties using the County's Geographic Information System.

ED-IM8. Transportation and Infrastructure. Operate economic development programs that promote and seek funding for transportation and infrastructure development critical to economic growth, including telecommunications, regional highway improvements, port development, airport expansion, and water and wastewater systems.

ED-IM10. Brownfields. Develop zoning standards to provide increased flexibility for interim land uses and continuation of legal non-conforming uses to encourage cleanup and reuse of underutilized commercial and industrial zoned brownfields.

Housing Element

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H-IM1. Housing Opportunity Zones. The County shall adopt Housing Opportunity Zones and applicable residential and infrastructure development incentives and standards by ordinance. Responsible Agency: CDS. Timeframe: By August 31, 2009.

H-IM2. Incentives for Affordable and Special Needs Housing. The County shall adopt residential and infrastructure development incentives and standards by ordinance to encourage housing affordable to persons or families of low, very low or extremely low income or meeting the housing needs of identified special populations. Responsible Agency: CDS. Timeframe: By August 31, 2009.

H-IM4. Protecting Multifamily Uses in the Affordable Multifamily Land Inventory. The County shall protect multi-family sites identified in the residential land inventory from non-multi-family use development by ordinance. Responsible Agency: CDS. Timeframe: By August 31, 2009.

H-IM12. Identify Potential Special Occupancy Park Sites. The County shall develop and maintain an inventory of suitable sites for use for managed low income special occupancy parks. Responsible Agency: CDS. Timeframe: on-going.

H-IM17. Affordable Multifamily Housing Land Inventory. The County shall create an inventory of lots suitable for affordable multifamily housing, including any necessary rezonings to R-3: Residential Multiple Family or RM: Residential Multifamily which can accommodate a minimum of 100% of the County's fair share regional housing need for extremely low, very low and low income households pursuant to Government Code Section 65583 (c) (1) (A). Responsible Agency: CDS. Timeframe: prior to May 31, 2010.

H-IM19. Housing Rehabilitation in Distressed Communities. The County shall periodically conduct housing condition surveys and prioritize housing rehabilitation funding and assistance to communities with high proportions of sub-standard housing. Responsible Agency: CDS. Timeframe: on-going.

Land Use Element

GP-IM1 Community Plans and Boundaries. Review and revise community plan boundaries and policies to ensure compatibility with community needs as a part of updates to the Housing Element.

GP-IM2 Map Urban Development Areas. Identify and map urban development areas for all community plan areas within existing or planned public wastewater systems. Planning for urban development areas shall include the review of LAFCo adopted spheres of influence and district boundaries, municipal service reviews, and capital improvement programs, as well as consultation with appropriate special districts, cities, public utilities, and LAFCo. Review and

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revise boundaries to ensure compatibility with community needs as part of updates to the Housing Element.

GP-IM3 Map Urban Expansion Areas An urban expansion area may be identified and mapped for communities within defined urban development areas. Boundaries to these areas shall also be established contiguous to urban development areas and should follow geographic land features and other definitive limits, (i.e., roads and streams). Review and revise boundaries to ensure compatibility with community needs as part of updates to the Housing Element.

GP-IM4 Map Water Service Areas. Identify and map water service areas for all Community Plan Areas within existing or planned public water systems. Planning for water service areas shall include the review of LAFCo adopted spheres of influence and district boundaries, municipal service reviews, and capital improvement programs, as well as consultation with appropriate special districts, cities, public utilities, and LAFCo. Review and revise boundaries to ensure compatibility with community needs as part of updates to the Housing Element.

GP-IM5 Urban Service Coordination. Coordinate with special districts, cities, public utilities, and LAFCo in the establishment of urban development areas, urban expansion areas, and water service areas.

UL-IM2 Neighborhood and Town Centers. Prepare a Neighborhood and Town Center ordinance and establish Neighborhood and Town Centers areas by zoning overlay during General Plan Updates and Community Planning processes. Promote a more uniform commercial streetscape by establishing build-to lines rather than setback lines, or a combination of the two. Develop figures in the implementing ordinance to demonstrate design principles; for example, how to orient commercial and mixed-use buildings toward the street or the central open space areas.

UL-IM5 Sites for Commercial Development. Maintain an adequate inventory of sites to accommodate commercial development in Neighborhood and Town Centers.

AG-IM1 Develop Planned Rural Development Program. Update the Zoning Regulations to include provisions for Planned Rural Development (PRD) and implement a program to assist landowners with PRD applications.

AG-IM2 Manage an Agricultural Conservation Program. Seek funding and provide staff for an on-going agricultural conservation program to support activities associated with the Williamson Act, land conservation efforts of local land trusts, conservation easements and mitigation of agricultural land conversion.

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AG-IM4 **No Net Loss of Prime Agricultural Lands.** Provisions for mitigation offsets of prime agricultural land conversion shall be adopted by ordinance.

AG-IM5 **Monitor Conversion of Agricultural Lands.** Annually monitor the conversion of agricultural land to other uses. If conversions have accelerated over previous historic rates, report to the Board of Supervisors with corrective policy recommendations.

FR-IM2 **Develop Incentive Program to Encourage Timber Production.**
Develop incentives for property owners and forestland managers to encourage continued timber production on forestlands. Support and provide technical assistance to small timber producers working to maintain timber production on lands also used as their primary residence.

FR-IM3 **Support Conservation Programs.** Support local land trusts and conservation organizations in efforts to maximize conservation and production values from timberlands. Work to achieve consistency between County policies and regulations and applicable conservation programs including conservation easement taxing policies.

~~B. Family Planning~~

~~The County should support the notion that every woman and every couple should have the resources and power to control their own reproductive lives. By ensuring that every child in the County is planned, the County will make significant progress toward solving unnecessary increases in local contributions to global warming impacts. The County Public Health Department should implement a program to address the potential of unplanned pregnancies which unnecessarily add to future population increases, which in turn add to further greenhouse gas emissions due to addition consumption.~~

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Part V. Monitor And Report Progress

A. Monitoring of General Plan Implementation Measures

Although the science of climate change is mature and there is widespread agreement that human activity is effecting the CO₂ levels in our atmosphere, the science of translating energy use into a quantifiable GHG baseline, estimating project GHG reduction impacts, and tracking the Climate Protection Plan progress is a relatively new science. As the Plan is implemented, regular updates to the Plan will be required to ensure that the County is on track to meet the established targets based on the most recent science.

A monitoring and measurement system was initially implemented within RCAA to assess the effectiveness of the initial proposed reduction projects and is an established step in the ICLEI Climate Protection Campaign. At the present time, the staffing for this effort has been eliminated and there is currently no funding to produce annual reports tracking the use of resources within the unincorporated County or County operations. Such reporting has the advantage of being updated annually and provides a relatively consistent benchmark, and contains the necessary data for use in this Plan. **It is recommended that the Board of Supervisors fund one (1) Climate Change specialist to update the existing assessment effort at least annually on the progress toward attaining the Climate Protection goals of the County through this mechanism.**

Every 3 years, the County will ensure that its local Climate Action, Land Use, Housing, and Transportation Plans are aligned with, support, and enhance any regional plans that have been developed consistent with state guidance to achieve reductions in GHG emissions.

Additionally, the Board of Supervisors shall fund a full time Energy Coordinator position to coordinate the implementation and monitoring of the Comprehensive Action Plan for Energy.

B. GHG Emissions Assessments

The County shall fund a full time position (Climate Action Plan Coordinator) to address implementation of this climate action plan, including the provisions of this section.

The County will continue to develop GHG emissions inventories utilizing the Clean Air and Climate Protection (CACP) Software or similar and will update inventories every 5 years to incorporate improved methods, better data, and more accurate tools and methods to assess progress.

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The County has established a baseline inventory of GHG emissions (reported herein) including emissions from residential, commercial, industrial, and transportation sources within the unincorporated County.

The County will assess whether measures included in this plan reduce GHG emissions from County activities by at least 15% by 2020 compared to the 1990 baseline emissions inventory.

The following additional implementation measures shall be completed under this climate action plan:

AQ-IM3. County-wide Climate Action Plan. Through its association with the RCEA, the County shall participate in the development and implementation of a multi-jurisdictional Climate Action Plan that effectively mitigates the carbon emissions attributable to this Plan, consistent with the requirements of the state Global Warming Solutions Act and subsequent implementing legislation and regulations (currently set at a 10% reduction in 2003 greenhouse gas emissions by the year 2020).

AQ-IM4. County Government Greenhouse Gas Emission Reductions. The County shall prepare a Climate Action Plan for its governmental operations consistent with the Countywide Climate Action Plan that seeks emission reductions in the following areas:

- I. Energy Efficiency and Conservation
- J. Green Building
- K. Waste Reduction and Recycling
- L. Climate-Friendly Purchasing
- M. Renewable Energy and Low-Carbon Fuels
- N. Efficient Transportation
- O. Offsetting Carbon Emissions
- P. Promoting Community and Individual Action

AQ-IM5. Greenhouse Gas Emissions. Update the General Plan and Land Use Ordinances as appropriate to reflect the adopted countywide Climate Action Plan and new state laws and regulations for greenhouse gas emissions when they become available.

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C. Report and Update Recommendations as Needed

The Climate Action Plan Coordinator identified in B above shall prepare an annual report which assesses the progress in completion of climate action plan implementation measures and makes recommendations for continued progress.

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Appendix A

Comprehensive Action Plan for Energy

Policies

E-P2. Regional Energy Forum. The REA shall serve as the primary forum for countywide energy issues and provide an open public review process for development proposals relating to energy facilities.

E-P3. Coordinated Regional Energy Planning. The REA shall coordinate energy planning and strategic planning with Humboldt County, the cities within Humboldt, tribal governments, colleges and school districts, and other local agencies.

E-P4. Regional Energy Funding. The REA shall provide support to the County and act as the fiscal agent and funding clearinghouse for countywide energy programs.

E-P5. Minimize Energy Interruptions. The REA shall work with the County and local utility providers to minimize the likelihood and impact of weather-, disaster-, terrorism-, and market-related power outages.

E-P6. Energy Facility Emergency Planning. Ensure preparation and periodic update of state-mandated emergency plans and coordinate such plans with the Humboldt County Office of Emergency Services.

E-P9. Emerging Energy Technologies. Support emerging energy technology from local sources—such as Humboldt State University’s Industrial Technology Department and the Schatz Energy Research Center—local innovators and inventors, as well as from non-local sources.

E-P21. Energy Conservation Efforts in Transit. Participate in the energy management and conservation efforts of the regional transportation authority, HCAOG, and encourage transit system improvements that enhance overall energy conservation, such as alternative fuel fleets, bike racks on buses, bike racks at major bus stops, and multimodal transit stations.

E-P22. Telecommunication Systems. The reduction of automobile trips through telecommuting shall be encouraged by allowing home-occupation businesses, and by encouraging broad-band.

E-P28. Private Site Design Standards. Promote site design standard conformance, consistent with the California Green Builder Program energy efficiency standards for private construction.

E-P30. Energy Efficiency Education and Training. Provide community education on energy issues, including the benefits of reduced energy consumption and increased energy efficiency. Support REA in collaborating with schools and colleges for energy-related research, education, and conservation practices.

E-P31. Education on Balanced Modes of Travel. Educate the public on the need to reduce automobile travel and encourage energy-efficient, health-promoting modes of travel, such as walking, bicycling, and public transit.

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E-P32. Education on Renewable Energy and Distributed Generation. Provide educational and promotional programs that encourage and demonstrate the use of renewable energy and environmentally preferable distributed energy generation and cogeneration systems.

E-P33. Energy Policies and Plans. Encourage other jurisdictions and entities to adopt and implement sound energy plans and policies, including encouraging Humboldt County cities to include energy elements and/or energy policies in their general plans and ordinances. Advocate and disseminate energy planning strategies, policies, and other information.

E-P41. Energy Audits and Retrofits. To encourage full knowledge of the costs and benefits of energy efficiency retrofitting in all structures, support programs that encourage and facilitate energy audits for all existing buildings and developments.

E-P42. Retrofitting for Energy Efficiency. Promote retrofit of existing buildings to meet or exceed current energy efficiency standards.

E-P46. Renewable Energy Resources as First Choice. Consistent with the California Energy Action Plan, the RCEA will promote policies that seek to meet new generation needs first with renewable energy resources, distributed generation, and cogeneration.

E-P50. Resource Development and General Plan Consistency. Seek to remove barriers and encourage energy generators to develop renewable energy and environmentally preferable distributed energy generation systems in the county, while ensuring that such development is done in a manner consistent with overall General Plan goals and policies.

E-P51. Diversity in Local Sources. Pursue development of a diverse, locally produced energy supply, with an emphasis on renewable resources, that is price-competitive in the California market and that can be generated in a way that minimizes adverse environmental impacts.

E-P52. Transmission Assessments and Monitoring. Continue to work with PG&E to develop long-term transmission assessments and, if necessary, electrical and natural gas transmission grid expansion plans. Monitor local electricity and natural gas transmission system planning to ensure that projected growth areas are adequately served.

E-P54. Public Utility Management. Identify or adapt to the best energy delivery mechanism for local energy management. Options to be considered include continuing with Investor Owned Utility, a municipal utility, and community choice aggregation.

E-P55. Intermittent Renewable Resource Development. Pursue local intermittent renewable resources that could significantly contribute to the county's electrical generation.

Implementation Measures

E-IM1. Regional Energy Authority (REA). The Redwood Coast Energy Authority shall serve as the REA for Humboldt County.

E-IM2. Energy Element Review. Encourage new /renewable energy production. Periodically review and update, as necessary, the Energy Element to reflect changing production and transmission facility developments and encourage new energy production and transmission facilities.

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E-IM3. Energy Emergency Response Procedures. Prepare energy emergency response procedures for the Humboldt County Emergency Response Plan.

E-IM4. Energy Supply and Transmission/Distribution Report. Prepare a regional energy supply and transmission/distribution report that is updated every five years or sooner, as required.

E-IM5. Energy Facility Emergency and Contingency Planning. Develop an ordinance requiring emergency plans for energy facilities. Prepare an energy system contingency plan that is updated every five years.

E-IM6. Energy Resource Center. Establish an energy resource center. The center shall be open to the public and provide energy conservation, energy planning, renewable energy, and energy-efficient building design and retrofit information.

E-IM7. Development of Distributed Generation. Conduct a study to identify key facilities in the county that would benefit from distributed generation and cogeneration energy systems. Develop environmentally preferable distributed generation and cogeneration energy systems where appropriate. Develop and publicize demonstration sites.

E-IM8. Small-scale Biomass Generation Sites. Monitor feasibility of smaller and/or mobile biomass electric generators fed with wood waste and very small diameter logs (e.g., from thinning for fire safety and timber harvest slash in National Forest areas). If/when the technology proves feasible and cost effective, promote its use in county areas near National Forests, where existing electric transmission lines are available; support projects to convert biomass into competitively priced renewable energy.

E-IM9. Development Incentives. The REA will collaborate with the County Economic Development Division to identify opportunities for developing jobs in the field of energy conservation, efficiency, and renewable sources.

E-IM11. Energy-efficient Award Program. Initiate an award program for high-performing energy-efficient land use and community designs that reflect the goals and objectives of the Comprehensive Action Plan for Energy and General Plan Energy Element.

E-IM19. Green Building Information. Develop and promote programs detailing California Green Building standards and rating categories in addition to Title 24 requirements for the County as a resource for the wider community.

E-IM22. Energy Efficiency-Based Utility Allowance. Encourage use of an energy efficiency-based utility allowance schedule in all affordable housing.

E-IM24. Educational Program. Develop educational displays for the first few renewable energy systems, cogeneration systems, and distributed energy systems installed in County facilities. Displays are to provide county residents and businesses with information on how the systems work and how well they perform. Educate county residents about the importance of developing local energy resources and the associated benefits, as well as the associated impacts of local energy resource development.

E-IM25. Energy Guidelines. Develop energy-efficient guidelines and information handouts and make them available to applicants in the process of obtaining development and land use permits.

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E-IM26. Water Conservation Education Program. Initiate a water conservation education program for citizens, with incentive programs that encourage efficiency and water conservation.

E-IM27. Energy Elements. Disseminate/encourage the adoption of energy elements in other jurisdictions.

E-IM31. Energy-efficient Equipment. Encourage the use of the most energy-efficient equipment for space and water heating, ventilation, lighting, refrigeration, and air conditioning in all new buildings and developments, including residential and commercial facilities. Solar water heating and solar electric systems shall be encouraged where solar access is available. The County shall endorse the California Green Builder Program standards as the desired level of energy conservation and efficiency in buildings.

E-IM32. Solar Equipment. Encourage new construction and renovations/remodeling of appropriate scale to incorporate solar-friendly, “no-regrets” construction features. This shall include the installation of electrical and plumbing connections for potential future solar electric and solar hot water systems, proper solar orientation, and adequate unobstructed south facing roof slopes where solar energy equipment can be installed.

E-IM33. Energy Efficient Retrofits. Investigate energy-efficient retrofitting in the renovation and remodeling of existing buildings and/or at the time of sale or transfer of ownership. Employ a clear permitting process to encourage energy conservation retrofit improvements in existing buildings. This may include, but is not limited to: upgrading to Title 24 standards for energy efficiency; adding passive solar and natural daylighting; protecting solar access; improving insulation and weather-stripping; installing water-conserving and energy-conserving devices; and installing on-site renewable energy generation. Retrofit improvements for energy conservation and efficiency are applicable to all land uses.

E-IM35. Shared Energy Facilities. Support amendment of building codes as necessary to eliminate barriers that may inhibit major commercial, industrial, and public uses from installing and/or using shared energy facilities, such as district heating/cooling systems, solar water heating, photovoltaic grids, and cogeneration systems.

E-IM36(partial). Retrofits in Existing Buildings.. Investigate both voluntary and mandatory energy efficiency retrofit programs. Provide incentives to property owners to upgrade their homes, businesses, or other properties for improved energy conservation and energy efficiency techniques (i.e. energy efficiency retrofits). Incentives could also include providing assistance to property owners in obtaining rebate programs for retrofitting residential and commercial buildings. Promote the voluntary residential retrofit energy program by encouraging homeowners associations to do the following:

- Purchase bulk solar systems and conservation materials.
- Sponsor buying clubs, cooperative or other suitable mechanism to purchase, install, and maintain retrofit measures.

E-IM37. Energy Audits at Time of Sale/Transfer of Ownership. Investigate options for combining energy audits with existing inspections, financing, and data collection activities. Develop policies and guidelines to enact appropriate transfer-of-ownership regulations/programs. A primary objective of this program would be to provide prospective homebuyers with an energy-efficiency comparison of available units, thereby encouraging potential sellers to retrofit their properties.

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E-IM40. Wastewater and Reclaimed Water Efficiency. Solicit cooperation from water suppliers, industry, golf courses, landscapers, and agriculture to conserve water through the use of properly treated reclaimed water and wastewater.

E-IM41. Water Conservation. Encourage local water providers to enforce water conservation measures cooperatively, using state-mandated powers to reduce energy consumption at water facilities associated with various phases of pumping, distribution, treatment, and reclamation.

E-IM42. Conservation Management Plan. Promote the implementation of a countywide water conservation management plan. Promote water conservation and water recycling programs as a means of conserving energy.

E-IM43. Prepare County Facility Energy Study. For County facilities, prepare a report that examines the economic feasibility of using renewable energy systems (including solar electric and solar hot water), cogeneration systems, distributed energy systems, and district heating systems.

E-IM50. Use of Waste Biomass for Energy Production. Promote forest fuel-reduction programs that provide sustainable forest practices, fire safety, and the use of forest biomass as an energy source. Develop and maintain statistics on the use and availability of forest waste biomass resources for energy production.

E-IM51. Biogas Development. Encourage the development of the use of biogas at the Cummings Road Landfill. Develop and publicize dairy biogas demonstration sites and work with local farm organizations to promote dairy biogas energy systems, where appropriate. Publicize the use of biogas at existing local wastewater treatment facilities and encourage its use at additional facilities where appropriate.

E-IM52. Support Wave and Tidal Energy Demonstration Projects. Promote and support local wave and tidal energy systems research and development. Work with private companies to develop wave and tidal energy demonstration projects.

E-IM54. Large-scale Wind Energy. Provide information about cost-effective commercial-scale wind farms in the county and in offshore areas adjacent to the county. Assess wind resources in the county and prepare a model draft EIR for large-scale onshore and offshore wind energy facilities. Educate the public about the benefits and impacts of wind energy systems. Focus especially on presenting accurate and balanced information on bird and bat kills and noise and visual impacts.

E-IM55. Natural Gas Development. Support efforts to develop local natural gas resources. Develop an updated assessment of onshore natural gas resources in the county.

E-IM56 (p). Small Hydroelectric Development. Support local efforts to develop cost-effective, environmentally sensitive, small-scale, run-of-the-river hydroelectric facilities in the county.

E-IM56(p). Small Hydroelectric Development. Conduct an updated assessment of small hydroelectric resources potential in the county.

E-IM57. Solar Energy Development. Support local efforts to develop solar electric systems and solar hot water systems in the county. Develop a training program for solar contractors and installers. Educate the public about the benefits of solar energy systems. Develop a database of solar energy systems installed in the county.

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E-IM58. Biodiesel Development from Waste. Promote use of waste oils and other biomass wastes for biodiesel production. Assess available waste resources for biodiesel production. Provide current information on the potential opportunities, benefits, and limitations of waste biodiesel production and use in the county. Focus on waste oils and other biomass that are not already being used for other purposes. Develop guidelines and standards for the safe and environmentally responsible production of biodiesel in the county.

E-IM59. Energy Grid Connection. Promote appropriate small-scale energy generation where cost-effective connections to the distribution system are available or planned. Standardize local rules for connecting to the grid, consistent with IEEE interconnection standards. Connections for small generators (under 100 kW) should be simplified and standardized.

E-IM60. Vehicle-to-grid Connection. Promote and monitor the progress of integration of motor vehicles with the electric grid, including battery electric vehicles, fuel cell vehicles, plug-in hybrid electric vehicles, and solar-electric vehicles. Evaluate development status of vehicle-to-grid interconnect standards and the use of grid-connected vehicles for short-term energy storage.

E-IM61. Energy Feasibility Study. Examine feasibility of wind, solar, and hydro-power as short term intermittent energy sources, and also emerging technologies such as wave energy as longer-term possibilities. The feasibility study will also examine potential for local electrical energy storage systems capable of smoothing out electrical generation fluctuations. Intermittent renewable resource load profiles will be studied.

E-IM63. Municipal Utility Feasibility. Consider conducting a preliminary feasibility study to examine the viability of establishing a municipal utility.

E-IM64. Community Choice Aggregation. Explore the feasibility of becoming community-choice aggregators rely on the technical assistance of consultants. Apply for technical assistance to determine cost issues and for information needed to file CCA implementation plans with the California Public Utilities Commission (CPUC).

E-IM65. Renewable Energy Portfolio Standard. Review compatible energy resource development projects that would assist the State of California in meeting renewable portfolio standard goals. In particular, the REA shall engage in the CPUC-led process that directs utilities to investigate transmission upgrades to support the development of renewable energy resources.

E-IM66. Critique Proposals for New Local Electrical Power Generation Facilities. Examine proposals for new local electrical power facilities, with a focus on fuel diversity, environmental concerns, and market uncertainties that are increasingly important in electric utility resource planning. Make recommendations on preferred alternatives that are consistent with the County's goals for energy security and sustainability. Pursue available grant programs to fund feasibility studies, including funding sources from the CEC that offer support to a wide range of research and development projects through its Public Interest Energy Research (PIER) Program. Also monitor the U.S. Department of Energy's Energy Efficiency and Renewable Energy program for funding opportunities.

E-IM67. Interconnected (Looped) Electrical Grid. Work with PG&E to evaluate an interconnected (looped) electrical grid for the county. Support systems that will provide land use and population trend data to inform long-term plans for transmission assessments and transmission grid expansion.

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