



# City of Blue Lake

111 Greenwood Road-P.O. Box 458  
Blue Lake, CA 95525

707-668-5655(P) 707-668-5916(F) www.bluelake.ca.gov

## PLANNING COMMISSION MEETING AGENDA

Monday, October 21, 2024 @ 7:00 P.M.

Skinner Store - 111 Greenwood Road, Blue Lake

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**This meeting will be held in person at the location listed above.** The City will provide alternative methods of participation for the convenience of the public. However, the City does not guarantee that there will not be technological issues or interruptions. The public is hereby notified that if there is a technological issue with live video streaming of the meeting, the meeting will continue in person as scheduled. The public may access and participate in the public meeting using one or more of the following methods:

- A) **Zoom:** The meeting will be live streamed via Zoom (details below). The direct Zoom link will also be posted on the City of Blue Lake website (<https://bluelake.ca.gov/>). During the meeting, public comment may be made by using the raise hand feature on Zoom.

**Public input will be facilitated by Zoom at the following meeting link:**  
<https://us02web.zoom.us/j/88435538694?pwd=Is5t4uA9TGnnTtExLP2dcoZD3i2cMK.1>  
Meeting Id: 884 3553 8694 Passcode:153986

- B) **In-Writing:** Public comments may also be made in advance by submitting written comment via [citymanager@bluelake.ca.gov](mailto:citymanager@bluelake.ca.gov) or by filing it with the City Clerk at 111 Greenwood Road, Blue Lake, California, 95525. All public comments (via email or mail) must be received by the City Clerk prior to 4:30 p.m. the day of the meeting. Please identify the meeting date and agenda item to which your comment pertains in the subject line. Public comments, so received, will be forwarded to the Planning Commission. Written public comments will not be read aloud during the meeting.

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- 1. Approval of Minutes: September 16, 2024**
  - 2. Public Input** – *The Public is invited to present petitions, make announcements, or provide other information to the Planning Commission that is relevant to the scope of authority of the City of Blue Lake that is not on the Agenda. The Planning Commission may provide up to 15 minutes for this public input session. To assure that each individual presentation is heard, the Planning Commission may uniformly impose time limitations of 3 minutes to each individual presentation. The public will be given the opportunity to address items that*

*are on the agenda at the time the Planning Commission takes up each specific agenda item.*

### **3. Approval of Agenda**

#### **Discussion / Action:**

4. **Discussion:** General Plan Housing Element Update. Presentation from staff on the Draft California Environmental Quality Act (CEQA) Negative Declaration prepared for the Housing Element Update.
5. **Discussion:** Regional Climate Action Plan (CAP). Presentation from staff on the status of the Regional CAP.
6. **Miscellaneous Planner Items.**
7. **Upcoming Planning Commission meetings for the next 3 months will be on November 18, 2024, December 16, 2024, and January 20, 2024.**
8. **Adjournment by 9:00 pm unless extended by the Planning Commission.**

A request for disability-related modification or accommodation, including auxiliary aids or services, may be made by a person with a disability who requires a modification or accommodation in order to participate in the public meeting, by contacting City Manager Amanda Mager, (707) 668-5655, at least 24 hours prior to the commencement of the meeting.



City of Blue Lake  
Planning Commission Meeting Minutes  
Sept 16, 2024

1. **Quorum Established:** Commissioners Present: Cseh, Hogan, Pryor  
Absent: Schang

Staff Present: Garry Rees, Mandy Mager, Tonie Quigley, Leanna Brotherton

Public Present: Kent Sawatzky, Julie Christie, Justin Goad, Rebecca Thorton

Meeting Called to Order: 7:01PM

1. **Approval of Minutes with date corrected - May 20,2024**

Motion to Approve with correction: Hogan

Seconded by: Cseh

**No Public Comment**

Motion Summary: Consensus

2. **Public Comment:**

- Kent Sawatzky: comments on commissioners' need to live within city limits, Measure 0, and strongly supports workforce housing. The Planning Commission may see Erin McClure's property come before them through eminent domain.
- Julie Christie: commented on public comments in the meeting minutes, 0 Zone, comments on surplus lands and housing element.

3. **Motion to Approve the Agenda as Presented:**

Motion by: Hogan

Seconded by: Cseh

**Public Comment:**

- Julie Christie comments that ordinance should be on the agenda before applications

**Motion Summary: Consensus**

4. **Action: Application#025-131-006/2024. Exception to the Residential Development Standards in Municipal code Section 17.24.260(A)(5) for Edward Rasmussen to allow a metal roof on a single-family residence at 300 Chartin Road (APN 025-065-010)**

Leanne presents the staff report. Rasmussen has applied for an exception to the residential development standards. Metal is not a principally permitted material. Justification includes longer lasting, similar to other residences in Blue Lake and is consistent with his shop, that's also located on his property.

**Public Comment:**

- Kent Sawatzky: comments that metal is the future of roofing, shouldn't have to be fancy. The lifetime of metal roofs is considerably longer, is noncombustible. Could be preventable to people that cannot afford.
- Julie Christie: States that she concurs with Kent; asked if it applies to commercial, or only residential

Commissioners: Pryor we've been through this application process 4 or 5 times.

**Motion to Approve Application#025-131-006/2024**

Motion: Hogan

Second: Cseh

**Motion Summary: Consensus**

5. **Action: Application #025-065-010/2024. Exception to the residential Development Standards in Municipal Code Section 17.24.260(A)(5) for Ryan McCutchen to allow a metal roof on a single family residence at 241 F Street (APN 025-065-010).**

**Planner Leanne Bretherton presents the staff report. Findings in support of metal roofing includes longer lasting material, fire resistant, improved drainage, consistent with neighborhood.**

**Public Comment:**

- Julie comments on people waiting to get their roofs because of lack of Planning Commission meetings and paying two SHN employees tonight.

**Public Comment Closed.**

**Motion to Approve Application#025-065-010/2024**

Motion: Cseh

Second: Hogan

**Motion Summary: Consensus**

6. **Public Hearing/Action – Amendment of Municipal Code Section 17.24.260 (Development Standards) to allow metal as a roofing material on single-family residents subject to specific design criteria.**

Commissioner Pryor reads the proposed action.

Garry Reese reads the staff report. The Commission had asked staff to bring this item forward in Dec. 2023. Historically people didn't like the tin/corrugated materials available at the time.

Newer materials are much more aesthetically pleasing and durable than in the past. This only applies to single family residences.



**Public Comment:**

- Kent Sawatzky: comments on environmental issues associated with composite roofing, standing seam is expensive. What if people came before the commission for exceptions for tiny homes.
- Julie Christie: Comments concur with Kent, specific restrictions will lead to more exceptions. Add industrial and/or commercial to reduce projects going before the commission.

**Public Comment Closed.**

**Commissioners/Staff Discussion**

- Commissioner Hogan thanks the staff for bringing this forward. Development standards are more descriptive than other materials. Is this going to be limiting in anyway> Will there be new materials/technology in the future that we need to consider
- Garry Rees: states that this description is consistent with the most common types of roofing that we have seen.
- Commissioner Cseh states that metal roofing can have issues, including fading and noise. Questions “glare”; how is this accommodated?
- Garry Rees: The language regarding glare is to reduce nuisance issues
- Commissioner Pryor: The language provides an opportunity for staff and the commissioners to evaluate potential issues, asks for clarification on the development standards for commercial buildings
- Garry Rees: We don’t have development standards for commercial buildings, but rather design guidelines.

**Motion to Adopt Resolution No.1-2024**

Motion: Hogan

Second: Cseh

**Motion Summary: Consensus**

7. **Discussion: Amendment to Municipal Code Chapter 15.08 – Sidewalks, Curbs and Gutters to allow stormwater low impact development (LID) improvements as an alternative to the standard design specifications for sidewalk, curb, and gutter.** Garry Reese provides an overview of the report: infill projects have been triggering the sidewalk requirement. This impacts drainage issues, creates sidewalks to nowhere and localized flooding. ADA impacted with patchwork sidewalks. Standard specifications don’t apply, but it requires the applicant to put money into a fund for future development.

Staff looked at ways to make improvements outside the standard sidewalks, including drainage /LID. City engineer prepared LID standards that can be scaled up or down as appropriate. May not be appropriate to do anything.

**Public Comment:**

- Kent Sawatsky: comments that he has done much work around Blue Lake. Spoke to old ways of doing this type of work. Safety issues for children. Flexibility great , but where should money be put for work on other side of the street. Supports moving in this direction.
- Julie Christie: comments on truck route, wants to hear planning report, not managers report (report **was** included in packet)

**Commissioner/Staff Discussion:**

Commissioner Hogan appreciated flexibility and encourages looking at additional options. Trails; could money go into a fund that could support development or improvements

Commissioner Cseh – Supports the flexibility and the need to do pedestrian improvements.

Commissioner Pryor supports a plan that identifies connectivity/pathways: what happens if the bond/cash was never used?

Staff instructed to bring back future options to add to the list.

**Public Comment:**

- Julie Christie: comments that the commissioners didn't have a report in their packet. (\*all commissioners did have the report in their packet)

**8. Motion to Adjourn: 8:06PM**

Motion by: Hogan

Seconded by: Cseh

**Motion Summary: Consensus**



# CITY OF BLUE LAKE

Post Office Box 458, 111 Greenwood Road, Blue Lake, CA 95525  
Phone 707.668.5655 Fax 707.668.5916

DATE: October 21, 2024

FROM: Garry Rees, City Planner

TO: Blue Lake Planning Commission

**RE: Agenda Item 4 – Discussion: Presentation from staff on the Draft CEQA Negative Declaration prepared for the Housing Element Update**

State law requires cities in Humboldt County to update their General Plan Housing Elements approximately every 8 years, which is referred to as a Housing Element planning cycle. The current cycle is for the 2019 - 2027 planning period (6th planning cycle). The City received funding from the California Department of Housing and Community Development (HCD) through the Local Early Action Planning (LEAP) and Regional Early Action Planning (REAP) grant programs to update its Housing Element to achieve compliance with State housing law.

On September 20, 2023, the City received a determination letter from HCD reporting the results of their review of the City's 6th cycle Draft Housing Element Update. The letter concluded that the revised draft element meets the statutory requirements of State Housing Element Law, with the following exception:

*“Generally, pursuant to Government Code section 65584.09, if a city did not make available sites to accommodate the regional housing need allocation (RHNA), then the city shall, within the first year of the planning period of the new element, rezone adequate sites to accommodate the unaccommodated portion of the RHNA from the prior planning period. The City has an unaccommodated need from the prior planning period (Table 20). Since more than a year has lapsed from the beginning of the current planning period, the element cannot be found in compliance until the required rezoning is complete. Specifically, the element cannot be found in compliance until Program HI-14 (Rezoning and By Right Procedures) is implemented to meet the unaccommodated need from the 5th cycle RHNA. Once the rezoning has been completed, the City should submit documentation (e.g., resolution, ordinance) to HCD and HCD will review and approve the element in accordance with Government Code section 65585.”*

Additionally, pursuant to Government Code Section 65583.3, the City must submit an electronic sites inventory with its adopted Housing Element. This is similar to the sites inventory contained in the element update but must be provided in the electronic form required by HCD after the City has adopted its element.

Based on the results of the HCD review, city staff began work on a California Environmental Quality Act (CEQA) Initial Study (IS) for the Draft Housing Element Update. The draft IS was

completed on September 23, 2024, which is included as **Attachment 1** to this staff report. As indicated in the Draft IS, it is found that the Housing Element Update would not have a significant effect on the environment. Therefore, it is recommended by staff that a Negative Declaration is the appropriate CEQA determination for adoption of the Housing Element Update.

As required by CEQA Guidelines Sections 15073(d) and 15105(b), the CEQA document prepared for the project was sent to the State Clearinghouse (SCH#: 2024091022) for a 30-day circulation period. The circulation period began on 9/26/24 and ends on 10/27/24. As required by CEQA Guidelines Section 15072(a), a 'Notice of Intent to Adopt a Negative Declaration' was submitted to the State Clearinghouse, posted in 3 public places in the city, and filed with the County Clerk-Recorder's Office prior to the beginning of the circulation period. The CEQA document was also posted on the City's website prior to the beginning of the circulation period at the following link: <https://bluelake.ca.gov/2024/09/23/initial-study-for-blue-lake-2019-2027/>. Comments that have been received to date and responses to the comments are included as **Attachment 2** to this staff report.

### **Next Steps**

The next steps in the adoption process for the Housing Element Update includes the following:

- A public hearing will be scheduled for the November 18, 2024 Planning Commission meeting. At this meeting, the Planning Commission would consider making a recommendation to the City Council regarding adoption of the CEQA Negative Declaration and Draft Housing Element Update.
- A public hearing will be scheduled for the December 10, 2024 City Council meeting. At this meeting, the City Council will receive the recommendation from the Planning Commission and consider adoption of the CEQA Negative Declaration and Housing Element Update.

### **RECOMMENDATION:**

- 1) Receive a presentation from city staff on the Draft CEQA Negative Declaration prepared for the Housing Element Update.
- 2) Open the item for public testimony.
- 3) Close the item for public testimony.
- 4) Discuss the findings of the Draft CEQA Negative Declaration and ask questions of city staff.
- 5) Provide comments to city staff on the Draft CEQA Negative Declaration.

# **Attachment 1**

**Draft CEQA Negative Declaration for the Blue Lake General Plan  
Housing Element Update**

September 2024 | Initial Study

# INITIAL STUDY FOR BLUE LAKE 2019-2027

## HOUSING ELEMENT UPDATE

City of Blue Lake

*Prepared for:*

City of Blue Lake

Contact: Garry Rees, Contract City Planner

707-668-5655

<https://bluelake.ca.gov>

P.O. Box 458

111 Greenwood Ave

Blue Lake, California 95525

*Prepared by:*

SHN

Contact: Garry Rees, AICP

812 W Wabash Ave

Eureka, CA 95501

# Initial Study

## 1. Project Title

The City of Blue Lake 2019-2027 Housing Element Update

## 2. Lead Agency Name and Address

City of Blue Lake  
P.O. Box 458  
111 Greenwood Ave  
Blue Lake, California 95525

## 3. Contact Person and Phone Number

Garry Rees, Contract City Planner  
707-668-5655  
<https://bluelake.ca.gov>  
P.O. Box 458  
111 Greenwood Ave  
Blue Lake, California 95525

## 4. Project Location

The project area is the entire City of Blue Lake in Humboldt County, California. The regional location and project area are shown in **Figure 1** and **Figure 2**. For a description of the City and its regional context see Section 9, Surrounding Land Uses and Setting.

## 5. Project Sponsor's Name and Address

City of Blue Lake  
P.O. Box 458  
111 Greenwood Ave  
Blue Lake, California 95525  
Phone: 707-668-5655  
Website: <https://bluelake.ca.gov>

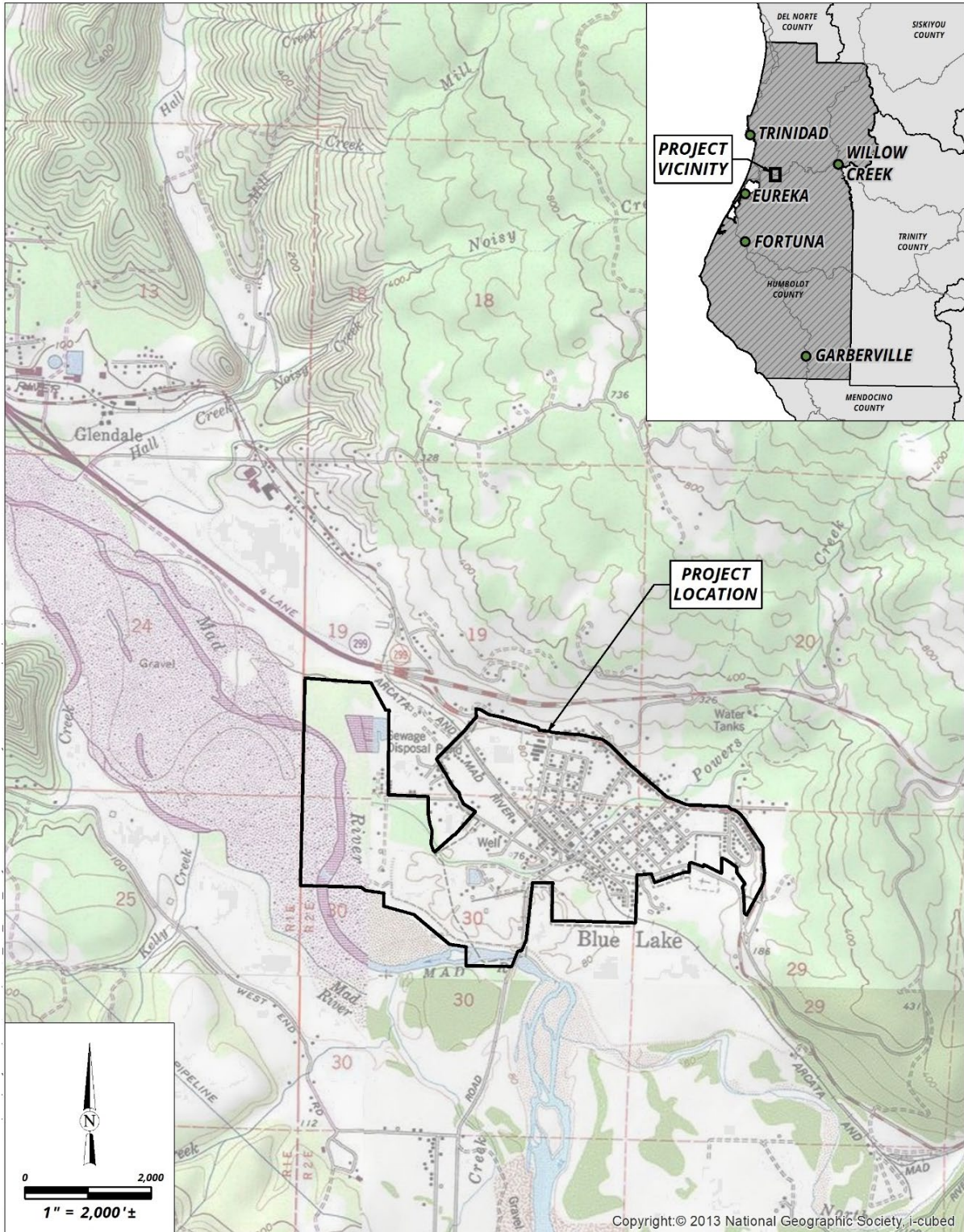
## 6. General Plan Designation

City-wide

## 7. Zoning

City-wide





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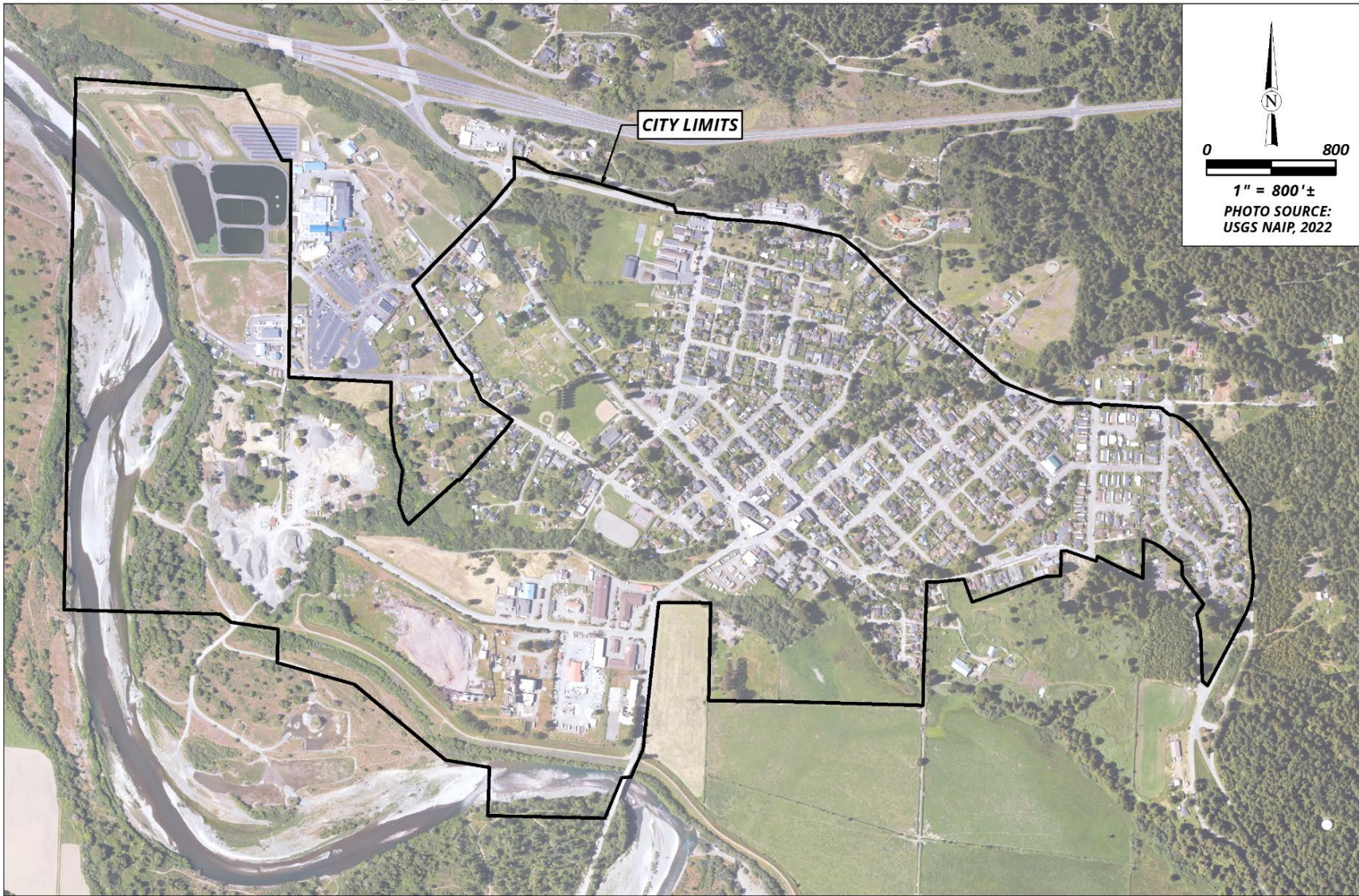


City of Blue Lake  
Housing Element Update  
Blue Lake, California

**Project Location Map**  
February 2024 - 022168.100

**Figure 1**





City of Blue Lake  
Housing Element Update  
Blue Lake, California

City Limits Map **Figure**

February 2024 - 022168.100

**2**

## 1. Project Description

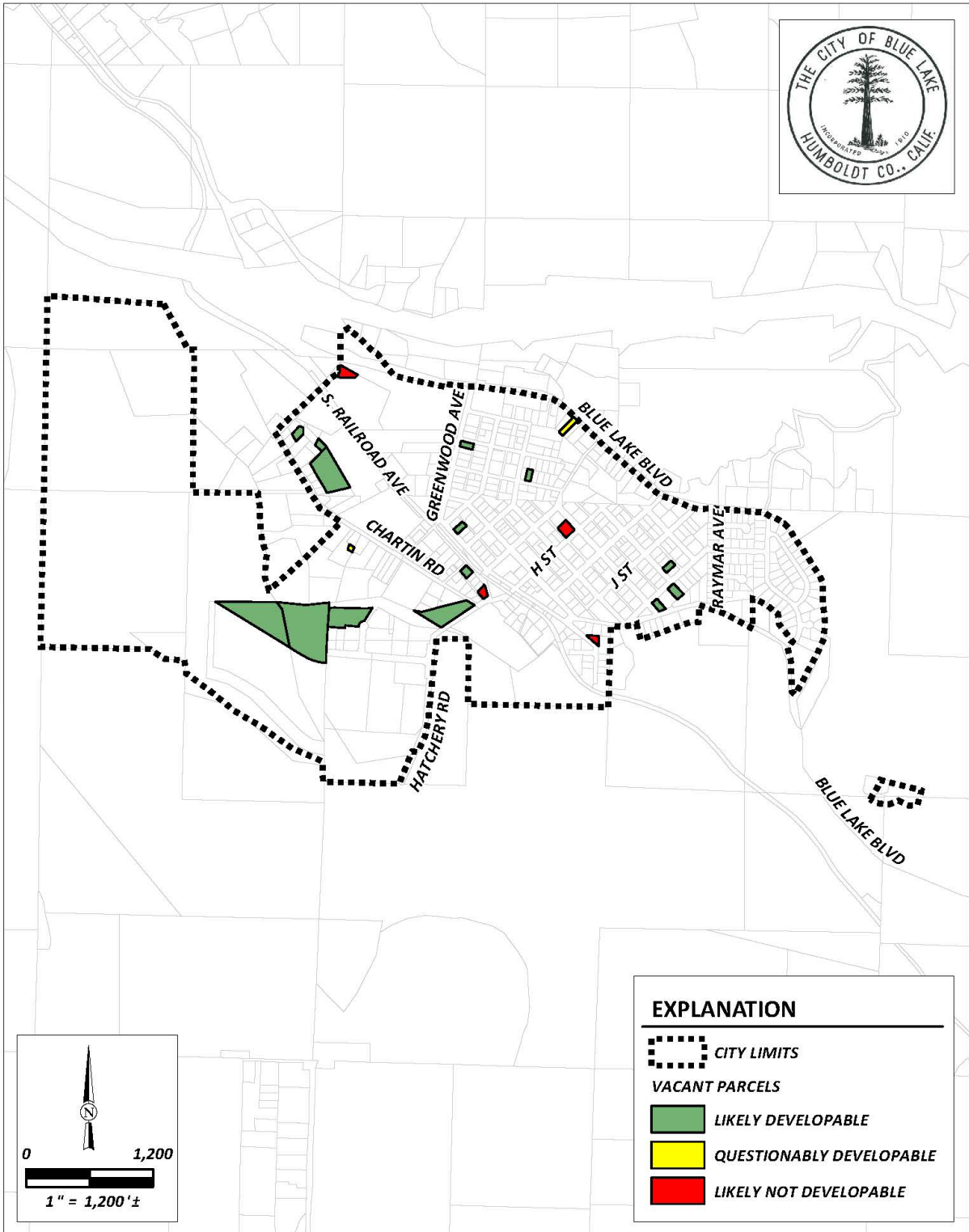
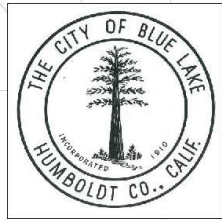
### Overview and Background

Under the requirements of state law, every city and county in California must prepare a Housing Element as part of its General Plan. The housing element must document in detail existing conditions and projected needs in accordance with state housing law provisions. The element is also required to contain goals, policies, programs, and quantified objectives that address housing needs over the next eight-year period. As part of the proposed project, the proposed 2019-2027 Housing Element Update will serve as the City of Blue Lake's guiding policy document that meets future needs of housing for all the City's economic groups.

The last housing element update adopted by the City was during the 4<sup>th</sup> cycle planning period (2007-2014). As required, the 4<sup>th</sup> cycle housing element was reviewed by the California Department of Housing and Community Development (HCD, 2023) but was not ultimately certified by HCD. Blue Lake prepared a draft update for the 5<sup>th</sup> cycle (2014-2019), which was reviewed by HCD but was not ultimately adopted by the City Council or certified by HCD. The proposed 2019-2027 Housing Element Update will replace the adopted 4<sup>th</sup> cycle housing element. The Housing Element Update identifies the potential for development of up to 89 new housing units at full buildout of the city's existing vacant lot inventory. **Figure 3** shows the location of the vacant lots in the City that are zoned to allow residential development. The projected number of units only considered development of existing vacant lots under current land use designations and zoning. Although a discussion of the residential development capacity of underutilized lots in the City is included in the Housing Element Update, this additional capacity was not used to determine whether the City has adequate sites to meet its share of the regional housing need for the 5<sup>th</sup> and 6<sup>th</sup> planning cycles.

The proposed project ("project") consists of a comprehensive update to the Housing Element of the City of Blue Lake General Plan for the 6<sup>th</sup> cycle planning period, which runs from December 31, 2018 to August 31, 2027. State law requires that housing elements be updated every eight years (California Government Code Sections 65580 to 65589.8). The Housing Element Update identifies residential sites adequate to accommodate a variety of housing types for all income levels and needs of special population groups, defined under state law (California Government Code Section 65583). It analyzes governmental constraints to housing maintenance, improvement, and development; addresses conservation and improvement of the condition of existing affordable housing stock; and outlines policies that promote housing opportunities for all persons. The Housing Element Update, pursuant to AB 686, identifies and analyzes impediments to fair housing by way of outreach, assessment of fair housing, site inventory, identification and prioritization of contributing factors, and goals and assessment.





**EXPLANATION**

- CITY LIMITS
- VACANT PARCELS**
- LIKELY DEVELOPABLE
- QUESTIONABLY DEVELOPABLE
- LIKELY NOT DEVELOPABLE



City of Blue Lake  
 Housing Element Update  
 Blue Lake, California  
 February 2022

Vacant Parcels with  
 Residential & Mixed Use Zoning  
 SHN 021022.001  
 Figure 3

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, most projects that may occur in the future as a result of any amendments to the Zoning Code, would be subject to project-specific environmental review once a complete development application is received by the City.

As outlined below under the discussion of the 6<sup>th</sup> Cycle Housing Goals, Policies, and Implementation Programs, the proposed project would involve amending the City's Zoning Code for the following reasons:

- To ensure consistency with state regulations related to accessory dwelling units, manufactured housing/mobile homes, single room occupancy units, transitional and supportive housing, emergency shelters, employee housing, density bonuses, reasonable accommodation, and residential care facilities (see Implementation Program HI-1).
- To create a Multi-Family Combining Zone to allow multi-family projects without discretionary review or by-right at a density of 16 units per acre or 1 unit per 2,722.5 square feet of lot area (see Implementation Program HI-14). Due to the availability of adequate sites with limited constraints within the City where the combining zone could be applied, during the 6<sup>th</sup> cycle planning period, the combining zone is anticipated to be applied to a property in the City's Powers Creek District that is zoned Opportunity (O) and already allows for residential development. To meet the requirement for by-right zoning in Government Code Section 65583.2, subdivisions (h) and (i), the property would need to be sufficiently sized to allow a capacity of at least 11 units, which would be a minimum of 27,500 square feet (~0.63-acres) at the residential density allowed in the O zone (1 unit per 2,500 square feet of lot area). As described below, 11 units is the Regional Housing Needs Assessment (RHNA) allocation carry over from the 5<sup>th</sup> cycle planning period (see **Table 1**). Any by-right project proposed on a property that the combining zone has been applied to would not be subject to CEQA. Because the City did not have a housing element that was adopted and certified in the 5<sup>th</sup> cycle, HCD has determined that the City must complete Implementation Program HI-14 prior to receiving certification of its 6<sup>th</sup> cycle Housing Element Update.
- To remove potential constraints to the development of multi-family housing, the City will amend development standards in the Planned Development Residential (PD-R), Residential Two-Family (R-2), and Mixed-Use (MU) zones to ensure they are consistent with other zones allowing multi-family housing in the City (see Implementation Program HI-19). Development standards that would be amended in these zones include maximum ground coverage, maximum building height, and setbacks.
- To comply with the requirements for objective design standards in Government Code Section 65589.5, subdivision (f), the City will replace the subjective review criteria for the Site Plan Approval

process (such as, “Principles to Be Followed” in Zoning Code Section 17.24.250(F)) with objective standards (see Implementation Program HI-21). Objective standards are defined as those that involve no personal or subjective judgment by a public official and being uniformly verifiable by reference to an external and uniform benchmark or criterion available and knowable by both the development applicant or proponent and the public official reviewing the project.

- To minimize the potential for confusion regarding the applicability of the City’s design guidelines, the City will amend all zones that reference the guidelines (for example, MU, RC, etc.) to make it clear that they are recommendations and not enforceable standards of the Zoning Code (see Implementation Program HI-22).

This Initial Study/Negative Declaration (IS-ND) serves as the environmental review of the proposed project, as required by the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., and the State CEQA Guidelines.

### **Regional Housing Needs Allocation Process**

State Housing Element law requires local jurisdictions to update their Housing Elements at least once every eight years in response to the eight-year RHNA process. The RHNA process defines each local jurisdiction’s share of the region’s projected housing needs, by income category, for the planning period. State law mandates that jurisdictions provide sufficient land to accommodate a variety of housing opportunities for all economic segments of the community. Compliance with this requirement is measured by the jurisdiction’s ability to identify adequate sites to accommodate the RHNA. Humboldt County is required to adopt a Regional Housing Needs Plan (RHNP) that allocates a share of the County’s housing need to all the cities in the County. The projection period for the RHNP and the planning period for the City’s Housing Element Update began December 31, 2018, and ends August 31, 2027.

As noted above, the City did not have an adopted and certified Housing Element Update for the 5<sup>th</sup> cycle planning period (2014-2019). As generally required by Government Code Section 65584.09, because the City did not have a certified Housing Element in the 5<sup>th</sup> cycle, the 2014-2019 RHNA was required to be carried over into the 6<sup>th</sup> cycle Housing Element Update (the proposed project), which covers the 2019-2027 planning period. Therefore, the City must plan for both its 5<sup>th</sup> and 6<sup>th</sup> cycle RHNA in the 6<sup>th</sup> cycle Housing Element Update. Listed in **Table 1** is the breakdown of the RHNA for the City of Blue Lake, by income group, for the 2014-2019 (5<sup>th</sup> cycle) and 2019–2027 (6<sup>th</sup> cycle) planning periods.

**Table 1: Blue Lake 5<sup>th</sup> and 6<sup>th</sup> Cycle RHNA**

Income Category	2014-2019 RHNA (5th Cycle) <sup>1</sup>	2019-2027 RHNA (6th Cycle) <sup>2</sup>	Total RHNA (5 <sup>th</sup> & 6 <sup>th</sup> Cycle)
Very Low	4	7	11
Low	1	4	5
Moderate	2	5	7
Above Moderate	4	7	11
<b>Total</b>	<b>11</b>	<b>23</b>	<b>34</b>

Sources:

<sup>1</sup>HCAOG, 2013

<sup>2</sup>HCAOG, 2019

### Residential Land Inventory

Section 65583(a)(3) of the Government Code requires Housing Elements to contain an “inventory of land suitable for residential development, including vacant sites and sites having potential for redevelopment, and an analysis of the relationship of zoning and public facilities and services to these sites.” The 2019-2027 Housing Element contains an analysis of land that is available for the development of housing within the 6<sup>th</sup> cycle planning period, including land that is currently entitled for housing which has not yet been built, vacant land, and redevelopment sites, as well as the capacity for Accessory Dwelling Units (ADUs) and Junior Accessory Dwelling Units (JADUs). The results of this analysis are shown in Table 21 and Table 22 of the Housing Element Update and are summarized in **Table 2**. **Table 2** shows that the City’s residential land inventory exceeds its total 5<sup>th</sup> and 6<sup>th</sup> cycle RHNA in all income categories.

**Table 2: Comparison of 5th and 6th Cycle RHNA and Residential Sites**

Income Group	2014-2019 RHNA	2019–2027 RHNA	ADU/JADU Capacity	Site Capacity <sup>1</sup>	RHNA Surplus
Very Low	4	7	2	56	42
Low	1	4			
Moderate	2	5	2	20	15
Above Moderate	4	7	--	13	2
<b>Total</b>	<b>11</b>	<b>23</b>	<b>4</b>	<b>89</b>	<b>59</b>

Source: City of Blue Lake, 2024b.

<sup>1</sup>The site capacity only includes the capacity on vacant sites identified as likely developable in Table 21 of the 6<sup>th</sup> Cycle Housing Element Update.

### Goals, Policies, Programs, and Objectives

Government Code, Section 65588(a)(2) “Review and Revision” requires that a newly proposed Housing Element Update review the goals, policies and programs of the previous housing element, and report on the

attainment and disposition of the programs. In some instances, the programs from the previous Housing Element are continued through to the proposed update.

**Table 3** provides the implementation progress of the City’s housing programs from the last Housing Element adopted by the City, which was in 2009 during the 4<sup>th</sup> cycle planning period (2007-2014). As indicated in **Table 3**, the proposed project would amend many existing programs to be more straightforward and streamlined, to provide greater consistency with current State housing law, and to reflect current conditions in the City. The proposed Goals, Policies, and Implementation Programs for the 6<sup>th</sup> cycle Housing Element Update are provided following **Table 3**.

**Table 3. Implementation Progress of the City of Blue Lake’s Housing Programs**

2007-2014 (4th Cycle) Housing Element Programs	Implementation Status	Continue/ Modify/ Delete in 2019-2027 (6th Cycle) Housing Element
<p>1. The City will review its 2003 Revised Second Unit Ordinance to create ways to further the appropriate construction of "second units or granny units" on single-family lots beyond the creation of the Ordinance and rezoning of lots for applicability.</p>	<p>During the 5th planning cycle, the City’s Accessory Dwelling Unit regulations were determined by HCD to be “null and void” due the numerous inconsistencies with State regulations. Since that time, the City has deferred to current State regulations for Accessory Dwelling Units. The City has contacted HCD (<a href="mailto:adu@hcd.ca.gov">adu@hcd.ca.gov</a>) on several occasions to ask questions and receive clarification to ensure that State ADU regulations were being properly implemented in the City.</p>	<p>Modify. See Program HI-1.</p>
<p>2. The City will adopt a density bonus ordinance in accordance with Section 65915 of the Government Code. A density bonus will be granted by the City to an interested developer in exchange for a guarantee of affordable units.</p>	<p>During the 4th and 5th planning cycles, the City did not adopt a density bonus ordinance. The City defaults to current state regulations for density bonus requirements.</p>	<p>Modify. See Program HI-1.</p>
<p>3. The City will encourage planned developments on large parcels to facilitate the construction of a variety of housing types and densities, including multi-family for lower-income households. Financial assistance to offset part of the cost of extending public facilities will be considered by the City as an activity for inclusion in an application to the State Department of Housing &amp; Community Development (HCD) for Community Development Block Grant (CDBG) Funds to assist in upgrading living conditions for the residents of Blue Lake.</p>	<p>During the 4th and 5th planning cycles, the City encouraged development on Planned Development Residential zoned parcels in the western portion of the City. Parcel 025-101-023 (~3 acres) was approved for the development of 3 single-family residences with accessory dwelling units and 2 duplexes (total of 10 units). The City did not submit any applications for CDBG funds to encourage planned development during the 4th and 5th planning cycles.</p>	<p>Modify. See Programs HI-5 and HI-14.</p>



<b>2007-2014 (4th Cycle) Housing Element Programs</b>	<b>Implementation Status</b>	<b>Continue/ Modify/ Delete in 2019-2027 (6th Cycle) Housing Element</b>
4. The City will propose revision of the R3 Zone in the Zoning Ordinance to establish performance standards (as seen in the newly updated Industrial Zone) that would allow more of the conditionally allowable uses to be principally permitted (by-right) and including multi-family developments.	The City considered amendment of the R3 Zone to principally permit multi-family housing during the 4th and 5th planning cycles. The City ultimately decided to pursue developing a Combining Zone that, when applied to individual properties, would principally permit multi-family housing. The Combining Zone is proposed for adoption during the current planning cycle.	Modify. See Program HI-14.
5. The City will continue to apply (or support applications) to HCD and agencies for funds to provide low interest and deferred loan programs for the rehabilitation of housing occupied by targeted income households.	The City was not contacted by any qualifying households during the 4th and 5th planning cycles.	Modify. See Programs HI-4 and HI-9.
6. The City will continue participation in the Humboldt County Fair Housing Committee sponsored by the Board of Realtors.	During the 4th and 5th planning cycles, the City did not participate in the Humboldt County Fair Housing Committee.	Modify. See Program HI-10.
7. The City Clerk is designated as the contact for referral of fair housing complaints to the State Department of Fair Housing and Employment.	During the 4th and 5th planning cycles, notices were posted on several occasions at City Hall.	Modify. See Program HI-10.
8. During the effective period of this element the City will review the Zoning Ordinance and other City policies for consistency with the Fair Housing law.	During the 4th and 5th planning cycles, the City was not made aware of any inconsistencies between the Municipal Code and Fair Housing law.	Continue. See Program HI-10.
9. During the effective period of this element the City will review the Zoning Ordinance to include emergency shelters, transitional housing and group housing	During the 4th and 5th planning cycles, the City considered amending the Municipal Code to allow these uses in the Retail Commercial and Mixed-use zones in and	Modify. See Program HI-1.

2007-2014 (4th Cycle) Housing Element Programs	Implementation Status	Continue/ Modify/ Delete in 2019-2027 (6th Cycle) Housing Element
and allow them in appropriate zones if the need arises. If the need is addressed, Blue Lake will enter into a multi-jurisdictional agreement with surrounding communities to address this problem pursuant to SB 2.	around the downtown. The amendments were not ultimately adopted.	
10. During the effective period of this element the City will review the sewer and water ordinances to ensure compliance with SB 1087. If they are not in compliance, the City will update and amend the ordinances so as to facilitate housing development for lower-income families and workers.	During the 4th and 5th planning cycles, no amendments were made to ensure compliance with SB 1087.	Continue. See Program HI-16.
11. During the effective period of this element the definition of family in the Zoning Ordinance will be revised to be compliant with fair housing law.	This amendment to the Municipal Code did not occur during the 4th and 5th planning cycles.	Modify. See Program HI-1.
12. Energy conservation information for existing housing will be disseminated by publicizing available weatherization programs.	During the 5th planning cycle, the City provided information at City Hall about RCEA and RCAA weatherization programs as information was made available. City staff, RCEA, and RCAA conducted public outreach to make renters and homeowners aware of these programs. During the 5th cycle, dozens of residences in the City received weatherization improvements through these programs.	Modify. See Programs HI-3 and HI-6.
13. Rehabilitated units will be encouraged to include retrofit weatherization improvements such as ceiling and floor insulation, caulking and weather-stripping.	During the 5th planning cycle, the City provided information about weatherization programs to owners rehabilitating residential units.	Continue. See Program HI-6.

<b>2007-2014 (4th Cycle) Housing Element Programs</b>	<b>Implementation Status</b>	<b>Continue/ Modify/ Delete in 2019-2027 (6th Cycle) Housing Element</b>
14. New construction will be required to comply with Title 24 of the State Building Code. These requirements are approved by the City Building Department at the time of plan review or permit application.	During the 4th and 5th planning cycles, all new construction was required to comply with Title 24 requirements.	Continue. See Program HI-8.
15. The City will continue to seek methods to revitalize Downtown. The purpose will be to increase local employment opportunities and tourist spending. The City Council will meet with the Blue Lake Chamber of Commerce to discuss business opportunities and constraints.	During the 4th and 5th planning cycles, the City continued marketing the Downtown including seeking grant funding to acquire a property for development of a plaza and a portion of the Annie and Mary Trail.	Delete.
16. A capital improvement program will be prepared. Financial assistance will be sought to implement identified strategies from the State Economic Development Set-Aside and HUD's Urban Development Action Grant Program.	During the 4th and 5th planning cycles, components of a capital improvement program were prepared. The City sought funding through sources other than those identified in this program.	Delete.
17. Large homes suitable for bed and breakfast are encouraged to convert to this use as part of the tourism effort.	During the 4th and 5th planning cycle, the City did not encourage owners of large homes to convert them to bed and breakfast businesses. Instead, the City encouraged owners of large homes to convert them to multiple long-term rental units.	Delete.
18. Increased local employment opportunities should be pursued through development of small business start-up opportunities and designation of suitable area for development. Financial assistance should be pursued.	During the 4th and 5th planning cycles, the City did encourage the development of small businesses and pursued financial assistance through sources other than those identified in this program.	Delete.

2007-2014 (4th Cycle) Housing Element Programs	Implementation Status	Continue/ Modify/ Delete in 2019-2027 (6th Cycle) Housing Element
19. Feasibility for group quarter opportunities for targeted groups (single persons, female-headed households, disabled, seniors, etc.) will be researched and implemented if a need or interest is identified. Once a need or interest is identified and program funds are available, the City will apply for HCD's Family Housing Demonstration Program (FHDP).	The City was contacted by one developer interested in developing senior housing on APN 025-101-023 during the 5th planning cycle. The project ultimately did not move forward because the developer determined that the lot constraints would not allow for a viable project. The lot constraints included an irregular lot shape, a drainage easement along the northern property boundary, and a large area of wetlands in the middle portion of the site. As discussed under Program 3, APN 025-101-023 (~3 acres) was ultimately approved for the development of 3 single-family residences with accessory dwelling units and 2 duplexes (total of 10 units).	Modify. See Program HI-5.
20. Senior Group Housing Opportunities should be pursued. The City will submit at least one application to HCD, at time a Request for Proposal is distributed, for Senior Citizen Shared Housing Program (SCSHP).	The City was contacted by one developer interested in developing senior housing on APN 025-101-023 during the 5th planning cycle. The project ultimately did not move forward because the developer determined that the lot constraints would not allow for a viable project. The lot constraints included an irregular lot shape, a drainage easement along the northern property boundary, and a large area of wetlands in the middle portion of the site. As discussed under Program 3, APN 025-101-023 (~3 acres) was ultimately approved for the development of three single-family residences with accessory dwelling units and two duplexes (total of 10 units).	Modify. See Program HI-5.
21. The City will revise the Residential-1 (R1) section of the Zoning Ordinance to address group homes (rest homes, nursing homes, etc.) of fewer than 6 persons to be consistent with State law.	This amendment to the Municipal Code did not occur during the 4th and 5th planning cycles.	Modify. See Program HI-1.

2007-2014 (4th Cycle) Housing Element Programs	Implementation Status	Continue/ Modify/ Delete in 2019-2027 (6th Cycle) Housing Element
<p>22. The City will implement the requirements of the American Disabilities Act through the following specific actions:</p> <p>a) The City will provide a process for requesting “reasonable accommodation” with respect to zoning, permit processing, building laws, and the enforcement of building codes and the issuance of building permits. Once the process for “reasonable accommodation” is developed, the City will make this information available to the public by mailing it out with the monthly water bills.</p> <p>b) During the effective period of this element the City will make efforts to remove any existing constraints on housing for persons with disabilities, such as accommodating procedures for the approval of group homes, ADA retrofits, and evaluation of the Zoning Code for ADA compliance or other measures that provide flexibility.</p> <p>c) The City will also revise Section 610 of the Zoning Ordinance to addressing off-street parking facilities to allow for parking reductions for special needs housing.</p>	<p>a) During the 4th and 5th planning cycles, this task was not completed, and no requests were made for reasonable accommodation.</p> <p>b) During the 4th and 5th planning cycle, no units were developed in the City for persons with disabilities.</p> <p>c) During the 5th planning cycle, the City amended the Municipal Code to allow the City Planner to waive off-street parking requirements administratively. The waiver has been used on several residential projects since its adoption and could also be used to allow parking reductions for special needs housing.</p>	<p>Modify. See Programs HI-1 and HI-14.</p>

2007-2014 (4th Cycle) Housing Element Programs	Implementation Status	Continue/ Modify/ Delete in 2019-2027 (6th Cycle) Housing Element
<p>23. The City, through local community newsletter or water billing, will publicize available programs or resources regarding the following:</p> <ul style="list-style-type: none"> <li>a) Subsidized Housing Programs.</li> <li>b) Shared Housing Opportunities.</li> <li>c) Available day care/nursery school programs.</li> <li>d) Permit process to become a licensed day care provider.</li> <li>e) Fair Housing Practices.</li> <li>f) Nearby Social Services.</li> <li>g) Housing Rehabilitation Programs, Weatherization Programs.</li> <li>h) Local Employment Opportunities.</li> </ul>	<p>Promotional materials about these programs were made available at City Hall and the Blue Lake Community Resource Center during the 4th and 5th planning cycles.</p>	<p>Continue. See Program HI-3.</p>
<p>24. The City will conduct proactive efforts to assist multi-family development for low- and moderate-income households through the following specific actions:</p> <ul style="list-style-type: none"> <li>a) Assist developers in identifying suitable sites.</li> <li>b) Work with USDA Rural Development to keep up with funding opportunities applicable to this type of development. Where zoned appropriately allow conversion of large historic residences</li> </ul>	<ul style="list-style-type: none"> <li>a) During the 4th and 5th planning cycles, the City assisted three developers in pursuing multi-family housing projects on suitable sites.</li> <li>b) During the 4th and 5th planning cycles, no eligible projects were proposed in the City.</li> <li>c) During the 4th and 5th planning cycles, the City continued to provide free application assistance meetings to applicants pursuing housing projects.</li> </ul>	<p>Modify. See Programs HI-5 and HI-14.</p>

2007-2014 (4th Cycle) Housing Element Programs	Implementation Status	Continue/ Modify/ Delete in 2019-2027 (6th Cycle) Housing Element
<p>into multiple units and use housing rehabilitation money for qualifying users and look for other funding opportunities.</p> <p>c) Continue offering pre-application meetings to assist in developmental issues and concerns.</p>		
<p>25. The City will pursue or provide assistance to individuals for the development of limited care facilities for seniors and/or the disabled.</p>	<p>The City was contacted by one developer interested in developing senior housing on APN 025-101-023 during the 5th planning cycle. The project ultimately did not move forward because the developer determined that the lot constraints would not allow for a viable project. The lot constraints included an irregular lot shape, a drainage easement along the northern property boundary, and a large area of wetlands in the middle portion of the site. As discussed under Program 3, APN 025-101-023 (~3 acres) was ultimately approved for the development of 3 single-family residences with accessory dwelling units and 2 duplexes (total of 10 units).</p>	<p>Modify. See Program HI-5.</p>

## Blue Lake 6th Cycle Housing Goals, Policies, and Implementation Programs

The City's goals, policies, and implementation programs in the 2019-2027 Housing Element Update are listed below and are intended to accomplish the broad State housing goals and requirements as appropriate for Blue Lake's particular needs and circumstances. **Table 4** summarizes the potential environmental impacts that could occur as a result of the updated policies and implementation programs in the 6<sup>th</sup> cycle Housing Element Update. A more detailed analysis of potential environmental impacts of the proposed project is provided in Section 4 – Environmental Factors Potentially Affected.

**Goal HG-1: Assure adequate, safe, cost-effective and energy efficient housing opportunities for all segments of the community, while maintaining the quality living environment and rural character of Blue Lake by planning for and enabling the development of balanced residential neighborhoods with access to affordable housing, community facilities, and public services.**

### Community Housing Policies

- HP-1.1 Review all new residential development to be consistent with the existing small-town character of the community and blend with existing development, as well as to ensure sustainability and environmental protection.
- HP-1.2 Encourage multi-family developments on larger lots (>1 acre) in the Mixed-Use (MU), Opportunity (O), and Planned Development Residential (PDR) zones.
- HP-1.3 Revise the Municipal Code to allow manufactured housing to be permitted on sites where single-family dwellings would otherwise be allowed.
- HP-1.4 Promote conservation and improvement of the existing housing stock, with emphasis on older structures. Specific areas of concern include energy efficiency, electrical wiring, foundation stability, and prevention of water damage.
- HP-1.5 Encourage the use of private-initiated and / or publicly-funded programs to provide housing for low- and moderate-income families, and pursue as feasible, appropriate, and applicable, local, State, and Federal housing and economic development programs. As pertinent information becomes available, develop a program for notifying residents of the availability of housing programs and funding.
- HP-1.6 Preserve the City's more affordable housing stock along with historical and cultural heritage through preservation and innovative reuse of older structures.
- HP-1.7 Encourage citizen involvement in property maintenance and efforts to improve the housing stock and overall neighborhood quality.

**Goal HG-2: Provide for adequate housing for persons with special housing needs such as target income groups of low-income, the elderly, handicapped, and female-headed households.**



## Special Needs Housing Policies

- HP-2.1 Discrimination in housing based on race, color, religion, sex, family size, marital status, national origin, ancestry, or other arbitrary factors is not permitted. Support appropriate safeguards to ensure fair housing opportunities.
- HP-2.2 Encourage provisions for access for the handicapped in new or rehabilitated residential and commercial developments by considering exceptions or revisions to City ordinances allowing more flexibility relating to zoning, density, reduced setbacks or other incentives to provide reasonable accommodation or improve living conditions of residents.
- HP-2.3 Encourage the County to allow a variety of housing types in the residential areas surrounding the City. Consider entering into a multi-jurisdictional agreement to provide housing and/or shelter for homeless persons.
- HP-2.4 Encourage new residential development in Blue Lake to specifically address the needs of seniors, including projects that have smaller yards, low-maintenance landscaping, limited mobility fixtures, and appropriately sized parking spaces.

## **Implementation Programs**

- HI-1 Amend the Zoning Code to address the following:
- **Accessory Dwelling Units (ADUs).** Allow Accessory Dwelling Units (ADU) in accordance with current State law for ADUs, Assembly Bill 2299 and Senate Bill 1069. Consider adopting a Junior Accessory Dwelling Unit (JADU) ordinance to allow for a simple and affordable housing option. To ensure the City’s ADU standards are compliant with State law and remain compliant in perpetuity, the City will amend the Municipal Code to cite/reference State law for ADUs. The amendment to the Municipal Code will be provided to HCD for review and recommendation if any changes are required to achieve compliance.
  - **Manufactured housing/Mobile homes.** Allow manufactured housing and mobile homes in the same manner and in the same zones as conventional or stick-built structures are permitted (Government Code Section 65852.3). This includes, but is not limited to, allowing manufactured homes on a permanent foundation as a single-family use.
  - **Single Room Occupancy Units (SROs).** Define and allow principally permitted in the Residential Multiple-Family (R-3), Mixed-Use (MU), Opportunity (O), and Planned Development Residential (PDR) zones.
  - **Transitional and Supportive Housing.** Define transitional and supportive housing. Permit transitional and supportive housing in all zones allowing residential uses subject to only the same restrictions on residential uses contained in the same type of structure. In addition, transitional and supportive housing will be allowed as a permitted use, without discretionary review, in zones where multi-family and mixed uses are permitted, including nonresidential zones permitting multi-family uses.

- **Emergency Shelters.** Allow by-right, without discretionary review, in a zoning district with sufficient capacity to accommodate the identified need for shelters (for example, Opportunity zone).
- **Employee Housing.** Comply with the State Employee Housing Act (Health and Safety Code Sections 17021.5 and 17021.6). This includes the following amendments: 1) amendment of the Zoning Code to allow agricultural employee housing for 6 or fewer persons by-right in the Residential One-Family (R-1) zoning district, subject to the same regulations as a single-family dwelling; 2) amendment of the Zoning Code to allow agriculture employee housing of no more than 12 units or 36 beds as a by-right agricultural use in the Agricultural Exclusive (AE) zoning district; and 3) amendment of the definition of “Farm Dwelling” in the Zoning Code to be consistent with Health and Safety Code Section 17026.1.
- **Density Bonus.** Comply with state density bonus law (Government Code [GC] Section 65915, as revised). Promote the density bonus through informational brochures, which will be displayed at City Hall.
- **Reasonable Accommodation.** Develop and formalize a process that a person with disabilities will need to go through to make a reasonable accommodation request in order to accommodate the needs of persons with disabilities and streamline the permit review process. The City will provide information to individuals with disabilities regarding reasonable accommodation policies, practices, and procedures based on the guidelines from HCD. This information will be available through postings and pamphlets at the City and on the City’s website.
- **Residential Care Facilities.** Allow for residential care homes with six or fewer persons by-right in all residential zones subject only to the same restrictions applicable to other residential uses in that zone. Allow larger group homes of seven or more persons in all zones allowing residential uses and revise zoning and permit procedures with objective standards and procedures to facilitate approval certainty and subject only to the same restrictions applicable to other residential uses in that zone. Additionally, the City will amend the Zoning Code to update its definition of “family” to be “One or more persons living together in a dwelling unit.”

Responsibility: City Council, Planning Commission, and Planning Staff.

Time Frame: Amend the Zoning Code by December 2024. The Zoning Code amendment related to emergency shelters will be completed prior to adoption of the Housing Element.

Funding Source: General Fund and/or Grants.

HI-2 AB 101 (2019), review the City’s Zoning Code and make revisions if necessary, to allow low barrier navigation centers for the homeless per Government Code 65660-65668.

Responsibility: City Council, Planning Commission, and Planning Staff.

Time Frame: Review zoning in 2023. Make any necessary revisions December 2024.

Funding Source: General Fund.

HI-3 As resources are available, publicize available programs regarding the following topics through a local community newsletter or water billing:

- Subsidized Housing Programs
- Shared Housing Opportunities
- Available day care/nursery school programs
- Permit process to become a licensed day care provider
- Available adult day care program
- Fair Housing Practices
- Nearby Social Services
- Housing Rehabilitation Programs, Weatherization Programs
- Local Employment Opportunities

Responsibility: City Council and City Clerk.

Time Frame: Ongoing, as programs are available. Programs will be publicized quarterly, at a minimum.

Funding Source: General Fund.

HI-4 As Notices of Funding Available (NOFAs) are released, apply for available grant funding through the CalHome program to assist individual first-time homebuyers through deferred-payment loans for down payment assistance, home rehabilitation, including manufactured homes not on permanent foundations, acquisition and rehabilitation, homebuyer counseling, self-help mortgage assistance, or technical assistance for self-help homeownership.

Responsibility: City Council, Planning Commission, and Planning Staff.

Time Frame: Annually apply as NOFAs are released.

Funding Source: CalHome and other available funding sources.

HI-5 To encourage development of housing for lower- income households including, extremely low-income, and special needs households such as, people experiencing homelessness, senior, single parent, and disabled households, the City is proposing the following activities: 1) work with local non-profits on a variety of activities, such as conducting outreach to housing developers on an annual basis; providing financial assistance (when feasible), or in-kind technical assistance; 2) providing expedited processing; 3) identifying grant and funding opportunities; 4) applying for or supporting applications for funding on an ongoing basis; 5) reviewing and prioritizing local funding at least twice in the planning period; and/or 6) offering additional incentives beyond the density bonus.

In addition, support the rehabilitation of suitable structures to single room occupancy units by providing available grant funding or other financial assistance opportunities when projects are brought to the City.

Responsible Agencies: City Council, Planning Commission, and Planning Staff.

Timeframe: Annual outreach to developers, prioritize local funding at least twice in the planning period, and support expediting applications on an ongoing basis.

Funding Source: General Fund, CDBG Funds.

HI-6 Encourage new and rehabilitated units to include weatherization improvements such as ceiling and floor insulation, caulking, and weather-stripping, and disseminate energy conservation information for existing housing by publicizing and / or providing information regarding energy audit and weatherization programs, such as those through the Redwood Coast Energy Authority, PG&E, and Energy Upgrade California™, as they become available.

Responsibility: City Council, Planning Commission, and Building Official.

Time Frame: Ongoing; as projects are processed, and program informational materials are made available.

Funding Source: General Fund.

HI-7 If applicable, the City will establish a written policy or procedure and other guidance as appropriate to specify the SB 35 streamlining approval process and standards for eligible projects, as set forth under GC Section 65913.4.

Responsibility: City Council, Planning Commission, and Planning Staff.

Time Frame: Annually review and, if applicable, develop an SB 35 streamlining approval process within one-year of determining that SB 35 applies to sites within the City.

Funding Source: General Fund and/or Grants.

HI-8 Continue to require all projects to comply with the current version of Title 24 of the California Building Standards Code.

Responsibility: City Building Department.

Time Frame: Ongoing, as projects are processed.

Funding Source: General Fund.

HI-9 The City will conduct a survey of the existing housing stock as an initial step for determining the housing rehabilitation needs in city limits. Once the survey is completed, the City will coordinate with the County of Humboldt on directing available funding to property owners in targeted income groups. Because the City does not have the resources to administer a housing rehabilitation program, the County of Humboldt is currently the agency that is assisting residents in city limits with obtaining housing rehabilitation funding.

Responsibility: City Council and City Staff.

Time Frame: Complete the housing conditions survey of the existing housing stock in the City by December 2023. Beginning in the first quarter of 2024, coordinate on a quarterly basis with the County of Humboldt during the planning period.

Funding Source: General Fund.

HI-10 Develop a plan to Affirmatively Further Fair Housing (AFFH). The AFFH Plan shall take actions to address significant disparities in housing needs and in access to opportunity for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability, and other characteristics protected by the California Fair Employment and Housing Act (Part 2.8 [commencing with Section 12900] of Division 3 of Title 2), Section 65008, and any other state and federal fair housing and planning law.

Specific actions could include but are not limited to:

- Provide dedicated staff that investigates fair housing complaints and enforces fair housing laws.
- Facilitate public education and outreach by creating informational flyers on fair housing that will be made available at public counters, libraries, and on the City’s website. City Council meetings will include a fair housing presentation at least once per year.
- Actively recruit residents from neighborhoods of concentrated poverty to serve or participate on boards, committees, and other local government bodies.
- Develop a proactive code enforcement program that holds property owners accountable.
- Provide education to the community on the importance of completing Census questionnaires.
- Review the Zoning Code and other City codes and policies for consistency with the fair housing law.

Responsibility: City Council, Planning Commission, and Planning Staff.

Time Frame: Create Plan within three years of adoption of the Housing Element, and implement on an ongoing basis.

Funding Source: General Fund and/or Grants.

HI-11 The City will continue to encourage appropriately licensed/permitted cottage or home-base industries, including those related to recreation/tourism to the area, to a reasonable extent, in efforts to bolster the City's economy, promote affordable housing, and increase employment opportunities by implementing the following actions:

- Permit at least one (1) licensed day care or nursery school operation where appropriate
- Increase tourism revenues by promoting community events
- Increase opportunities for development of cottage industries / home occupations that are compatible with neighborhood character and environmental constraints
- Permit appropriate and necessary ancillary services to the recreational fishing industry

Responsibility: City Council, City Clerk, and Planning Staff.

Time Frame: As feasible, hold annual meetings between the City Council, Economic Development Commission, and Business Community.

Funding Source: General Fund.

HI-12 Work with the Redwood Coast Regional Center (RCRC) to implement an outreach program that informs families in the city about housing and services available for persons with developmental disabilities. The program could include developing an informational brochure and directing people to service information on RCRC's website (<https://redwoodcoastrc.org/for-clients/our-services/>).

Responsibility: City Council, City Clerk, and Planning Staff.

Time Frame: Develop an outreach program within two years of adopting the Housing Element to assist persons with development disabilities. Once the outreach program is developed, outreach is proposed to occur on a quarterly basis.

Funding Source: General Fund and/or Grants.

HI-13 To ensure that assisted affordable housing remains affordable, the City will monitor the status of all affordable housing projects and, as their funding sources near expiration, will work with owners and other agencies to consider options to preserve such units. The City will also provide technical support to property owners and tenants regarding proper procedures relating to noticing and options for preservation.

Responsibility: City Council, City Clerk, and Planning Staff.

Time Frame: Ongoing, as projects approach expiration.

Funding Source: General Fund and/or Grants.

HI-14 To ensure that the use permit process for multi-family projects does not impact the timing, cost, or supply of multi-family development, the City will adopt and apply a Combining Zone to sites in the Residential Multiple-Family (R-3), Mixed-use (MU), Opportunity (O), and/or Planned Development Residential (PDR) zones to allow multi-family residential uses by-right at a density of 16 units per acre.

Responsibility: City Council, City Clerk, and Planning Staff.

Time Frame: Adopt the Combining Zone and apply to sites zoned Residential Multiple-Family (R-3), Mixed-use (MU), Opportunity (O), and/or Planned Development Residential (PDR) to allow multi-family residential uses by-right by December 2024. Capacity for at least 11 units (5<sup>th</sup> cycle RHNA) will meet all by-right requirements pursuant to Government Code Section 65583.2, subdivisions (h) and (i).

Funding Source: General Fund and/or Grants.

HI-15 The City will review the City's Safety and Conservation Elements and any other General Plan Elements, as required, and ensure compliance with new State Law.

In addition, the city will bi-annually review the effectiveness of the programs in the Housing Element and make revisions as appropriate, including monitoring the effectiveness of programs to accommodate the regional housing need. If programs are not effective in making progress toward the regional housing need, the city will immediately revise strategies and amend the housing element for HCD review.

Responsibility: City Council, City Clerk, and Planning Staff.

Time Frame: Review in 2023, revise as necessary within three years of adoption of the Housing Element. Monitor the Housing Element programs annually and submit to HCD by April 1 each year.

Funding Source: General Fund and/or Grants.

HI-16 To comply with SB 1087, the City as the water and sewer provider, will set up a process to grant priority for water and sewer service allocations to proposed developments that include units affordable to lower-income households.

Responsibility: City Council, City Clerk, and Planning Staff.

Time Frame: Set up a process by December 2024; ongoing as projects are processed.

Funding Source: General Fund and/or Grants.

HI-17 As required by the Annual Progress Report process, the City will monitor the production and affordability of Accessory Dwelling Units (ADUs) and Junior Accessory Dwelling Units (JADUs) during

the planning period. If ADU production does not meet the projections in the Housing Element, additional actions will be taken in consultation with HCD. The additional actions could include but are not limited to 1) conducting outreach to inform the public about current State law for ADUs and the benefits of ADU development; 2) amending the Municipal Code to incorporate ADU standards that are more permissive than current State law; or 3) rezoning sites in the City that have non-residential zoning to zones allowing residential development.

Responsibility: Planning Staff and Building Official.

Time Frame: ADU production and affordability will be monitored annually throughout the planning period. If additional actions need to be taken due to lack of ADU production, those actions will be taken within one-year of the City determining that the projections in the Housing Element are not being met.

Funding Source: General Fund and/or Grants.

HI-18 To address the potential for insufficient wastewater treatment capacity during a portion of the planning period, the City shall construct the wastewater treatment plant improvements identified in its Capital Improvement Plan within two years of adopting the Housing Element. These improvements include electrical panel upgrades and the installation of aerators, which are estimated to provide an additional 180 residential equivalent units (REUs).

Responsibility: City Council, City Manager, Public Works Department, and City Engineer.

Time Frame: The improvements to the wastewater treatment plant will be completed within two years of adoption of the Housing Element.

Funding Source: Wastewater Enterprise Fund, Development Impact Fees, and/or Grant Funding.

HI-19 To remove potential constraints to the development of multi-family housing, the City shall amend the following development standards in the Zoning Code:

- Zoning Code Section 17.16.080(C)(1)(b) requires a maximum ground coverage standard of 40 percent for the Planned Development Residential (PD-R) zone. This section shall be amended to allow a maximum ground coverage of 60 percent, which is the same as several other zones in the City allowing multi-family housing (for example, R-2, R-3, and MU zones).
- Zoning Code Section 17.16.080(C)(1)(a) requires a maximum building height standard of 30 feet for all other structures, which includes multi-family housing. This section shall be amended to allow a maximum building height of 35 feet for all structures, which is the standard required for single-family structures in the Planned Development Residential (PD-R) zone.
- Zoning Code Section 17.16.080(C)(1)(c) requires the following setbacks for all other structures, which includes multi-family housing: Front – 25 feet, Side – 10 feet, Rear – 25 feet. This section shall be amended to allow the following setbacks for multi-family structures: Front – 15 feet,



Side – 5 feet, and Rear – 20 percent of lot depth to a maximum of 20 feet. This amendment would make the PD-R zone setbacks for multi-family housing more consistent with other zones allowing multi-family housing in the City.

- Zoning Code Sections 17.16.040(C)(5) and 17.16.110(D)(4) require the following maximum building height standard, “35 feet, not exceeding two stories.” These sections of the Residential Two-Family (R-2) and Mixed-Use (MU) zones shall be amended to remove the limitation on the number of building stories. This amendment would make the R-2 and MU building height standards more consistent with other zones allowing multi-family housing in the City.

Responsibility: City Council, Planning Commission, and Planning Staff.

Time Frame: Amend the Zoning Code by December 2024.

Funding Source: General Fund and/or Grants.

- HI-20 To comply with the transparency requirements in Government Code Section 65940.1(a)(1), the City shall upload the following documents to the City of Blue Lake website so they are readily available for public review: 1) schedule of fees; 2) zoning map; 3) list of information required for a complete development application; 4) current and five previous annual fee reports or the current and five previous annual financial reports; and 5) an archive of impact fee nexus studies, cost of service studies, or equivalent.

Responsibility: City Council, City Manager, City Staff.

Time Frame: The required documents will be uploaded to the City’s website within one-year of the adoption of the Housing Element.

Funding Source: General Fund and/or Grants.

- HI-21 To comply with the requirements for objective standards in Government Code Section 65589.5, subdivision (f), the City shall replace the subjective review criteria for the Site Plan Approval process (such as, “Principles to Be Followed” in Zoning Code Section 17.24.250(F)) with objective standards. Objective standards are defined as those that involve no personal or subjective judgment by a public official and being uniformly verifiable by reference to an external and uniform benchmark or criterion available and knowable by both the development applicant or proponent and the public official reviewing the project.

Responsibility: City Council, City Manager, and City Staff.

Time Frame: Amend the Zoning Code by December 2024.

Funding Source: General Fund and/or Grants.

HI-22 To minimize the potential for confusion regarding the applicability of the City’s design guidelines, the City shall amend all zones that reference the guidelines (for example, MU, RC, etc.) to make it clear that they are recommendations and not enforceable standards of the Zoning Code.

Responsibility: City Council, City Manager, and City Staff.

Time Frame: Amend the Zoning Code by December 2024.

Funding Source: General Fund and/or Grants.

HI-23 To ensure housing development in the City is occurring at the projected densities consistent with the income categories anticipated, the City will annually review building development on the vacant and likely developable sites included in the sites inventory of this element. If the annual review shows that sites are not providing sufficient opportunities for housing affordable to lower-income households, the City will review its Zoning Code to consider other measures, including the adoption of incentives or regulatory mechanisms to encourage construction at the mid-point or higher end of the density range. These measures could include but are not limited to: 1) requiring a minimum residential density; and 2) density bonuses (such as, specifying development standards that may be modified to make units more affordable – reduced lot sizes, increased ground coverage, etc.).

Responsibility: City Council, City Manager, and City Staff.

Time Frame: Housing production and affordability will be monitored annually throughout the planning period. If additional actions need to be taken due to the lack of housing production, those actions will be taken within one-year of the City determining that the sites are not providing sufficient opportunities for housing affordable to lower-income households.

Funding Source: General Fund and/or Grants.

**Table 4. Potential Environmental Effects from Updated Policies and Programs**

POLICIES		Potential for Environmental Effects
<b>HP-1.1</b>	Review all new residential development to be consistent with the existing small-town character of the community and blend with existing development, as well as to ensure sustainability and environmental protection.	None. No physical change to the environment would occur.
<b>HP-1.2</b>	Encourage multi-family developments on larger lots (>1 acre) in the Mixed-Use (MU), Opportunity (O), and Planned Development Residential (PDR) zones.	None. This policy would not allow new housing in areas that are not designated for multi-family residential development.
<b>HP-1.3</b>	Revise the Municipal Code to allow manufactured housing to be permitted on sites where single-family dwellings would otherwise be allowed.	None. This policy would not allow new housing in areas that are not designated for residential development.
<b>HP-1.4</b>	Promote conservation and improvement of the existing housing stock, with emphasis on older structures. Specific areas of concern include energy efficiency, electrical wiring, foundation stability, and prevention of water damage.	None. No physical change to the environment would occur.
<b>HP-1.5</b>	Encourage the use of private-initiated and / or publicly-funded programs to provide housing for low-and moderate-income families, and pursue as feasible, appropriate, applicable local, State, and Federal housing and economic development programs. As pertinent information becomes available, develop a program for notifying residents of the availability of housing programs and funding.	None. No physical change to the environment would occur.
<b>HP-1.6</b>	Preserve the City’s more affordable housing stock along with historical and cultural heritage through preservation and innovative reuse of older structures.	None. This policy would not allow new housing in areas that are not designated for residential development.
<b>HP-1.7</b>	Encourage citizen involvement in property maintenance and efforts to improve the housing stock and overall neighborhood quality.	None. This policy would not allow new housing in areas that are not designated for residential development.
<b>HP-2.1</b>	Discrimination in housing based on race, color, religion, sex, family size, marital status, national origin, ancestry, or other arbitrary factors is not permitted. Support appropriate safeguards to ensure fair housing opportunities.	None. No physical change to the environment would occur.
<b>HP-2.2</b>	Encourage provisions for access for the handicapped in new or rehabilitated residential and commercial developments by considering	None. This policy would not allow new housing in areas that are not

POLICIES		Potential for Environmental Effects
	exceptions or revisions to City ordinances allowing more flexibility relating to zoning, density, reduced setbacks or other incentives to provide reasonable accommodation or improve living conditions of residents.	designated for residential development.
HP-2.3	Encourage the County to allow a variety of housing types in the residential areas surrounding the City. Consider entering into a multi-jurisdictional agreement to provide housing and/or shelter for homeless persons.	None. This policy would not allow new housing in areas that are not designated for residential development.
HP-2.4	Encourage new residential development in Blue Lake to specifically address the needs of seniors, including projects that have smaller yards, low-maintenance landscaping, limited mobility fixtures, and appropriately sized parking spaces.	None. This policy would not allow new housing in areas that are not designated for residential development.
IMPLEMENTATION PROGRAMS		Potential for Environmental Effects
HI-1	<p>Amend the Zoning Code to address the following:</p> <ul style="list-style-type: none"> <li>– <b>Accessory Dwelling Units (ADUs).</b> Allow Accessory Dwelling Units (ADU) in accordance with current State law for ADUs, Assembly Bill 2299 and Senate Bill 1069. Consider adopting a Junior Accessory Dwelling Unit (JADU) ordinance to allow for a simple and affordable housing option. To ensure the City’s ADU standards are compliant with State law and remain compliant in perpetuity, the City will amend the Municipal Code to cite/reference State law for ADUs. The amendment to the Municipal Code will be provided to HCD for review and recommendation if any changes are required to achieve compliance.</li> <li>– <b>Manufactured housing/Mobile homes.</b> Allow manufactured housing and mobile homes in the same manner and in the same zones as conventional or stick-built structures are permitted (Government Code Section 65852.3). This includes, but is not limited to, allowing manufactured homes on a permanent foundation as a single-family use.</li> <li>– <b>Single Room Occupancy Units (SROs).</b> Define and allow principally permitted in the Residential Multiple-Family (R-3), Mixed-Use</li> </ul>	None. Required amendments to the City’s Zoning Code would not result in a physical change to the environment. Future development would comply with General Plan density limits, the development standards for the applicable zoning district, and State law.

POLICIES	Potential for Environmental Effects
	<p>(MU), Opportunity (O), and Planned Development Residential (PDR) zones.</p> <ul style="list-style-type: none"> <li>– <b>Transitional and Supportive Housing.</b> Define transitional and supportive housing. Permit transitional and supportive housing in all zones allowing residential uses subject to only the same restrictions on residential uses contained in the same type of structure. In addition, transitional and supportive housing will be allowed as a permitted use, without discretionary review, in zones where multi-family and mixed uses are permitted, including nonresidential zones permitting multi-family uses.</li> <li>– <b>Emergency Shelters.</b> Allow by-right, without discretionary review, in a zoning district with sufficient capacity to accommodate the identified need for shelters (for example, Opportunity zone).</li> <li>– <b>Employee Housing.</b> Comply with the State Employee Housing Act (Health and Safety Code Sections 17021.5 and 17021.6). This includes the following amendments: 1) amendment of the Zoning Code to allow agricultural employee housing for six or fewer persons by-right in the Residential One-Family (R-1) zoning district, subject to the same regulations as a single-family dwelling; 2) amendment of the Zoning Code to allow agriculture employee housing of no more than 12 units or 36 beds as a by-right agricultural use in the Agricultural Exclusive (AE) zoning district; and 3) amendment of the definition of “Farm Dwelling” in the Zoning Code to be consistent with Health and Safety Code Section 17026.1.</li> <li>– <b>Density Bonus.</b> Comply with state density bonus law (Government Code [GC] Section 65915, as revised). Promote the density bonus through informational brochures, which will be displayed at City Hall.</li> <li>– <b>Reasonable Accommodation.</b> Develop and formalize a process that a person with disabilities will need to go through to make a</li> </ul>

POLICIES	Potential for Environmental Effects	
	<p>reasonable accommodation request in order to accommodate the needs of persons with disabilities and streamline the permit review process. The City will provide information to individuals with disabilities regarding reasonable accommodation policies, practices, and procedures based on the guidelines from HCD. This information will be available through postings and pamphlets at the City and on the City's website.</p> <ul style="list-style-type: none"> <li>– <b>Residential Care Facilities.</b> Allow for residential care homes with six or fewer persons by-right in all residential zones subject only to the same restrictions applicable to other residential uses in that zone. Allow larger group homes of seven or more persons in all zones allowing residential uses and revise zoning and permit procedures with objective standards and procedures to facilitate approval certainty and subject only to the same restrictions applicable to other residential uses in that zone. Additionally, the City will amend the Zoning Code to update its definition of "family" to be "One or more persons living together in a dwelling unit."</li> </ul>	
<b>HI-2</b>	<p>AB 101 (2019), review the City's Zoning Code and make revisions if necessary, to allow low barrier navigation centers for the homeless per Government Code 65660-65668.</p>	<p>None. Required amendments to the City's Zoning Code would not result in a physical change to the environment. Future development would comply with General Plan density limits, the development standards for the applicable zoning district, and State law.</p>
<b>HI-3</b>	<p>As resources are available, publicize available programs regarding the following topics through a local community newsletter or water billing:</p> <ul style="list-style-type: none"> <li>– Subsidized Housing Programs</li> <li>– Shared Housing Opportunities</li> <li>– Available day care/nursery school programs</li> <li>– Permit process to become a licensed day care provider</li> <li>– Available adult day care program</li> </ul>	<p>None. No physical change to the environment would occur.</p>

POLICIES		Potential for Environmental Effects
	<ul style="list-style-type: none"> <li>– Fair Housing Practices</li> <li>– Nearby Social Services</li> <li>– Housing Rehabilitation Programs, Weatherization Programs</li> <li>– Local Employment Opportunities</li> </ul>	
<b>HI-4</b>	As Notices of Funding Available (NOFAs) are released, apply for available grant funding through the CalHome program to assist individual first-time homebuyers through deferred-payment loans for down payment assistance, home rehabilitation, including manufactured homes not on permanent foundations, acquisition and rehabilitation, homebuyer counseling, self-help mortgage assistance, or technical assistance for self-help homeownership.	None. No physical change to the environment would occur.
<b>HI-5</b>	<p>To encourage development of housing for lower-income households including, extremely low-income, and special needs households such as, people experiencing homelessness, senior, single parent, and disabled households, the City is proposing the following activities: 1) work with local non-profits on a variety of activities, such as conducting outreach to housing developers on an annual basis; providing financial assistance (when feasible), or in-kind technical assistance; 2) providing expedited processing; 3) identifying grant and funding opportunities; 4) applying for or supporting applications for funding on an ongoing basis; 5) reviewing and prioritizing local funding at least twice in the planning period; and/or 6) offering additional incentives beyond the density bonus.</p> <p>In addition, support the rehabilitation of suitable structures to single room occupancy units by providing available grant funding or other financial assistance opportunities when projects are brought to the City.</p>	None. This program would not allow new housing in areas that are not designated for residential development.
<b>HI-6</b>	Encourage new and rehabilitated units to include weatherization improvements such as ceiling and floor insulation, caulking, and weather-stripping, and disseminate energy conservation information for existing housing by publicizing and / or providing information regarding energy audit and	None. This program would have a beneficial effect by promoting energy conservation and potentially reducing energy use by residential development in the City.

POLICIES		Potential for Environmental Effects
	weatherization programs, such as those through the Redwood Coast Energy Authority, PG&E, and Energy Upgrade California™, as they become available.	
HI-7	If applicable, the City will establish a written policy or procedure and other guidance as appropriate to specify the SB 35 streamlining approval process and standards for eligible projects, as set forth under GC Section 65913.4.	None. Required amendments to the City's Zoning Code would not result in a physical change to the environment. Future development would comply with General Plan density limits, the development standards for the applicable zoning district, and State law.
HI-8	Continue to require all projects to comply with the current version of Title 24 of the California Building Standards Code.	None. No physical change to the environment would occur.
HI-9	The City will conduct a survey of the existing housing stock as an initial step for determining the housing rehabilitation needs in city limits. Once the survey is completed, the City will coordinate with the County of Humboldt on directing available funding to property owners in targeted income groups. Because the City does not have the resources to administer a housing rehabilitation program, the County of Humboldt is currently the agency that is assisting residents in city limits with obtaining housing rehabilitation funding.	None. This program would not allow new housing in areas that are not designated for residential development.
HI-10	Develop a plan to Affirmatively Further Fair Housing (AFFH). The AFFH Plan shall take actions to address significant disparities in housing needs and in access to opportunity for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability, and other characteristics protected by the California Fair Employment and Housing Act (Part 2.8 [commencing with Section 12900] of Division 3 of Title 2), Section 65008, and any other state and federal fair housing and planning law. Specific actions could include but are not limited to: <ul style="list-style-type: none"> <li>– Provide dedicated staff that investigates fair housing complaints and enforces fair housing laws.</li> <li>– Facilitate public education and outreach by creating informational flyers on fair housing that will be made available at public counters,</li> </ul>	None. No physical change to the environment would occur.



POLICIES		Potential for Environmental Effects
	<p>libraries, and on the City’s website. City Council meetings will include a fair housing presentation at least once per year.</p> <ul style="list-style-type: none"> <li>– Actively recruit residents from neighborhoods of concentrated poverty to serve or participate on boards, committees, and other local government bodies.</li> <li>– Develop a proactive code enforcement program that holds property owners accountable.</li> <li>– Provide education to the community on the importance of completing Census questionnaires.</li> <li>– Review the Zoning Code and other City codes and policies for consistency with the fair housing law.</li> </ul>	
<b>HI-11</b>	<p>The City will continue to encourage appropriately licensed/permitted cottage or home-base industries, including those related to recreation/tourism to the area, to a reasonable extent, in efforts to bolster the City’s economy, promote affordable housing, and increase employment opportunities by implementing the following actions:</p> <ul style="list-style-type: none"> <li>– Permit at least one (1) licensed day care or nursery school operation where appropriate</li> <li>– Increase tourism revenues by promoting community events</li> <li>– Increase opportunities for development of cottage industries / home occupations that are compatible with neighborhood character and environmental constraints</li> <li>– Permit appropriate and necessary ancillary services to the recreational fishing industry</li> </ul>	None. This program would not allow new housing in areas that are not designated for residential development.
<b>HI-12</b>	<p>Work with the Redwood Coast Regional Center (RCRC) to implement an outreach program that informs families in the city about housing and services available for persons with developmental disabilities. The program could include developing an informational brochure and directing people to service information on RCRC’s website</p>	None. No physical change to the environment would occur.

POLICIES		Potential for Environmental Effects
	( <a href="https://redwoodcoastrc.org/for-clients/our-services/">https://redwoodcoastrc.org/for-clients/our-services/</a> ).	
<b>HI-13</b>	To ensure that assisted affordable housing remains affordable, the City will monitor the status of all affordable housing projects and, as their funding sources near expiration, will work with owners and other agencies to consider options to preserve such units. The City will also provide technical support to property owners and tenants regarding proper procedures relating to noticing and options for preservation.	None. No physical change to the environment would occur.
<b>HI-14</b>	To ensure that the use permit process for multi-family projects does not impact the timing, cost, or supply of multi-family development, the City will adopt and apply a combining zone to sites in the Residential Multiple-Family (R-3), Mixed-use (MU), Opportunity (O), and/or Planned Development Residential (PDR) zones to allow multi-family residential uses by-right at a density of 16 units per acre.	None. Required amendments to the City's Zoning Code would not result in a physical change to the environment. Future development would comply with General Plan density limits, the development standards for the applicable zoning district, and State law. This program would not allow new multi-family development in areas that are not designated for residential development. The adoption and application of the combining zone to property in the City would be subject to review pursuant to CEQA.
<b>HI-15</b>	The City will review the City's Safety and Conservation Elements and any other General Plan Elements, as required, and ensure compliance with new State Law.  In addition, the city will bi-annually review the effectiveness of the programs in the Housing Element and make revisions as appropriate, including monitoring the effectiveness of programs to accommodate the regional housing need. If programs are not effective in making progress toward the regional housing need, the city will immediately revise strategies and amend the housing element for HCD review.	None. This program would not allow new housing in areas that are not designated for residential development.
<b>HI-16</b>	To comply with SB 1087, the City as the water and sewer provider, will set up a process to grant priority for water and sewer service allocations to proposed developments that include units affordable to lower-income households.	None. This program would not allow new housing in areas that are not designated for residential development.

POLICIES		Potential for Environmental Effects
HI-17	As required by the Annual Progress Report process, the City will monitor the production and affordability of Accessory Dwelling Units (ADUs) and Junior Accessory Dwelling Units (JADUs) during the planning period. If ADU production does not meet the projections in the Housing Element, additional actions will be taken in consultation with HCD. The additional actions could include but are not limited to 1) conducting outreach to inform the public about current State law for ADUs and the benefits of ADU development; 2) amending the Municipal Code to incorporate ADU standards that are more permissive than current State law; or 3) rezoning sites in the City that have non-residential zoning to zones allowing residential development.	None. Although this program would potentially result in an amendment to the Zoning Code to encourage ADU production, new development of ADUs would not result in more severe environmental impacts than previously analyzed for the non-residential land uses (commercial or industrial) allowed in the City under the current zoning districts. Any future rezoning actions would be subject to review pursuant to CEQA.
HI-18	To address the potential for insufficient wastewater treatment capacity during a portion of the planning period, the City shall construct the wastewater treatment plant improvements identified in its Capital Improvement Plan within two years of adopting the Housing Element. These improvements include electrical panel upgrades and the installation of aerators, which are estimated to provide an additional 180 residential equivalent units (REUs).	None. The Housing Element is a policy document and does not grant any project approvals or land use entitlements. Future improvements to the City's wastewater treatment plan would be subject to review pursuant to CEQA. Mitigation measures would be incorporated as necessary to ensure that no adverse effects to the environment occur.
HI-19	To remove potential constraints to the development of multi-family housing, the City shall amend the following development standards in the Zoning Code: <ul style="list-style-type: none"> <li>– Zoning Code Section 17.16.080(C)(1)(b) requires a maximum ground coverage standard of 40 percent for the Planned Development Residential (PD-R) zone. This section shall be amended to allow a maximum ground coverage of 60 percent, which is the same as several other zones in the City allowing multi-family housing (for example, R-2, R-3, and MU zones).</li> <li>– Zoning Code Section 17.16.080(C)(1)(a) requires a maximum building height standard of 30 feet for all other structures, which includes multi-family housing. This section shall be amended to allow a maximum building height of 35 feet for all structures, which is the standard required for single-</li> </ul>	None. The proposed amendments to the City's Zoning Code to reduce barriers to the development of multi-family housing would not result in a physical change to the environment. The amendments would provide consistency between the City's development standards for multi-family housing in areas that are currently zoned to allow multi-family housing.

POLICIES	Potential for Environmental Effects	
	<p>family structures in the Planned Development Residential (PD-R) zone.</p> <ul style="list-style-type: none"> <li>– Zoning Code Section 17.16.080(C)(1)(c) requires the following setbacks for all other structures, which includes multi-family housing: Front – 25 feet, Side – 10 feet, Rear – 25 feet. This section shall be amended to allow the following setbacks for multi-family structures: Front – 15 feet, Side – 5 feet, and Rear – 20 percent of lot depth to a maximum of 20 feet. This amendment would make the PDR zone setbacks for multi-family housing more consistent with other zones allowing multi-family housing in the City.</li> <li>– Zoning Code Sections 17.16.040(C)(5) and 17.16.110(D)(4) require the following maximum building height standard, “35 feet, not exceeding two stories.” These sections of the Residential Two-Family (R-2) and Mixed-Use (MU) zones shall be amended to remove the limitation on the number of building stories. This amendment would make the R-2 and MU building height standards more consistent with other zones allowing multi-family housing in the City.</li> </ul>	
<b>HI-20</b>	<p>To comply with the transparency requirements in Government Code Section 65940.1(a)(1), the City shall upload the following documents to the City of Blue Lake website so they are readily available for public review: 1) schedule of fees; 2) zoning map; 3) list of information required for a complete development application; 4) current and five previous annual fee reports or the current and five previous annual financial reports; and 5) an archive of impact fee nexus studies, cost of service studies, or equivalent.</p>	<p>None. No physical change to the environment would occur.</p>
<b>HI-21</b>	<p>To comply with the requirements for objective standards in Government Code Section 65589.5, subdivision (f), the City shall replace the subjective review criteria for the Site Plan Approval process (such as, “Principles to Be Followed” in Zoning Code Section 17.24.250(F)) with objective standards. Objective standards are defined as those that involve no personal or subjective judgment by a public official and being uniformly</p>	<p>None. Required amendments to the City’s Zoning Code would not result in a physical change to the environment. Future development would comply with General Plan density limits, the development standards for the applicable zoning district and State law. This program would not allow new residential</p>

POLICIES		Potential for Environmental Effects
	verifiable by reference to an external and uniform benchmark or criterion available and knowable by both the development applicant or proponent and the public official reviewing the project.	development in areas that are not designated for residential development.
HI-22	To minimize the potential for confusion regarding the applicability of the City’s design guidelines, the City shall amend all zones that reference the guidelines (for example, MU, RC, etc.) to make it clear that they are recommendations and not enforceable standards of the Zoning Code.	None. No physical change to the environment would occur.
HI-23	To ensure housing development in the City is occurring at the projected densities consistent with the income categories anticipated, the City will annually review building development on the vacant and likely developable sites included in the sites inventory of this element. If the annual review shows that sites are not providing sufficient opportunities for housing affordable to lower-income households, the City will review its Zoning Code to consider other measures, including the adoption of incentives or regulatory mechanisms to encourage construction at the mid-point or higher end of the density range. These measures could include but are not limited to: 1) requiring a minimum residential density; and 2) density bonuses (such as, specifying development standards that may be modified to make units more affordable – reduced lot sizes, increased ground coverage, etc.).	None. Although this program would result in an amendment to the Zoning Code to encourage housing production at the higher end of the density range for residential zoning districts, this program would not allow new residential development in areas that are not designated for residential development. Future development would comply with General Plan density limits and would not result in more severe environmental impacts than previously analyzed for housing development in the City. Any future amendments to the Zoning Code would be subject to review pursuant to CEQA.

## 2. Other Public Agencies whose Approval is Required

The Draft 6<sup>th</sup> Cycle Housing Element was submitted to HCD for a 60-day formal review period on August 28, 2023. A comment letter was received from HCD on September 20, 2023, which determined the following (HCD, 2023):

*“The revised draft element meets the statutory requirements of State Housing Element Law, including as described in HCD’s August 29, 2022 review. However, the housing element cannot be found in substantial compliance until the City has completed necessary rezones as described below. The housing element will substantially comply with State Housing Element Law (Gov. Code, § 65580 et seq.) when the necessary rezoning is complete and the element is adopted, submitted to, and approved by HCD, in accordance with Government Code section 65585.*

*Generally, pursuant to Government Code section 65584.09, if a city did not make available sites to accommodate the regional housing need allocation (RHNA), then the city shall, within the first year of the planning period of the new element, rezone adequate sites to accommodate the unaccommodated portion of the RHNA from the prior planning period. The City has an unaccommodated need from the prior planning period (Table 20). Since more than a year has lapsed from the beginning of the current planning period, the element cannot be found in compliance until the required rezoning is complete. Specifically, the element cannot be found in compliance until Program HI-14 (Rezoning and By Right Procedures) is implemented to meet the unaccommodated need from the 5th cycle RHNA. Once the rezoning has been completed, the City should submit documentation (for example, resolution, ordinance) to HCD and HCD will review and approve the element in accordance with Government Code section 65585.”*

The City will seek certification of the Housing Element from HCD upon the implementation of Program HI-14.

## 3. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

As described below, the City has complied with the tribal consultation requirements of SB 18 and AB 52.

### **Senate Bill (SB) 18**

CGC §65352.3 (SB 18) requires local governments to contact tribal organizations prior to adopting or amending a General Plan or Specific Plan, and prior to designating open space. The intent of SB 18 is to provide Native American tribes an opportunity to participate in land use decisions for the purpose of protecting or mitigating impacts to Native American cultural resources and sacred sites. To satisfy the requirements of SB 18, the City provided written notice of the proposed 2019-2027 Housing Element Update to the Tribes in the Humboldt Bay region at the beginning of August 2022. Tribes have 90 days to respond to the request for consultation under SB 18 and no responses were received.

**Assembly Bill (AB) 52**

Public Resources Code (PRC) §21084.2 (AB 52) establishes that *“a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment.”*

Pursuant to AB 52, in order to determine whether a project may have such an effect, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if the tribe requested to the lead agency, in writing, to be informed through formal notification of proposed projects in the geographical area, and the tribe responds, in writing, within 30 days of receipt of the formal notification and requests the consultation.

To satisfy the requirements of AB 52, the City provided written notice of preparation of a CEQA Initial Study for the 2019-2027 Housing Element Update to the Tribes in the Humboldt Bay region at the end of January 2024. No responses were received.

#### 4. Environmental Factors Potentially Affected

This Project would potentially affect the environmental factors checked below, involving at least one impact that is “potentially Significant” or “less than Significant with Mitigation Incorporated” as indicated by the checklist on the following pages.

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agricultural / Forestry Resources	<input type="checkbox"/> Air Quality
<input type="checkbox"/> Biological Resources	<input type="checkbox"/> Cultural Resources	<input type="checkbox"/> Energy
<input type="checkbox"/> Geology / Soils	<input type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Hazards & Hazardous Materials
<input type="checkbox"/> Hydrology / Water Quality	<input type="checkbox"/> Land Use / Planning	<input type="checkbox"/> Mineral Resources
<input type="checkbox"/> Noise	<input type="checkbox"/> Population / Housing	<input type="checkbox"/> Public Services
<input type="checkbox"/> Recreation	<input type="checkbox"/> Transportation / Traffic	<input type="checkbox"/> Tribal Cultural Resources
<input type="checkbox"/> Utilities / Service Systems	<input type="checkbox"/> Wildfire	<input type="checkbox"/> Mandatory Findings of Significance
<input checked="" type="checkbox"/> None		

#### DETERMINATION

On the basis of this Initial Study:

- I find that the proposed project COULD NOT have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project and mitigation measures have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT will be required.

  
 Garry Rees, AICP, Contract City Planner

9/23/24  
 Date





*Potentially Significant Impact*     
 *Less Than Significant With Mitigation Incorporated*     
 *Less Than Significant Impact*     
 *No Impact*

## Aesthetics

Except as provided in Public Resources Code Section 21099, **would the project:**

a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

Scenic vistas in the Mad River Valley area generally consist of views of nearby ridge tops, the agricultural valley, and the Mad River, which drains into the Pacific Ocean to the west. The City limits are bordered to the north and east by forested hillsides, to the south by the Mad River, and to the west by the Blue Lake Rancheria. Development in the City primarily consists of single-family residential development with commercial uses, public facilities, and apartments in the Downtown, and industrial, light industrial, and commercial uses in the Powers Creek District. The “Entrance to the City” is mostly uncluttered, lacking the typical services found at many other highway interchanges around the State. One exception is the development on Blue Lake Rancheria lands, including the Casino, hotel, gas station, and associated signage.

## Regulatory Framework

### Local

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

Land Use Element - Character, Compatibility, Environmental Quality Policies:

- Policy 1 All new residential development shall be consistent with the character of the City and blend with existing development.
- Policy 3 Residential areas shall be kept free from incompatible or inharmonious uses except on the case of mixed-use areas where uses are designed and situated to minimize potential impacts. Special consideration shall be given to compatibility of adjoining land uses whenever Zoning Map changes are proposed within or adjacent to a residential district.

Land Use Element - Siting, Density Policies:

- Policy 1 All types of dwelling units shall be placed on their site so as to provide adequate usable outdoor living area. Building sites shall be considered with respect to the location of other buildings, streets, terrain, and to other elements of the environment.
- Policy 3 Planned Unit Developments, clustering, and other innovative development design techniques shall be encouraged, where feasible, to maximize open space and allow flexibility in design.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a) Less Than Significant Impact.** The City of Blue Lake has not designated any scenic vistas within the boundary of the City limits or Sphere of Influence. Based on the existing development in the City and the areas identified as vacant and likely developable in the site inventory, it is not anticipated that the Housing Element Update would have a substantial adverse effect on any scenic vistas designated by other jurisdictions such as the County of Humboldt. Therefore, the Housing Element Update would have a less than significant impact in this regard.

**b) No Impact.** State Route 299 is classified as eligible to be a state designated scenic highway north of the City but is not currently a state designated scenic highway (Caltrans, 2024). Therefore, the Housing Element Update would have no impact on a state scenic highway or historic and natural resources within a state scenic highway.

**c-d) Less Than Significant Impact.** The Housing Element Update does not include site-specific designs or development proposals, nor does it permit development entitlements that would degrade the existing visual character of the City. The Housing Element Update anticipates land uses that are consistent with the General

Plan and would not remove policies that protect aesthetic resources or Zoning Code requirements associated with site planning and development standards.

As discussed in the Project Description in Section 1, the proposed project would involve amending the City's Zoning Code to create a Multi-Family Combining Zone to allow multi-family projects without discretionary review or by-right at a density of 16 units per acre or 1 unit per 2,722.5 square feet of lot area (City of Blue Lake, 2024b; see Implementation Program HI-14). Due to the availability of adequate sites with limited constraints within the City where the combining zone could be applied during the 6<sup>th</sup> cycle planning period, the combining zone is anticipated to be applied to a property in the City's Powers Creek District that is zoned Opportunity (O) and already allows for residential development. It should be noted that the combining zone would not result in a higher density than is already allowed by the O zone, which allows for 1 unit per 2,500 square feet or 17.4 units per acre. To meet the requirement for by-right zoning in Government Code Section 65583.2, subdivisions (h) and (i), the property would need to be sufficiently sized to allow a capacity of at least 11 units, which would be a minimum of 27,500 square feet (~0.63-acres) at the residential density allowed in the O zone (1 unit per 2,500 square feet of lot area). Any by-right project proposed on a property where the combining zone has been applied would not be subject to CEQA. Considering the existing low aesthetic quality and value of the development in the Powers Creek District, the development of modern residential buildings on a property subject to the combining zone would not be considered to substantially degrade the existing visual character or quality of public views of the District and its surroundings. Therefore, there would be a less than significant impact in this regard.

Future residential development has the potential to increase daytime glare or nighttime illumination in the City, and potential impacts would be considered on a project-by-project basis when projects are reviewed for compliance with the City's General Plan and the development standards of the Zoning Code. For example, much of the City's multi-family development potential is projected to occur in the Powers Creek District on properties that are zoned Opportunity (O). As noted above, this includes a property in the district that would be rezoned to apply a Multi-Family Combining Zone that allows multi-family development by-right. To reduce potential lighting/glare impacts, Section 17.16.111(E)(3) of the O zone has performance standards addressing lighting design that requires compliance with the DarkSky International standards for reducing ambient light ("dark sky compliant"; City of Blue Lake, 2024b). The remaining sites identified as vacant and likely developable in the site inventory of the Housing Element Update are anticipated to be developed with unit types ranging from single-family residences to four-plexes, which are not typically associated with substantial lighting impacts. With the implementation of the existing standards in the City's Zoning Code, impacts related to lighting and glare would be less than significant.

*Potentially Significant Impact*     
 *Less Than Significant With Mitigation Incorporated*     
 *Less Than Significant Impact*     
 *No Impact*

## AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

**Would the project:**

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Setting

Agricultural uses, in and around Blue Lake, and throughout Humboldt County include timber, livestock, nursery, vegetable and field crops, cannabis, and fruit and nut crops. While agriculture is one of the most enduring industries in the County, agricultural operators face growing challenges to maintain viable

operations. Rising costs, increasingly complex regulatory requirements, and growing development pressures are among the hurdles facing today's farmers. Agriculture is an important component of the local economy and culture, but adverse economics and generational transitions have accelerated the conversion of farmland to other uses. Despite protection policies in the Humboldt County General Plan, the conversion of agricultural lands to non-agricultural uses has continued over time. It is estimated that approximately 3,000 to 5,000 acres of agricultural land has been converted to non-agricultural use each year since 1964 (County of Humboldt, 2017).

The majority of the agricultural preserves in Humboldt County are located in the southern portion of the coastal zone and the southeastern portion of the County. No land within the City is under a Williamson Act Contract, conservation easement, or other mechanism for the preservation of agricultural land. There is one parcel zoned Agriculture Exclusive (AE; allows 1 unit per 10 acres) in the southern portion of the City, which has historically been used for limited crop production and grazing purposes. There are prime farmland soils within the City limits that exist on parcels that are not economically viable agricultural units and have therefore been zoned for residential, commercial, public facility, and industrial development.

The City does not have a zone for the protection of timberlands or forest lands and there are no timberlands or forestlands within City limits (as defined by defined by Public Resources Code Section 4526, by Government Code Section 51104(g) or Public Resources Code Section 12220(g)).

## Regulatory Framework

### Local

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

#### Land Use Element - Preservation of Open Space and Agricultural Lands Policies:

- Policy 1 Land suited for agriculture shall be used for that purpose, where prime or potentially prime agricultural soils occur in economically viable units.
- Policy 2 There shall be an agricultural land use designation that permits exclusively agricultural uses, including a single-family residence per land unit.
- Policy 3 Uses considered compatible with agricultural uses shall be permitted in agriculturally designated areas; such uses shall not preclude the viability or use of the land for agricultural purposes.
- Policy 6 Agricultural and potentially incompatible uses shall be separated, where possible, by such natural or man-made features as roads, vegetation, stream courses or topographical features.
- Policy 13 The City shall provide levels of service appropriate for agricultural land, in order to encourage its continued use for agriculture and discourage its conversion to other uses.

Policy 14 The City shall pursue acquiring forest lands to the east of the City limits for use as a community forest.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a) Less Than Significant Impact.** The Housing Element Update does not include site-specific designs or development proposals, nor does it permit development entitlements. The site inventory in the Housing Element Update only identifies sites as vacant and likely developable that are already zoned for residential use. There are prime agricultural soils that exist on a few parcels in the City zoned for residential development, but these sites are not economically viable agricultural units (such as, <10 acres and surrounded by development or lands zoned for non-agricultural development) and have been previously zoned for non-agricultural use. Therefore, the proposed project would result in a less than significant impact on this resource category.

**b-e) No Impact.** The site inventory in the Housing Element Update does not identify any lands as vacant and likely developable that are zoned for agricultural use. Additionally, there are no properties in the City that are subject to a Williamson Act contract. Therefore, the Housing Element Update would result in no impact related to conflict with existing zoning for agricultural use or a Williamson Act contract.

The City does not have a zoning district for the protection of timberlands or forestlands and there are no timberlands or forestlands within City limits. As such, the Housing Element Update would result in no impact to timberlands or forest lands.

The Housing Element Update does not include site-specific designs or development proposals, nor does it permit development entitlements. The Housing Element Update anticipates land uses that are consistent with the General Plan and would not remove policies that protect agricultural and timberland resources or Zoning Code requirements associated with site planning and development regulations. As noted above, the site inventory of the Housing Element Update does not identify sites as vacant and likely developable that are zoned for agriculture or timberland uses. Therefore, the Housing Element Update would not involve other changes in the existing environment which, due to their location or nature, would result in the conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use. Therefore, there would be no impact in this regard.

	<i>Less Than Significant</i>			
	<i>Potentially Significant Impact</i>	<i>With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>

## Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. **Would the project:**

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

The project site is located in Humboldt County, which lies within the North Coast Air Basin (NCAB). The NCAB extends for 250 miles from Sonoma County in the south to the Oregon border. The climate of NCAB is influenced by two major topographic units: the Klamath Mountains and the Coast Range provinces. The climate is moderate with the predominant weather factor being moist air masses from the ocean. Average annual rainfall in the area is approximately 60 inches, with the majority falling between October and April. Predominate wind direction is typically from the northwest during summer months and from the southwest during storm events occurring during winter months.

As in all of northern California, the principal control on climate in the NCAB is the high-pressure cell (Pacific High), which is often present off the west coast of North America. Because of the wintertime southward shift in the Pacific High, the NCAB is subject to a series of frontal systems which sweep across the region in an almost unbroken succession. In the summer, the Pacific High shifts northward diverting most storms well to the north of California. Due to the upwelling immediately off the coast, the comparatively warm Pacific air mass drifting over this band of cold water is cooled in the lower layers forming a deck of coastal stratus. As this stratus bank sweeps inland, the air is heated so that the moisture evaporates a few miles inland. This bank of clouds usually extends inland further during the night and then recedes to the vicinity of the coast during the day. Prevailing winds are generally from the northwest through north along the coast. The coastal ranges are responsible for deflecting these winds so that except for the immediate coast, the wind direction is likely to be more a product of local terrain than it is of the prevailing circulation.



Humboldt County is listed as “attainment” or “unclassified” for all federal ambient air quality standards, and all state standards with the exception of particulate matter (PM-10; NCUAQMD, 2024). Air quality in the City is influenced mostly by pollutant transport from upwind areas, such as Arcata, but also by local emission sources, such as wood burning stoves and fireplaces during the winter months, and vehicles using area roadways such as State Route 299. When there is a local air inversion, the air quality in Blue Lake deteriorates, but this is mostly due to pollutants generated outside of the City’s jurisdiction (City of Blue Lake, 2004).

Sensitive receptors (for example, children, senior citizens, and acutely or chronically ill people) are more susceptible to the effect of air pollution than the general population. Land uses that are considered sensitive receptors typically include residences, schools, parks, childcare centers, hospitals, and retirement homes.

## Regulatory Framework

Air Quality is regulated at federal, state, and local levels. The U.S. Environmental Protection Agency regulates at the Federal level. The California Air Resources Board (CARB, 2022) regulates at the state level. The North Coast Unified Air Quality Management District (NCUAQMD) regulates at the regional or district level, which includes Humboldt, Del Norte, and Trinity Counties. The NCUAQMD has not formally adopted significance thresholds for use in environmental review of land use projects. However, the NCUAQMD requires the implementation of Best Available Control Technology (BACT) to reduce the impacts of stationary sources if they are estimated to exceed specified emission rates for criteria pollutants.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-d) Less Than Significant Impact.** As noted in the setting, Humboldt County is listed as “attainment” or “unclassified” for all federal ambient air quality standards, and all state standards with the exception of particulate matter (NCUAQMD, 2024). The NCUAQMD prepared a Particulate Matter Attainment Plan, Draft Report, in May 1995. The plan established goals to reduce particulate matter emissions and eliminate the number of days in which the state standard is exceeded. The Plan includes three areas of recommended control strategies to meet these goals: transportation, land use, and burning. The Housing Element Update indicates that most of the residential development potential on vacant and likely developable sites is located within the City’s Powers Creek District, which is zoned to require a mixture of residential and commercial uses. For example, the District is zoned to not allow residential-only development, in order to promote a beneficial mixture of residential and commercial uses. Land use regulations that promote infill and mixed-use development have the potential to reduce vehicle miles traveled and associated vehicular emissions including diesel particulate matter. Additionally, based on current regulations, it is anticipated that the future

residential development in the City would use gas-burning fireplaces or EPA-approved stoves for heating. As such, the projected future residential development in the City would be consistent with the goals of the Draft Particulate Matter Attainment Plan and impacts would be less than significant in this regard.

The Housing Element Update does not include site-specific designs or development proposals, nor does it permit development entitlements. The Housing Element Update does not allow residential development beyond what is already allowed under the City's current General Plan and Zoning Code. Considering the estimated residential development potential on vacant sites in the City (89 units; see Table 21 in Housing Element Update; City of Blue Lake, 2024b), it is not anticipated that future residential development would result in a cumulatively considerable increase in particulate matter or expose sensitive receptors to substantial pollutant concentrations. Future construction of residential development would be subject to federal, state, and local regulations protecting air quality, such as the California Air Resources Board's construction equipment emissions standards and the NCUAQMD's standards for controlling dust emissions. Additionally, there are currently no sources of substantial pollutant concentrations within or around the City of Blue Lake that would impact future residents. In compliance with applicable laws and regulations, the Housing Element Update would result in less than significant adverse environmental impacts related to particulate matter emissions and the exposure of sensitive receptors to pollutant concentrations.

The Housing Element Update is a policy-level document that encourages the provision of a range of housing types and affordability levels on sites that are already zoned for residential development. Potential odors generated from future residential construction activity (for example, diesel-powered construction equipment, asphalt paving, etc.) would be short-term in nature and would not result in permanent impacts to surrounding land uses and would not affect a substantial number of people. Residential development is typically considered a sensitive receptor as opposed to a land use type that can generate substantial emissions such as odors. Therefore, there would be a less than significant impact in this regard.

*Potentially Significant Impact*     
 *Less Than Significant With Mitigation Incorporated*     
 *Less Than Significant Impact*     
 *No Impact*

## Biological Resources

### Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife services?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

The City of Blue Lake is an incorporated city located in Humboldt County, California, eight miles inland from Humboldt Bay on State Route 299 (see **Figure 1**). The City is situated in the Mad River Valley and the Mad River borders the City on the south and west. Potential flooding along a portion of the City is controlled by a levee. The lands surrounding the City are comprised of steep hillsides to the north and east and generally flat,

agricultural lands to the west and south. Large portions of the surrounding hillsides are owned by a timber company and are harvested for timber production, with large areas that have been clear cut in the past. Agricultural lands in the Mad River Valley are used for cattle grazing and intensive crop production. The City is primarily a residential community with a downtown area consisting of limited commercial development. The City's Powers Creek District, which is a former lumber mill site that is located on the southwestern portion of the City, has been redeveloped over the last several decades with commercial, manufacturing, public facility, and heavy industrial uses.

A few of the vacant or underutilized parcels in the western portion of the City have areas that fall under the current federal definition of wetlands. The larger vacant properties in and adjacent to the Powers Creek District are located along Powers Creek, which is a tributary to the Mad River. The suburban nature of the City, adjacent to a major river system and extensive forested lands, offers pockets of suitable habitat for a variety of wildlife species.

## Regulatory Framework

A number of existing Federal, State and Local laws and regulations are in place for the preservation of biological resources, including but not limited to the following:

### **Federal**

#### **Federal Clean Water Act**

##### Section 404

Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into wetlands and waters of the U.S. The USACE requires that a permit be obtained prior to the placement of structures within, over, or under navigable waters and/or prior to discharging dredged or fill material into waters below the ordinary high-water mark (OHWM).

##### Section 401

Under Section 401 of the CWA, a project requiring a USACE Section 404 permit is also required to obtain a State Water Quality Certification (or waiver) to ensure that the project will not violate established State water quality standards. When a discharge is proposed to waters outside of federal jurisdiction, the discharge is regulated under the State Porter-Cologne Water Quality Control Act through the issuance of Waste Discharge Requirements (WDRs). The State has a policy of no-net-loss of wetlands and requires mitigation for impacts to wetlands before it issues water quality certifications or WDRs.

#### **Federal Endangered Species Act**

The Federal Endangered Species Act (FESA) of 1973 requires that all federal agencies ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of critical habitat. Projects that would result in "take" of any federally listed species are required to obtain authorization from National Marine Fisheries

Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project.

#### **Federal Migratory Bird Treaty Act**

Under the Migratory Bird Treaty Act (MBTA) of 1918, as amended, migratory bird species listed in CFR Title 50, §10.13, including their nests and eggs, are protected from injury or death, and any project-related disturbances. The MBTA applies to over 1,000 bird species, including geese, ducks, shorebirds, raptors, and songbirds, some of which were near extinction before MBTA protections were put in place in 1918. The MBTA provides protections for nearly all native bird species in the U.S., including nonmigratory birds.

#### **Fish and Wildlife Conservation Act**

Under the Fish and Wildlife Conservation Act of 1980, as amended, the USFWS maintains lists of migratory and non-migratory birds that, without additional conservation action, are likely to become candidates for listing under the FESA. These species are known as Birds of Conservation Concern and represent the highest conservation priorities.

#### **Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), also known as the Sustainable Fisheries Act, requires the identification of Essential Fish Habitat (EFH) for federally managed fishery species and implementation of appropriate measures to conserve and enhance EFH that could be affected by project implementation. All federal agencies must consult with NMFS on projects authorized, funded, or undertaken by an agency that may adversely affect EFH for species managed under the MSFCMA.

### **State**

#### **California Endangered Species Act**

Under the California Endangered Species Act (CESA), the Fish and Game Commission is responsible for listing and delisting threatened and endangered species. The California Department of Fish and Wildlife (CDFW) maintains documentation and occurrence records on listed species, including candidate species for threatened or endangered status, fully protected species, species of special concern (SSC). SSC are vulnerable to extinction but are not legally protected under CESA; however, impacts to SSC are generally considered significant under CEQA.

CESA prohibits the take of State-listed threatened and endangered species, but CDFW has the authority to issue incidental take permits under special conditions when impacts are minimized and mitigated. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take. One exception allows the collection of fully protected species for scientific research.

**California Fish and Game Code §1600-1616 (Streambed Alteration)**

California Fish and Game Code §1600 et seq., requires that a project proponent enter into a Streambed Alteration Agreement (SAA) with CDFW prior to any work that would divert or obstruct the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; and/or deposit or dispose of material into any river, stream, or lake. The SAA includes conditions that minimize/avoid potentially significant adverse impacts to riparian habitat and waters of the state.

**California Fish and Game Code §3503 and 3503.5 (Nesting Bird Protections)**

These sections of the Code provide regulatory protection to resident and migratory birds and all birds of prey within the State and make it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Code.

**California Fish and Game Code §1900-1913 (Native Plant Protection Act)**

The Native Plant Protection Act (NPPA) includes measures to preserve, protect, and enhance native plants that are listed as rare and endangered under the CESA. The NPPA states that no person shall take, possess, sell, or import into the state, any rare or endangered native plant, except in compliance with provisions of the Act. The California Native Plant Society categorizes the rarity of native plants in California. Rank 1B plants are rare, threatened, or endangered in California and elsewhere. Rank 2 plants are rare, threatened, or endangered in California, but are more common elsewhere. Rank 3 plants are those about which more information is needed (a review list). Rank 4 plants have limited distribution (a watch list).

**Local**

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

Land Use Element - Environmental Protection policies:

- Policy 1     The City shall consider all development with respect to potential impacts on environmental quality.
  
- Policy 2     Developers shall be encouraged to design projects so as to avoid topography changes and unnecessary stripping of natural foliage. Where feasible, existing trees and terrain shall be preserved by fitting streets and building sites into the landscape with minimum disturbance of the land, its natural vegetation and creek ways. Developers shall be encouraged to use existing natural vegetation and topographic features to provide required open space and landscaping.

Land Use Element - Agriculture and Open Space policies:

- Policy 9     Property owners should be encouraged to keep areas with unique natural features in a natural or enhanced condition. Such areas include the Mad River, Powers Creek, and the site of the historic lake.

Land Use Element - Creeks & Wetlands policies:

- Policy 1 Powers Creek shall be managed to maintain the creek as a scenic and natural resource, and to protect adjacent properties and structures to the greatest degree possible.
- Policy 7 The various wetland areas throughout the City shall be maintained as a scenic and habitat resource, and to prevent flooding impacts due to the modification of existing hydrology.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-e) Less Than Significant Impact.** The Housing Element Update anticipates residential development that is consistent with the City's General Plan and Zoning Code. Additionally, the Update would not remove policies that protect biological resources or Zoning Code requirements associated with site planning and development regulations.

Future residential development may have the potential to result in significant impacts to special-status species and sensitive natural communities such as riparian habitat and federally protected wetlands. However, compliance with existing federal and state laws and regulations, including but not limited to those listed above in the discussion of Regulatory Framework, would result in the avoidance and/or minimization of direct and indirect impacts to special-status species and sensitive habitats. These regulations require site-specific analysis where a project site contains potential habitat for special-status species including wetlands and riparian areas. Based on the result of the site-specific analysis and where appropriate, federal and State agencies will require mitigation for project-level impacts. In compliance with existing laws and regulations, the Housing Element Update would not have a substantial adverse effect on special-status species and their habitat, riparian habitat, wetlands, or wildlife corridors and would not conflict with any local policies or ordinances protecting biological resources. Therefore, the proposed project would have a less than significant impact related to biological resources.

As discussed in the Project Description in Section 1, the proposed project would involve amending the City's Zoning Code to create a Multi-Family Combining Zone to allow multi-family projects without discretionary review or by-right at a density of 16 units per acre or 1 unit per 2,722.5 square feet of lot area (City of Blue Lake, 2024b; see Implementation Program HI-14). Due to the availability of adequate sites with limited constraints within the City where the combining zone could be applied during the 6<sup>th</sup> cycle planning period, the combining zone is anticipated to be applied to a property in the City's Powers Creek District that is zoned Opportunity (O) and already allows for residential development. It should be noted that the combining zone would not result in a higher density than is already allowed by the O zone, which allows for 1 unit per

2,500 square feet or 17.4 units per acre. To meet the requirement for by-right zoning in Government Code Section 65583.2, subdivisions (h) and (i), the property would need to be sufficiently sized to allow a capacity of at least 11 units, which would be a minimum of 27,500 square feet (~0.63-acres) at the residential density allowed in the O zone (1 unit per 2,500 square feet of lot area). Any by-right project that would be proposed on the property where the combining zone has been applied, would not be subject to CEQA. Considering that the properties available for residential development in the Powers Creek District were previously prepared for industrial development, including grading and the installation of access and utility infrastructure, it is anticipated that development of these properties in compliance with existing laws and regulations would result in less significant impacts to biological resources.

**f) No Impact.** There are no Habitat Conservation Plans, Natural Community Conservation Plans, or other approved habitat conservation plans within or directly adjacent to the City and; therefore, the Housing Element Update would not conflict with such a plan. No impact would occur in this regard.



	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Cultural Resources

### Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

Cultural resources are remains and sites associated with human activities, including Native American archaeological sites (both prehistoric remains and sites occupied after European arrival), historic buildings and archaeological sites, and natural landscape elements with traditional cultural significance (including areas of economic and religious significance).

The City lies within the traditional territory of the Pat-a-wat division of the Wiyot Indian tribe. By the time of the arrival of European settlers in 1850, the Blue Lake area had become a borderland zone between the territories of the Wiyot and Whilkut tribes (Loud, 1918). The Wiyots of Mad River were a subunit of the larger Wiyot tribe, and were known as Pat-a-wats, after the Wiyot name for Mad River. The territory for the Pat-a-wats was generally described as the lower Mad River from Blue Lake near the junction of the North Fork down to the coast, and thence south to the southern shore of Humboldt Bay (Merriam, 1976).

Ranching has taken place in the vicinity of Blue Lake since the mid-1800s. Early ranching and mining operations often involved construction of access roads, railroads, residential and farm structures, and additional features (for example, ponds, ditches, irrigation components, etc.). Collectively, these historic activities have affected many of the prehistoric sites in the region.

The City of Blue Lake contains at least 60 residences that have historical interest as documented in the 1990 Blue Lake Community Development Corporation (CDC) Historical Research Report (City of Blue Lake, 1990). Despite the number of historic buildings in the City, the City does not have a designated historic district.

## Regulatory Framework

A number of existing Federal, State, and Local laws and regulations are in place for the preservation of cultural resources, including but not limited to the following:

## **Federal**

### **Section 106 of the National Historic Preservation Act (NHPA)**

Section 106 of the NHPA and its implementing regulations require federal agencies to take into account the effects of their activities and programs on historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP). Section 106 applies to projects undertaken or funded by federal agencies, and projects that require a federal-agency permit.

## **State**

### **California Environmental Quality Act (CEQA)**

CEQA Guidelines §15064.5 et seq. requires that projects financed by or requiring the discretionary approval of public agencies in California be evaluated to determine potential adverse effects on historical and archaeological resources. Historical resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. Section 15064.5 also includes provisions for the accidental discovery of cultural resources and human remains.

## **Local**

The Blue Lake General Plan also includes policies specific to cultural resource protection including the following:

### Land Use Element - Cultural Resources Policies:

- Policy 1      The potential for significant impacts to cultural resources shall be identified, as required by State law, during discretionary project review under CEQA.
- Policy 2      Projects not subject to CEQA shall be required to adhere to an inadvertent discovery protocol for archaeological resources.

### Housing Element Update – Preservation and Reuse of Older Structures Program:

- HP-1.6.      Preserve the City’s more affordable housing stock along with historical and cultural heritage through preservation and innovative reuse of older structures.

## **Discussion**

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-c) Less Than Significant Impact.** The Housing Element Update anticipates residential development that is consistent with the City's General Plan and Zoning Code. Additionally, the Update would not remove policies that protect cultural resources or Zoning Code requirements associated with site planning and development regulations. Construction activities for future residential development have the potential to uncover unknown cultural resources, including human remains found outside of cemeteries.

The sites identified for residential development in the Housing Element Update site inventory are vacant. As such, future residential development on these sites would not impact structures of historic interest in the City.

All future residential development within the City would be required to comply with local and State regulations that protect cultural resources. At the local level, the City's General Plan and the regulations in Municipal Code Chapter 15.12 (Grading, Erosion, and Sediment Control) require the implementation of an inadvertent discovery protocol for all development. This protocol requires construction activity to cease if cultural resources are encountered during permitted or non-permitted construction activities. Future projects that require discretionary review would also be subject to review under CEQA, which could require consultation with local Tribes and preparation of a site-specific Cultural Resources Investigation. If a site is considered sensitive for cultural resources or resources are discovered during site-specific investigation, mitigation would be required to reduce potential impacts. Additionally, California Health and Safety Code (CHSC) Section 7050.5 requires halting site disturbance upon discovery of human remains until a coroner has conducted an investigation. If the remains are determined to be of Native American descent, CHSC Section 5067.98 requires that the most likely descendant(s) be notified immediately.

In compliance with local and State laws and regulations protecting cultural resources, the Housing Element Update would result in a less than significant impact to cultural resources.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Energy

### Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

In Humboldt County, energy is primarily used as a transportation fuel and as electrical and heat energy in homes, businesses, industries, and agriculture. The majority of energy used in Humboldt County is imported, with the exception of biomass energy. Although the majority of electricity is generated in the county, a large portion of it is generated using natural gas. The county imports about 90% of its natural gas; the rest is obtained locally from fields in the Eel River valley (Schatz Energy Research Center, 2005). Essentially all of the county’s transportation fuels are imported.

Humboldt County is remotely located at the end of the electrical and natural gas supply grids, and this limits both energy supply options and system reliability. Pacific Gas & Electric Company (PG&E) owns the natural gas and electricity transmission and distribution systems in Humboldt County. There is one major natural gas supply line that serves the county and four electrical transmission circuits (Schatz Energy Research Center, 2005).

Prior to May 2017, electricity provided to the City was primarily sourced from the PG&E Humboldt Bay Generating Station (HBGS), which is located just south of the City of Eureka along Humboldt Bay. The HBGS began commercial operation in 2010 and normally runs on natural gas, with ultra-low sulfur diesel as its backup fuel (CEC, 2024).

Beginning in May 2017, the electricity source for Humboldt County transitioned to the Redwood Coast Energy Authority (RCEA) Community Choice Energy (CCE) program (RCEA, 2024). The CCE program allows city and county governments to pool (or aggregate) the electricity demands of their communities in order to increase local control over electric rates, purchase power with higher renewable content, reduce greenhouse gas emissions, and reinvest in local energy infrastructure. The electricity continues to be distributed and delivered over the existing power lines by PG&E (RCEA, 2024). In 2022, the CCE program procured approximately 50 percent of its power from renewable sources (RCEA, 2022). In addition, customers can choose to opt up to a premium service called Repower+, which is 100 percent renewable energy at only \$0.01 more per kilowatt hour (kWh) (RCEA, 2024). RCEA is pursuing the following procurement goals which

will further increase the percentage of power from renewable resources for all of its customers – 100% carbon-free electricity by 2025 (RCEA Board goal adopted in 2019) and 100% local carbon-free electricity by 2030 (Board goal adopted in 2016) (RCEA, 2021).

## Regulatory Framework

### State

The California Code of Regulations (CCR) Title 24 regulates structural safety and sustainability for residential and other developments. The California Energy Commission (CEC) updates the Building Energy Efficiency Standards (Energy Code), Title 24 section 6, every three years. The 2022 Building Energy Efficiency Standards went into effect January 2023. Future residential development in Blue Lake would be subject to building energy efficiency standards set forth by Title 24.

### Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-b) Less Than Significant Impact.** The Housing Element Update is a policy document and does not provide site-specific designs or development proposals, nor does it grant development entitlements. Short-term construction and long-term operational activities as a result of future residential development, would result in energy consumption.

During construction of future residential development, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment, construction worker and delivery truck travel to and from the project site, and to operate generators to provide temporary power for electronic equipment. There are not anticipated to be any unusual characteristics of future residential development that would require the use of construction equipment or practices that would be less energy efficient than at comparable construction sites in the region or State. Construction activity would be temporary and fuel consumption would cease once construction ends. Further, various construction equipment would be supplied by onsite generators, and would not require permanent connections to or otherwise burden local utilities. Due to the temporary nature of construction activities, the fuel and energy needed during project construction activities would not be considered a wasteful or inefficient use of energy.

During operational activities for future residential development, energy would be consumed for building operations (such as ventilation, heating/cooling, operation of electrical systems, etc.), and transportation of vehicles. As required by State regulations, the design and construction of future residential development would be in accordance with California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6, of the California Code of Regulations). These requirements regulate insulation,

window space and type, and other building features to maximize structural energy efficiency. These standards also require the installation of solar panels on certain residential buildings to offset electricity use. Compliance with these standards restricts unnecessary residential energy consumption.

The Housing Element Update indicates that most of the residential development potential on vacant and likely developable sites is located within the City's Powers Creek District, which is zoned to require a mixture of residential and commercial uses. For example, the District is zoned to not allow residential-only development, in order to promote a beneficial mixture of residential and commercial uses. Land use regulations that promote infill and mixed-use development have the potential to reduce vehicle miles traveled and transportation-related energy consumption. Additionally, consistent with State and local plans for renewable energy, future residential development in the City will be provided increasingly renewable sources of energy from the RCEA CCE program.

In compliance with existing laws and regulations, the Housing Element Update would result in a less than significant impact related to energy.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Geology and Soils

### Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

The City is situated in the lower Mad River Valley; the Mad River borders the City on the south and west. The lands surrounding Blue Lake are comprised of steep hillsides to the north and east and generally flat agricultural lands to the west and south (see **Figure 2**).

The City is located in a downfaulted portion of the Northern Coast Range geologic province of California. Much of the Mad River Basin is underlain by the Franciscan complex (marine sedimentary and metasedimentary rocks). Sedimentary and volcanic rocks were deposited in a marine trough along the west coast of North America, which was subsequently severely deformed and uplifted. The widespread disarray of the rocks within the Franciscan Complex, and prevalence of shear zones, testify to the immense forces involved in its disruption. Most of the deformation took place during and soon after its deposition, so that the shear zones are no longer active. The ubiquitous presence of this sheared rock, however, together with rapid and unpredictable changes in rock type from place to place, give the associated slopes a general, but highly variable, instability.

The youthful and steep topography of the coast range is known for its potential for landslides. Humboldt County in general is at risk from strong ground shaking. The western portions of Humboldt County, and adjoining offshore areas, are regions of moderate to high seismicity. The only known historical surface rupture associated with a fault in the area was in 1906 along the San Andreas Fault in southern Humboldt County. The frequent earthquakes south and southwest of the City of Ferndale indicate modern activity along the Cape Mendocino-False Cape shear zone (City of Blue Lake, 2004).

Liquefaction is defined as “the sudden large decrease of shearing resistance of a cohesionless soil, caused by collapse of the soil structure by shock or strain, and associated with a sudden but temporary increase of the pore fluid mass” (City of Blue Lake, 1975). Fine unconsolidated sand or silt saturated with water is particularly subject to liquefaction. Horizontal to slightly tilted layers of this material may underlie river flood plains and terraces. Earthquake shock waves may cause an overlying sloping soil mass to slide laterally along the temporarily liquified layer at the base.

The lowlands and present river flood plain in the Blue Lake planning area are underlain by river alluvium of undetermined thickness. Such alluvium (silt, sand, pebbles, cobbles) may contain lenses of material susceptible to liquefaction, especially when under the shallow water table (top of saturated zone) characteristic of the area. Although, if these zones are present, they are likely of minor extent, but the possibility of localized liquefaction should not be discounted entirely. The siting of critical structures should assess this potential by means of borings beneath the sites. Under moderate to intense shaking, unconsolidated alluvium and soils may undergo various amounts of horizontal displacement toward adjacent unconfined areas (such as the bluff along a river or stream), associated in some cases, with liquefaction. Cracks and fissures generally accompany this “lurching”, ranging from inches to many feet in length, and of varying widths. Structures located on such ground can be severely disrupted and tilted (City of Blue Lake, 2004).



Mass movement of material on hillsides is a major accompaniment of moderate and strong earthquakes. These can take the form of landslides, rock avalanches, mud and debris flows, or another type of slope failure. Areas north of the City, and along State Route 299 are considered to be at high risk of slope failure, but are determined to not be hazardous to the population within City limits. The majority of the current townsite is in lowland areas characterized by stable gradual slopes and are not at risk of slope failure. There is potential for liquefaction, lurching, cracking, and differential subsidence within the City.

The City is located in close proximity to United States Geologic Survey mapped faults in the Mad River Fault Zone and is vulnerable to shaking caused by a rupture of any of these faults. The closest Alquist-Priolo Zone to the City is approximately 0.75 miles southwest on the eastern side of Fickle Hill. No fault hazard areas have been identified within City limits. The general risks associated with earthquakes in the Blue Lake area are structural damage, slope failures, and liquefaction. These risks tend to be greater in areas of unstable slopes, wet conditions, alluvial deposits, or fill material. Blue Lake is not at risk of potential tsunami damage or inundation due to its inland location (City of Blue Lake, 1975).

## Regulatory Framework

### Local

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

#### Public Safety Element Policies:

- Policy 4 Before any major excavation, or the construction of dwellings, public facilities, and large commercial or industrial buildings is permitted by the City within low or moderate stability areas, special studies by a registered soil engineer or licensed geologist should be undertaken by the developer and necessary provisions made for reducing landslide risk.
- Policy 5 Any proposed construction of commercial or industrial structures in the area more than 300 feet southwesterly of the railroad right-of-way should be preceded by site investigations to determine the potential for liquefaction and similar types of earth movement resulting from ground shaking.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-d) Less Than Significant Impact.** The Housing Element Update is a policy document and does not provide site-specific designs or development proposals, nor does it grant development entitlements. The

Housing Element Update provides policies and programs designed to facilitate the construction and conservation of housing. Future residential development in the City could increase the exposure of people and structures to seismic hazards, including strong seismic shaking and seismic-related ground failure. As noted above in the Setting, the closest Alquist-Priolo Zone to the City is approximately 0.75 miles southwest on the eastern side of Fickle Hill. No fault hazard areas have been identified within City limits.

The State of California provides minimum standards for building design through the California Building Code (CBC). Specific minimum seismic safety and structural design requirements are set forth in CBC Chapter 16. The CBC identifies seismic factors that must be considered in structural design. Development on the sites identified vacant and likely developable in the site inventory of the Housing Element update would be required to comply with State and local regulations related to seismic hazards (for example, building codes and other applicable regulations requiring soil analysis and design-level geotechnical evaluation), which would minimize adverse impacts related to seismic hazards including fault rupture, liquefaction, and landslides. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

There are no expansive soils, as defined in Table 18-1-B of the Uniform Building Code, known to exist on the sites identified as vacant likely developable in the site inventory of the Housing Element Update. Compliance with CBC requirements related to ensuring the suitability of site soils (for example, applicable regulations requiring soil analysis and design-level geotechnical evaluation) would address any potential impacts. Therefore, there would be a less than significant impact in this regard.

**e) No Impact.** All sites identified as vacant and likely developable in the site inventory of the Housing Element Update would be required to connect to the City's sewer system, in accordance with Blue Lake Municipal Code Section 13.16.030 (City of Blue Lake, 2024b). As such, future residential development would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impact in this regard.

**f) Less Than Significant impact.** No paleontological resources or unique geologic features are known to exist in the City. Regional uplifting and other seismic activity in the area limit the potential for discovery of paleontological resources. Therefore, there would be a less than significant impact in this regard.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Greenhouse Gas Emissions

### Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

Greenhouse gases (GHGs) are gases in the atmosphere that absorb and emit radiation. The greenhouse effect traps heat in the troposphere through a three-fold process, summarized as follows: short wave radiation emitted by the sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit this long-wave radiation into space and toward the Earth. This “trapping” of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

Other than water vapor, the primary GHGs contributing to global climate change include the following gases:

- Carbon dioxide (CO<sub>2</sub>), primarily a byproduct of fuel combustion;
- Nitrous oxide (N<sub>2</sub>O), a byproduct of fuel combustion and associated with agricultural operations such as the fertilization of crops;
- Methane (CH<sub>4</sub>), commonly created by off-gassing from agricultural practices (for example, livestock), wastewater treatment, and landfill operations;
- Chlorofluorocarbons (CFCs), which were used as refrigerants, propellants, and cleaning solvents, although their production has been mostly prohibited by international treaty;
- Hydrofluorocarbons (HFCs), which are now widely used as a substitute for chlorofluorocarbons in refrigeration and cooling; and
- Perfluorocarbons (PFCs) and sulfur hexafluoride (SF<sub>6</sub>) emissions, which are commonly created by industries such as aluminum production and semiconductor manufacturing.

Global climate change is not confined to a particular project area and is generally accepted as the consequence of GHG emissions from global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough GHG emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

Beginning in May 2017, the electricity source for Humboldt County transitioned to the Redwood Coast Energy Authority (RCEA) Community Choice Energy (CCE) program. The CCE program allows city and county governments to pool (or aggregate) the electricity demands of their communities in order to increase local control over electric rates, purchase power with higher renewable content, reduce greenhouse gas emissions, and reinvest in local energy infrastructure. The electricity continues to be distributed and delivered over the existing power lines by PG&E (RCEA, 2024). In 2022, the CCE program procured approximately 50 percent of its power from renewable sources (RCEA, 2022). In addition, customers can choose to opt up to a premium service called Repower+, which is 100 percent renewable energy at only \$0.01 more per kilowatt hour (kWh) (RCEA, 2024). RCEA is pursuing the following procurement goals which will further increase the percentage of power from renewable resources for all of its customers – 100% carbon-free electricity by 2025 (RCEA Board goal adopted in 2019) and 100% local carbon-free electricity by 2030 (Board goal adopted in 2016) (RCEA, 2021).

## Regulatory Framework

### State

California passed Assembly Bill 32 (Global Warming Solutions Act) in 2006, mandating a reduction in GHG emissions and Senate Bill 97 in 2007, evaluating and addressing GHG under CEQA. On April 13, 2009, the Governor’s Office of Planning and Research (OPR) submitted to the Secretary for Natural Resources its proposed amendments to the State CEQA Guidelines for GHG emissions, as required by Senate Bill 97 (Chapter 185) and they became effective March 18, 2010. As a result of these revisions to the CEQA Guidelines, lead agencies are obligated to determine whether a project’s GHG emissions significantly affect the environment and to impose feasible mitigation to eliminate or substantially lessen any such significant effects.

The Global Warming Solutions Act (AB 32) also directed the California Air Resources Board (CARB) to develop the Climate Change Scoping Plan (Scoping Plan), which outlined a set of actions to achieve the AB 32 goal of reducing GHG emissions to 1990 levels by 2020, and to maintain such reductions thereafter. CARB approved the Scoping Plan in 2008 and first updated it in May 2014. The second update in November 2017 addressed the actions necessary to achieve the goal of reducing GHG emissions to 40 percent below 1990 levels by 2030, as described in Senate Bill 32 (SB 32). The most recent update in December 2022 addresses recent legislation that extends and expands upon these earlier plan updates with a target of reducing GHG emissions 85 percent below 1990 levels by 2045. The 2022 update also takes the unprecedented step of adding carbon neutrality as a science-based guide and touchstone for California’s climate goals (CARB, 2022).

### Local

The City is located in the North Coast Air Basin (NCAB) and is under the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). Neither Humboldt County nor the NCUAQMD have adopted quantitative thresholds for determining the significance of GHG emissions from land use projects in environmental documents. In addition, Humboldt County and the City of Blue Lake do not have adopted Climate Action Plans or GHG Reduction Plans.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-b) Less Than Significant Impact.** The Housing Element Update does not provide specific development designs or development proposals, nor does it grant development entitlements. Additionally, the Housing Element Update would not allow housing in areas that are not already designated and zoned for residential development. Future residential development could result in an increase in GHG emissions during both construction and operational activities.

Future residential development in the City would be subject to a myriad of State and local regulations applicable to project design, construction, and operation that would reduce GHG emissions, increase energy efficiency, and provide compliance with the CARB Climate Change Scoping Plan (CARB, 2022). The State of California has the most comprehensive GHG regulatory requirements in the United States, with laws and regulations requiring reductions that affect project emissions. Legal mandates to reduce GHG emissions from vehicles, for example, reduce project-related vehicular emissions. Legal mandates to reduce per capita water consumption and impose waste management standards to reduce methane and other GHGs from solid wastes are all examples of mandates that reduce GHGs.

Existing regulations that would apply to any future residential development, including the California Green Building Standards Code and California's Title 24 Building Energy Efficiency Standards, would reduce GHG emissions associated with future residential projects. The Housing Element Update indicates that most of the residential development potential on vacant and likely developable sites is located within the City's Powers Creek District, which is zoned to require a mixture of residential and commercial uses. For example, the District is zoned to not allow residential-only development, in order to promote a beneficial mixture of residential and commercial uses. Land use regulations that promote infill and mixed-use development have the potential to reduce vehicle miles traveled and associated vehicular emissions including GHG emissions. Additionally, future residential development in the City will be provided increasingly renewable sources of energy from the RCEA CCE program, which would result in reductions in GHG emissions.

In compliance with existing laws and regulations, the Housing Element Update would result in a less than significant impact related to greenhouse gas emissions.

*Potentially Significant Impact*     
 *Less Than Significant With Mitigation Incorporated*     
 *Less Than Significant Impact*     
 *No Impact*

## Hazards and Hazardous Materials

### Would the project:

Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

There is limited industrial and commercial use in the City, so hazardous land uses and contaminated sites are not prevalent. The Powers Creek District was previously developed as a lumber mill and operated by the McIntosh Lumber Company, Inc. According to the information on the Department of Toxic Substances Control (DTSC) Envirostor Database, the former mill site does not contain known significant contamination

above regulatory screening levels and has received a determination from DTSC of “No Action Required” (DTSC, 2024). According to the State Water Resources Control Board (SWRCB) GeoTracker Database, there are eight leaking underground storage tank sites in the City. These sites are primarily located in the downtown area and have all received determinations from the SWRCB of “Case Closed” (SWRCB, 2024). Explosives or dangerous chemicals are seldom transported throughout the area but an accidental spill or explosion on State Route 299 is a possibility.

The schools in the City include Blue Lake Union Elementary and the Dell’Arte International School of Physical Theatre. The closest airport to the City is the California Redwood Coast-Humboldt County Airport in McKinleyville, which is located approximately 8 miles northwest of the City.

Fire protection in Humboldt County is provided by local districts, cities, and the California Department of Forestry and Fire Protection (CAL FIRE, 2024a). The City limits are located in a Local Responsibility Area (LRA), which is served by the Blue Lake Volunteer Fire Protection District. Forestlands surrounding the City are in a State Responsibility Area (SRA) that is served by CAL FIRE. The closest fire station to the project site is the main station for the Volunteer Fire Protection District, which is near City Hall on First Avenue. The forestlands in this part of Humboldt County could be subject to wildfire and are classified by CAL FIRE as Moderate, High, and Very High Fire Hazard Severity Zones. The City limits and forestlands immediately surrounding the City are classified by CAL FIRE as being in a Moderate Fire Hazard Severity Zone (CAL FIRE, 2024).

## Regulatory Framework

Hazardous materials management is regulated by federal and State regulations. The federal government enforces hazardous material transport pursuant to its interstate commerce regulation authority.

### Federal

#### Resource Conservation and Recovery Act

The Department of Toxic Substances Control (DTSC), a Division of the California Environmental Protection Agency, acts to protect California from exposure to hazardous wastes by cleaning up existing contamination and looking for ways to reduce the hazardous waste produced in the state. The Department of Toxic Substances Control regulates hazardous waste in California primarily under the authority of the Federal Resource Conservation and Recovery Act, and the California Health and Safety Code. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. Any release or possible release of hazardous material must be reported to the California Governor’s Office of Emergency Services (CalOES) Warning Center.

### STATE

#### Unified Program and California Environmental Reporting System (CERS)

The California Environmental Protection Agency (CalEPA) oversees California’s “Unified Program.” The program protects Californians from hazardous waste and hazardous materials by ensuring local regulatory agencies consistently apply statewide standards when they issue permits, conduct inspections, and engage in enforcement activities.

The CalEPA Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs in California. These six programs (and their corresponding state oversight agencies) are:

- Hazardous Materials Release Response Plans and Inventories (Business Plans) - California Governor's Office of Emergency Services (CalOES)
- California Accidental Release Prevention (CalARP) Program - California Governor's Office of Emergency Services (CalOES)
- Underground Storage Tank (UST) Program - California State Water Resources Control Board (SWRCB)
- Aboveground Petroleum Storage Act (APSA) - Office of the State Fire Marshal (CAL FIRE-OSFM)
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs - DTSC
- California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements - Office of the State Fire Marshal (CAL FIRE-OSFM)

The Humboldt County Division of Environmental Health is the local Certified Unified Program Agency (CUPA) that implements the CalEPA's Unified Program.

#### **State Water Resources Control Board**

The State Water Resources Control Board oversees hazardous materials that are stored in underground storage tanks. The Board addresses how those hazardous materials are stored and handled, as well as clean-up of any contamination created by leaking underground storage tanks. The Office of the State Fire Marshal oversees petroleum products that are stored in aboveground storage tanks.

The California Environmental Protection Agency certifies 81 local Certified Unified Program Agencies statewide to oversee the following hazardous materials programs:

- Area Plans for Hazardous Materials Emergencies
- California Accidental Release Prevention Program (CalARP)
- Hazardous Materials Release Response Plans and Inventories
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment Programs
- Underground Storage Tank Program

Title 49 of the CFR lists thousands of hazardous materials, including gasoline, insecticides, household cleaning products, and radioactive materials. State-regulated substances that have the greatest probability of adversely impacting communities are listed in the Title 19 of the CCR.

#### **LOCAL**

##### **Humboldt County Division of Environmental Health**

As noted above, the Certified Unified Program Agency (CUPA) with regulatory authority over the City is the Humboldt County Division of Environmental Health. This agency helps businesses meet state



requirements for reporting hazardous materials and waste above certain designated quantities that they use, store, or handle at their facility. The California Environmental Reporting System is the statewide web-based system that supports the electronic exchange of required information among businesses, local governments and the U.S. Environmental Protection Agency (USEPA).

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-d) Less Than Significant Impact.** The Housing Element Update is a policy document and does not provide site-specific designs or development proposals, nor does it grant development entitlements. The Housing Element Update provides policies and programs designed to facilitate the construction and conservation of housing.

The construction of future residential development would require the temporary use and transport of paints, fuels, oils, solvents, and other chemicals used during construction activities. Improper use and transportation of hazardous materials could result in accidental releases or spills, potentially posing health risks to workers, the public, and the environment. These activities are controlled by County code provisions and State and federal regulations. Throughout the transport, use, or disposal of potentially hazardous materials, the contractor is required to employ standard cleanup and safety procedures to minimize the potential for public exposure from accidental releases of such substances into the environment. The operation of residential land uses is not typically associated with the routine transport, use, or disposal of hazardous materials. Residential uses may utilize cleaning products that contain toxic substances, but they are usually in low concentration and small in amount and would not pose a significant risk to humans or the environment during transport to and from or use at future residential development. As such, the Housing Element Update would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, there would be a less than significant impact in this regard.

Public schools in the City include the Blue Lake Union Elementary School. The construction and operation of residential land uses is not typically associated with the release of hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste. These types of impacts are typically generated by industrial uses including stationary sources that are subject to numerous State and federal regulations. Construction activity from future residential development may generate emissions in the form of diesel particulate matter and fugitive dust, but due to the short-term nature of construction activity, is not anticipated to result in adverse effects. Additionally, most of the residential

development potential identified in the Housing Element Update is located more than a quarter mile from the elementary school. Residential uses may utilize cleaning products that contain toxic substances, but they are usually in low concentration and small in amount and would not pose a significant risk to the school. Therefore, there would be a less than significant impact in this regard.

As discussed in the Setting, there are nine sites in the City that are on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. None of the sites are known to contain significant contamination above regulatory screening levels and have received determinations of either “No Action Required” or “Case Closed” by regulatory agencies including the DTSC and SWRCB (DTSC, 2024; SWRCB, 2024). Future residential development on the sites identified as vacant and likely developable could potentially uncover unknown hazardous materials contamination during construction activities. Based on the information available from prior site investigations and agency determinations, this would not be considered to pose a significant risk to humans or the environment. Therefore, impacts would be less than significant in this regard.

**e) No Impact.** The proposed project is not within two miles of an airport or within an airport land use plan. The closest airport to the City is the California Redwood Coast-Humboldt County Airport in McKinleyville, which is located approximately 8 miles northwest of the City. Therefore, there would be no impact in this regard.

**f-g) Less Than Significant Impact.** The City is included in the Humboldt County Emergency Operations Plan and the Humboldt County Operational Area Hazard Mitigation Plan. There are multiple routes for access in and out of the City that could be used for emergency evacuations including Blue Lake Boulevard, Hatchery Road/West End Road, Maple Creek Road, Glendale Drive, and State Route 299. The City’s designated industrial truck route (Greenwood Avenue, Railroad Avenue, and Hatchery Road) is the main artery roadway through the City that would serve most future residential development identified in the Housing Element Update. According to recent traffic counts, the traffic volumes on Greenwood Avenue are well below its design capacity and it currently operates at an acceptable level of service of C or better (W-Trans, 2023). Future residential development may require new access roads and driveways to development sites that will require review by the Public Works Department, Engineering Department, and Volunteer Fire Protection District to ensure that they comply with applicable design standards for emergency access including, but not limited to, lane widths, road surfaces, vertical clearance, brush clearance, and allowable grades. Based on the projected buildout identified on vacant and likely developable sites in the site inventory of the Housing Element Update (89 units; see Table 21 in Housing Element Update; City of Blue Lake, 2024b), it is not anticipated that future residential development in the City would impair implementation of or physical interference of an adopted emergency response plan or emergency evacuation plan. Therefore, there would be a less than significant impact in this regard.

Fire protection in Humboldt County is provided by local districts, cities, and the California Department of Forestry and Fire Protection (CAL FIRE). The City limits are located in a Local Responsibility Area (LRA), which is served by the Blue Lake Volunteer Fire Protection District. Forestlands surrounding the City are in a State Responsibility Area (SRA), which is served by CAL FIRE. The closest fire station to the project site is the main

station for the Volunteer Fire Protection District, which is near City Hall on First Avenue. The forestlands in this part of Humboldt County could be subject to wildfire and are classified by CAL FIRE as Moderate, High, and Very High Fire Hazard Severity Zones. The City limits and forestlands immediately surrounding the City are classified by CAL FIRE as being in a Moderate Fire Hazard Severity Zone (CAL FIRE, 2024).

The sites identified as vacant and likely developable in the site inventory of the Housing Element Update do not exhibit topography, vegetation patterns, or other factors (for example, fuels, aspect, etc.) that would expose future residents or structures to a significant risk of wildland fires. The City's proximity to State Route 299 and the number of access points in and out of the City provide adequate access and response in an emergency situation. Future residential development would be consistent with existing land uses in the City and would not exacerbate wildfire risks. Therefore, a less than significant impact would occur in this regard.

*Potentially Significant Impact*     
 *Less Than Significant With Mitigation Incorporated*     
 *Less Than Significant Impact*     
 *No Impact*

## Hydrology and Water Quality

**Would the project:**

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in a substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

The City of Blue Lake is situated in the Mad River Valley. The Mad River borders the City on the south and west. A historic lake, for which the City was named, is now a small freshwater marsh of about 3.5 acres on private property on the southern edge of town. A levee along the Mad River on the southern edge of the City

has successfully contained past flooding and it is expected to withstand a 100-year storm event. Powers Creek runs from the northeast through the center of town to the southwest. The lower creek channel remains dry in the summer but floods, to varying degrees, every winter. Flooding occurs in the area north of the railroad but most of the bank overflow occurs between the railroad and the Mad River, where the flood plain spreads out. Some residences in the lower reach have been affected by flooding and various efforts to clean out the brush and debris in the creek have been undertaken in the past. Water table levels in the City have been observed to fluctuate as a function of changing river stage and precipitation.

The Humboldt Bay Municipal Water District (HBMWD) obtained the lands in the Ruth Valley to create a reservoir in the 1960s to allow for water storage and recreational opportunities, creating the Ruth Lake reservoir in Trinity County and constructing a dam on the Mad River (R.W. Matthews Dam; HBMWD, 2024). The HBMWD is the main supplier of water to the Humboldt Bay Region and draws water from the unconfined Holocene River Channel Deposits aquifer at a depth of 60 to 90 feet below the bed of the Mad River through Ranney wells situated in or in close proximity to the Mad River. Water is extracted from this aquifer instead of directly from the river since percolation through surface ground layers help to naturally filter water and improve quality of the drinking water supply. The HBMWD Groundwater Management Plan indicates that groundwater recharge is achieved by inundation of the recharge areas in the Mad River channel through the District's operation of Matthews Dam and Ruth Lake. As a result, additional development in the Humboldt Bay Region would not have a direct impact on the volume of groundwater available to HBMWD. Additionally, the HBMWD has indicated that there is sufficient supply for currently forecasted development (City of Eureka, 2018). The City is under contract with the HBMWD for its domestic water supply, which would serve future residential development. The City's water system includes two redwood water storage tanks, transmission mains, fire hydrants, valves, and the individual water lines from the mains to individual water meters.

The Matthews Dam Emergency Action Plan (EAP) analyzes the worst-case flood scenario from failure of the R.W. Matthews Dam. This would occur if the maximum recorded flood (1964) and the failure of the dam combined together into one catastrophic flood. In this situation, the sites identified as vacant and likely developable in the site inventory of the Housing Element Update would experience flooding (City of Blue Lake, 2004). According to Federal Emergency Management Authority (FEMA) FIRM Panel No. 06023C0713F, except for parcel 025-141-007, the sites identified as vacant and likely developable in the site inventory of the Housing Element Update are located outside of a mapped special flood hazard zone (FEMA, 2016). The Tsunami Hazard Area Map from the California Geological Survey (CGS) shows the City as being located outside of a tsunami hazard zone (CGS, 2024). There is no body of water near the City that has the potential for the generation of a seiche.

## Regulatory Framework

### FEDERAL

#### **Clean Water Act (CWA)**

The CWA (33 USC §1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality and was established to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Pertinent sections of the Act are as follows:

1. Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
2. Section 401 (Water Quality Certification) requires an applicant for any federal permit that would authorize a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Act.
3. Section 402 establishes the National Pollution Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and is discussed in detail below.
4. Section 404, jointly administered by the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (USEPA), establishes a permit program for the discharge of dredged or fill material into waters of the United States.

#### **Federal Anti-Degradation Policy**

The federal Anti-Degradation Policy is part of the CWA (Section 303(d)) and is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that protects designated uses of water bodies (for example, fish and wildlife, recreation, water supply, etc.). The water quality necessary to support the designated use(s) must be maintained and protected.

#### **Safe Drinking Water Act**

Under the 1974 Safe Drinking Water Act, most recently amended in 1996, USEPA regulates contaminants of concern to domestic water supply, which are those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are classified as either primary or secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially.

#### **Federal Emergency Management Agency (FEMA)**

FEMA is responsible for mapping flood-prone areas under the National Flood Insurance Program (NFIP). Communities that participate in the NFIP are required to adopt and enforce a floodplain management ordinance to reduce future flood risks related to new construction in a flood hazard area. In return, property owners have access to affordable federally-funded flood insurance policies.

#### **National Pollution Discharge Elimination System (NPDES)**

Under Section 402(p) of the CWA, the USEPA established the NPDES to enforce discharge standards for both point-source and non-point-source pollution. Dischargers can apply for individual discharge permits, or apply for coverage under the General Permits that cover certain qualified dischargers. Point-source discharges

include municipal and industrial wastewater, stormwater runoff, combined sewer overflows, sanitary sewer overflows, and municipal separate storm sewer systems. NPDES permits impose limits on discharges based on minimum performance standards or the quality of the receiving water, whichever type is more stringent in a given situation.

## **STATE**

### **Porter-Cologne Water Quality Control Act**

The Porter-Cologne Water Quality Control Act (California Water Code §13000 et seq.) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of waters of the State. The Porter-Cologne Water Quality Control Act applies to surface waters, wetlands, and groundwater, and to both point and non-point sources of pollution. The Act requires a Report of Waste Discharge for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. The RWQCBs enforce waste discharge requirements identified in the Report.

### **State Anti-Degradation Policy**

In 1968, as required under the Federal Anti-Degradation Policy, the SWRCB adopted an Anti-Degradation Policy, formally known as the Statement of Policy with Respect to Maintaining High Quality Waters in California (State Water Board Resolution No. 68-16). Under the Anti-Degradation Policy, any actions that can adversely affect water quality in surface or ground waters must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial use of the water, and not result in water quality less than that prescribed in water quality plans and policies.

### **National Pollution Discharge Elimination System**

Pursuant to the federal CWA, the responsibility for issuing NPDES permits and enforcing the NPDES program was delegated to the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs). NPDES permits are also referred to as waste discharge requirements (WDRs) that regulate discharges to waters of the United States.

### **Sustainable Groundwater Management Act**

The Sustainable Groundwater Management Act (SGMA), enacted in September 2014, established a framework for groundwater resources to be managed by local agencies in areas designated by the Department of Water Resources as “medium” or “high” priority basins. Basins were prioritized based, in part, on groundwater elevation monitoring conducted under the California Statewide Groundwater Elevation Monitoring program.

The SGMA required local agencies in medium- and high-priority basins to form Groundwater Sustainability Agencies by July 1, 2017, and be managed in accordance with locally-developed Groundwater Sustainability Plans (GSPs). Critically over-drafted basins were to be managed under a GSP by January 31, 2020. All other medium- and high-priority basins were to be managed under a GSP by January 31, 2022.

## LOCAL

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

### Land Use Element - Environmental Protection Policies:

Policy 4 The City shall encourage site design that maximizes onsite retention of stormwater and minimizes discharge to the City's stormwater system.

### Land Use Element - Powers Creek Management Policies:

Policy 1 Powers Creek shall be managed to maintain the creek as a scenic and natural resource, and to protect adjacent properties and structures to the greatest degree possible.

Policy 7 The various wetland areas throughout the City shall be maintained as a scenic and habitat resource, and to prevent flooding impacts due to the modification of existing hydrology.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-e) Less Than Significant Impact.** The Housing Element Update does not include site-specific design or development proposals, nor does it permit development entitlements. All future development within the City would be required to comply with federal, State, and local regulations intended to protect water quality and ensure compliance with waste discharge requirements. At the local level, Municipal Code Chapter 15.12 (Grading, Erosion, and Sediment Control) contains grading, sediment control, and revegetation standards as well as standards for the protection of watercourses and drainage inlets that must be complied with during all grading or other land-disturbing activities. For projects that will disturb more than one-acre during construction, a Construction General Permit (CGP) will be required to be obtained from the SWRCB, which requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP) that documents the stormwater dynamics at the site, the best management practices (BMPs) and water quality protection measures that will be used, and the frequency of inspections to ensure compliance with water quality standards. During operation, residential land uses have a limited potential to result in water quality impacts relative to more intensive and impactful land uses. All future residential development would be connected to the City's wastewater treatment system, which would prevent potential water quality impacts related to the use of onsite wastewater treatment systems. In compliance with existing laws and regulations protecting water quality, the Housing Element Update would result in a less than significant impact in this regard.



The City's daily water use allotment is currently 400,000 gallons, established via the contract with HBMWD. Currently, the City reports that the average water use during peak use months is approximately 150,000 gallons per day (gpd), 38% of the daily allotment from HBMWD. Based on the City's current population of 1,149 residents as estimated by the California Department of Finance (DOF, 2024), daily per capita water use is conservatively estimated to be approximately 131 gallons per day (gpd) based on the peak use months noted above (150,000 gallons). The HBMWD draws water from the unconfined Holocene River Channel Deposits aquifer at a depth of 60 to 90 feet below the bed of the Mad River through Ranney wells situated in or in close proximity to the Mad River. Water is extracted from this aquifer instead of directly from the river since percolation through surface ground layers help to naturally filter water and improve quality of the drinking water supply. The amount of water supplied to the City under existing conditions is less than 1 percent of the annual yield of the Mad River. The HBMWD Groundwater Management Plan indicates that groundwater recharge is achieved by inundation of the recharge areas in the Mad River channel through the District's operation of Matthews Dam and Ruth Lake. As a result, additional residential development within the City would not have a direct impact on the volume of groundwater available to HBMWD. Additionally, the HBMWD has indicated that there is sufficient supply for currently forecasted development in the Humboldt Bay Region. Additionally, the HBMWD is required to comply with the applicable requirements intended to protect and preserve groundwater and groundwater recharge including its Groundwater Management Plan (City of Eureka, 2018). Therefore, the Housing Element Update would result in a less than significant impact in this regard.

The sites identified as vacant and likely developable in the site inventory of the Housing Element Update, with the exception of parcel 025-141-007, would not have the potential to alter the course of stream or river. Any future projects that would propose direct physical impacts to a stream or river would be required to obtain permits and comply with federal and State regulations including site-specific environmental review pursuant to CEQA and the National Environmental Policy Act (NEPA). Future residential development will create new impervious surfaces and has the potential to increase the volume and rate of surface runoff, which could result in erosion, siltation, and localized flooding on- or off-site and potentially exceed the capacity of the City's existing stormwater system. All development will be required to comply with the City's grading, sediment control, and revegetation standards in Municipal Code Chapter 15.12 (Grading, Erosion, and Sediment Control). These standards would minimize erosion and siltation during construction and operation of future residential land uses. Although the City is not within a Phase II MS4 Permit area, the Public Works and Engineering Departments can require the onsite management of stormwater runoff if it is determined that a project has the potential to exceed the capacity of the City's stormwater system. This is typically required for larger projects with greater areas of impervious surface as conditions of a discretionary permit or building permit. In compliance with the requirements of Municipal Code Chapter 13.20 (Floodplain Management), it is not anticipated that future residential development would impede or redirect flood flows. Any development proposed within a mapped special flood hazard area or area subject to regular inundation from flood waters, would be required to be placed above or outside of the flood zone. In compliance with existing laws and regulations, the Housing Element Update would result in a less than significant impact in this regard.

According to FEMA FIRM Panel No. 06023C0713F, with the exception of parcel 025-141-007, the sites identified as vacant and likely developable in the site inventory of the Housing Element Update are located outside of a mapped special flood hazard area (FEMA, 2016). As noted above, future development proposed within a mapped special flood hazard area, would be required to be placed above or outside of the flood zone, which would minimize the potential for the release of pollutants due to inundation. This would also reduce potential impacts related to inundation in the unlikely event of the failure of R.W. Matthews Dam. The Tsunami Hazard Area Map from the California Geological Survey (CGS) shows the City as being located outside of a tsunami hazard zone (CGS, 2024). There is no body of water near the City that has the potential for the generation of a seiche. Therefore, the Housing Element Update would result in a less than significant impact related to the release of pollutants due to inundation.

As discussed above, future residential development in the City must comply with federal, State, and local regulations pertaining to the protection of water quality and groundwater supply. As such, it is not anticipated that the Housing Element Update would result in conflict with a water quality control plan or groundwater management plan. Therefore, impacts would be less than significant in this regard.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Land Use and Planning

### Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

The City of Blue Lake is located in northern Humboldt County in the Mad River Valley. It is inland of the Humboldt Bay area along State Route 299. Though founded years earlier, the City was incorporated in 1910 and has a current estimated population of 1,149 living in an area of about 0.6 square miles (416 acres; DOF, 2024). It is governed by a five-member city council whose members are elected at large.

The City limits are bordered to the north and east by forested hillsides, to the south and west by the Mad River, and to the west by the Blue Lake Rancheria. Development in the City primarily consists of single-family residential development with commercial uses, public facilities, and apartments in the downtown, and industrial, light industrial, and commercial uses in the Powers Creek District (former Industrial Park and Business Park).

The most sizable annexations to the City occurred during the 1980s consistent with the City's General Plan. This included an annexation in 1983 to expand the former Blue Lake Industrial Park (currently Powers Creek District) to support the construction of an 11-megawatt biomass power plant. After approval of this annexation and power plant construction, an additional 124.5 acres was annexed to the City in 1984. The City also assumed responsibility for maintaining the western portion of the Mad River Levee at this time. In 1985, Blue Lake annexed 8.76 acres to incorporate some of the wastewater treatment plant that was outside City limits. In 1986, the City annexed the site of their 500,000-gallon water storage tank for purposes of management and control (Humboldt LAFCo, 2019).

The last major update of the City's General Plan occurred in the mid-1980s. At that time, the City planned for: A) the revitalization of its downtown; B) replacement of the former McIntosh Mill with an Industrial Park, C) multi-family development adjacent to the downtown and along eastern Railroad Avenue; and D) a creative approach to residential development on the western portion of the City to allow clustering of development in areas without environmental constraints (for example, wetlands, drainages, etc.). Since that time, the City has completed incremental updates to the General Plan, primarily with grant funding, based on input from community visioning processes, changes in community sentiment regarding industrial development

(Industrial Park transitioned to Business Park), and changes in State law. This has included several updates of the General Plan Housing Element to achieve compliance with State housing law. The most recent update to the General Plan was amendment of the Land Use Element in 2021 to plan for mixed-use development in the newly rebranded Powers Creek District (former Industrial Park and Business Park) and incorporate sustainable development policies into the Element. This amendment included the creation and adoption of the Opportunity (O) zone, which allows a combination of residential, commercial, and light manufacturing uses in order to promote a beneficial mixture of residential and commercial uses. As part of this amendment, the O zone was applied to portions of the Powers Creek District, which shifted the focus for residential development from the western portion of the City to the District. As discussed in other sections of this document, the site inventory in the Housing Element Update identifies the Powers Creek District and O zone as containing the majority of residential development potential in the City.

## Regulatory Framework

### Local

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

#### Land Use Element - Character Policies:

- Policy 1 All densities shall be considered with respect to the general density of the City and the neighborhood concerned.
- Policy 6 The City should encourage development of property in accordance with general density and rural character.
- Policy 9 Congruous and compatible development shall be encouraged.

#### Land Use Element – Siting Density Policies:

- Policy 1 All types of dwelling units shall be placed on their sites so as to provide adequate useable outdoor living area. Building sites shall be considered with respect to the location of other buildings, streets, terrain, and to other elements of the environment.
- Policy 2 The City should in approving residential development, require sufficient area to allow open space for each dwelling unit consistent with quality of the rural setting of Blue Lake.
- Policy 3 Planned Unit Development, clustering, and other innovative development design techniques shall be encouraged, where feasible, to maximize open space and allow flexibility in design.

#### Land Use Element - Multi-Use Development Policies:

- Policy 1 Residential uses allowed in commercial areas shall be located and operated in a manner that does not detract from the commercial activities or character of the area. Such uses shall be located on the upper floors or in the portion of the structure away from the street or main entrance.

Policy 2 The City should encourage incidental residential use of portions of commercial structures when other City requirements can be met onsite.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-b) No Impact.** The site inventory in the Housing Element Update only identifies sites as vacant and likely developable that are already designated and zoned for residential use. Development of the sites in the site inventory would be considered infill development as these sites are surrounded by existing development. Therefore, the Housing Element Update would encourage the development of housing on vacant sites in the City and would not divide an established community.

The Housing Element Update does not provide specific development designs or development proposals, nor does it grant development entitlements. The Housing Element Update plans for residential development that is consistent with the requirements of the General Plan, Zoning Code, and State housing law. Future development proposals would be reviewed by the City to ensure compliance with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental effect.

As discussed in the Project Description in Section 1, the proposed project would involve amending the City's Zoning Code to create a Multi-Family Combining Zone to allow multi-family projects without discretionary review or by-right at a density of 16 units per acre or 1 unit per 2,722.5 square feet of lot area (City of Blue Lake, 2024b; see Implementation Program HI-14). Due to the availability of adequate sites with limited constraints within the City where the combining zone could be applied during the 6<sup>th</sup> cycle planning period, the combining zone is anticipated to be applied to a property in the City's Powers Creek District that is zoned Opportunity (O) and already allows for residential development. It should be noted that the combining zone would not result in a higher density than is already allowed by the O zone, which allows for 1 unit per 2,500 square feet or 17.4 units per acre. To meet the requirement for by-right zoning in Government Code Section 65583.2, subdivisions (h) and (i), the property would need to be sufficiently sized to allow a capacity of at least 11 units, which would be a minimum of 27,500 square feet (~0.63-acres) at the residential density allowed in the O zone (1 unit per 2,500 square feet of lot area). Any by-right project proposed on a property where the combining zone has been applied would not be subject to CEQA. However, any amendments to the Zoning Code would be subject to environmental review pursuant to CEQA.

Therefore, the Housing Element Update would have no impact related to physically dividing an established community or conflict with a land use plan, policy, or regulation for the purpose of avoiding or mitigating an environmental effect.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Mineral Resources

### Would the project:

a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

A mineral resource is land on which known deposits of commercially viable mineral or aggregate deposits exist. The designation is applied to sites determined by the State Division of Mines and Geology as being a resource of regional significance and is intended to help maintain any quarrying operations and protect them from encroachment of incompatible uses. The Mad River, which runs along the southern and western boundary of the City, contains sand and gravel resources that are mined annually. Additionally, there are several quarries that exist in the Mad River Valley area.

## Regulatory Framework

### State

The Surface Mining and Reclamation Act (SMARA; PRC Chapter 9, Division 2) provides a comprehensive surface mining and reclamation policy to ensure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. Mineral Resource Zones (MRZs) are applied to sites determined by the California Geological Survey (CGS) as being a resource of regional significance and are intended to help maintain mining operations and protect them from encroachment of incompatible uses.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment.

**a-b) No Impact.** There are no known important mineral resources on the sites identified as vacant and likely developable in the site inventory in the Housing Element Update. As such, it is not anticipated that future

residential development will result in the loss of availability of important mineral resources. Therefore, no impacts would occur in this regard.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Noise

### Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Setting

The City of Blue Lake is located in northern Humboldt County in the Mad River Valley. It is inland of the Humboldt Bay area along State Route 299. The City limits are bordered to the north and east by forested hillsides, to the south and west by the Mad River, and to the west by the Blue Lake Rancheria. Development in the City primarily consists of single-family residential development with commercial uses, public facilities, and apartments in the downtown, and industrial, light industrial, and commercial uses in the Powers Creek District (former Industrial Park and Business Park).

The primary sources of noise in the City include transportation noise from State Route 299 and local streets, industrial and manufacturing activity in the Powers Creek District, and construction activity. State Route 299 runs along the northern edge of the City and is considered ambient noise. State Route 299 does not cause high ambient noise levels because it is elevated above the City and the sound is either prevented from projecting by roadside banks or it projects out over the town and diminishes rapidly along the ground. Traffic volume on local streets is low enough that traffic represents single noise events rather than ambient noise. Heavy truck traffic and construction activity generate most high single noise events in the City. In 1975, when the City adopted its General Plan Noise Element, noise issues in the City were identified as heavy truck traffic on local streets and trains on the Arcata and Mad River Railroad (City of Blue Lake, 1975).



The City is not located within two miles of a private airstrip or public use airport. The closest airport to the City is the California Redwood Coast-Humboldt County Airport in McKinleyville, which is located approximately 8 miles northwest of the City.

## Regulatory Framework

There are several methods of characterizing sound. The standard unit of sound level measurement is the decibel, which is represented by dB. The decibel system of measuring sound gives a rough correlation of the intensity of sound and its perceived loudness to the human ear. Unlike linear measurement units such as inches or pounds, decibels are measured using a logarithmic scale. On a logarithmic scale, a ten dB increase is ten times more intense than a one dB increase, and an additional 20 dB increase would be 100 times more intense. Noise measurements are usually based on the range of sound frequencies, which most human ears can hear, called the “A-weighted” scale; as a result, most measurements are reported as “dBA.”

### Local

The City of Blue Lake has adopted noise standards that regulate noise levels for the protection of sensitive receptors. The noise standards are in Municipal Code Section 17.24.280 (Noise Standards). The Municipal Code stipulates construction activity be limited to the hours of 8:00 am to 6:00 pm Monday through Friday, 9:00 am to 5:00 pm on Saturdays, and does not allow heavy equipment-related construction activities (for example, demolition grading, pile-driving, paving etc.) on Sundays and holidays (City of Blue Lake, 2024a). **Table 5** defines the maximum allowable noise level by receiving land use type, as required by Municipal Code Section 17.24.280(C)(3).

**Table 5. Maximum Allowable Noise Level by Receiving Land Use.**

Noise Level Descriptor	Maximum Exterior Noise Level			Maximum Interior Noise Level		
	7 am - 7 pm	7-10 pm	10 pm - 7 am	7 am - 7 pm	7-10 pm	10 pm – 7 pm
Dwellings, Transient Lodging, Hospitals, Extended Care, and Similar Uses						
Hourly Leq <sup>1</sup>	55 dBA	50 dBA	45 dBA	45 dBA	40 dBA	35 dBA
Meeting Facilities, Auditoriums, Theaters, Libraries, Schools, and Similar Uses						
Hourly Leq <sup>1</sup>	55 dBA	55 dBA	n/a	40 dBA	40 dBA	n/a

<sup>1</sup>Leq means the equivalent continuous sound level in decibels, equivalent to the total sound energy measured over a stated period of time. Hourly Leq means the equivalent continuous sound level in decibels over one hour.

Residential land uses are considered a sensitive receptor for noise. If future residential development is in an elevated noise environment (for example, near industrial operations or major roadways), applicants would be required to conduct exterior and interior noise analysis to ensure future occupants are not subject to noise levels in excess of the standards in **Table 5**. If it is determined that noise levels will exceed the noise standards, then effective noise mitigation measures must be incorporated into the project design pursuant to Municipal Code Section 17.24.280(C)(4).

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-b) Less Than Significant Impact.** The Housing Element Update does not provide specific development designs or development proposals, nor does it grant development entitlements. The Housing Element Update plans for residential development that is consistent with the requirements of the General Plan, Zoning Code, and State housing law. Future residential development has the potential to generate noise during both construction and operation. As noted under the Regulatory Framework discussion, Municipal Code Section 17.24.280 (Noise Standards) places limitation on the hours and days of construction activity, which would minimize potential noise impacts to sensitive receptors in the City. During operation, residential land uses are typically considered sensitive receptors for noise. As such, it is not anticipated that future residential development would result in substantial increases in noise levels in the City. If future residential development is proposed to be located in an elevated noise environment (for example, near industrial operations or major roadways), applicants would be required to conduct exterior and interior noise analysis to ensure future occupants are not subject to noise levels in excess of the standards in Section 17.24.280. Additionally, if new noise-generating land uses are developed near existing residential uses, they would be required to meet the noise standards in Section 17.24.280 at the property line of those residential uses (City of Blue Lake, 2024a). As such, the Housing Element Update would not generate substantial increases in ambient noise levels in excess of applicable standards. Therefore, there would be a less than significant impact in this regard.

During the construction of future residential development, there is the potential to generate groundborne vibration and noise from the use of heavy equipment. Ground vibrations from construction activities do not often reach levels that can damage structures. Pile-driving generates the highest levels of vibration; however, pile-driving is not anticipated to be a common construction method used for future residential development in the City. With respect to the impacts of vibration on persons, vibration from future construction activity would be of short duration and would occur during daytime hours, when residents are less likely to be home. As noted above, Municipal Code Section 17.24.280 (Noise Standards) places limitation on the hours and days of construction activity, which would also minimize the potential impacts of vibration on residents near the future development sites. In compliance with the City's noise standards, the Housing Element Update would not generate excessive groundborne vibration or groundborne noise levels. Therefore, there would be a less than significant impact in this regard.

**c) No Impact.** The City is not located within two miles of a private airstrip or public use airport. The closest airport to the City is the California Redwood Coast-Humboldt County Airport in McKinleyville, which is located approximately 8 miles northwest of the City. Therefore, there would be no impact related to airport noise.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Population and Housing

### Would the project result in:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Setting

The Housing Element Update is a policy level document that plans for the City’s share of the housing need in Humboldt County during the 6<sup>th</sup> housing element planning cycle (2019-2027). Housing needs are largely determined by population. Blue Lake’s population decreased from 1,253 in 2010 to 1,149 in 2024 (U.S. Census Bureau, 2010; DOF, 2024), which is an 8.3 percent decrease in population. Over the same time period, the Humboldt County population decreased from 134,623 in 2010 to 133,100 in 2024, which is an 11.3 percent decrease in population. According to the California Department of Finance (DOF), the City of Blue Lake is estimated to have 570 housing units in 2024 and the total number of units in the County is estimated to be 63,397 (DOF, 2024).

As noted in **Table 1**, the Regional Housing Needs Allocation (RHNA) that is planned for in the Housing Element Update is 34 units, which includes the RHNA from both the 5<sup>th</sup> and 6<sup>th</sup> housing element planning cycles. As noted in **Table 2**, the site inventory in the Housing Element Update estimates that the development potential on the sites identified as vacant and likely developable is 89 units.

### Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a) Less Than Significant Impact.** The site inventory in the Housing Element Update only identifies sites as vacant and likely developable that are already designated and zoned for residential use. Development of the sites in the site inventory would be considered infill development as these sites are surrounded by existing development and can be served by existing utilities and infrastructure.

Based on the estimated number of persons per household in the City (2.12 persons per household; DOF, 2024), development of the RHNA allocation of 34 units is estimated to result in a population increase of approximately 72 residents. This would be a 6.3 percent increase in population and a 6 percent increase in the number of total housing units. If all the vacant and likely developable sites listed in the site inventory of the Housing Element Update were developed as estimated in **Table 2** (89 total units), this could result in an estimated population increase of approximately 189 residents. This would be a 16.4 percent increase in population and a 15.6 percent increase in the total number of housing units.

Since the Housing Element Update plans for development on sites that are already designated and zoned for residential development, the Update would not result in substantial unplanned population growth in the City. Future residential development would be served by existing utilities and infrastructure and would be consistent with the projected growth in the City's General Plan. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

**b) No Impact.** The Housing Element Update plans for residential development on sites that are vacant and encourages the preservation of existing housing in the City. Therefore, the Housing Element Update would not displace substantial numbers of existing people or housing. Therefore, no impact would occur in this regard.

	<i>Less Than Significant</i>		
	<i>Potentially Significant Impact</i>	<i>With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>
			<i>No Impact</i>

## Public Services

**Would the project result in:**

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
i) Fire protection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Police protection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v) Other public facilities				

## Setting

**Fire Protection**

The Blue Lake Fire Protection District, a volunteer organization, provides fire protection within the Blue Lake planning area from headquarters located at 111 1st Avenue in Blue Lake. The Blue Lake Fire Protection District currently has 13 active volunteer fire fighting personnel on its roster. The Fire Protection District maintains a full array of response vehicles, including two Type 1 engines, a Type 3, a rescue unit, two water tenders, and two utility response vehicles. Firefighters are trained and equipped to provide structure, wildland and medical response services. The Fire District employs a full-time, paid Chief that oversees the daily operations of the department (A. Mager, personal communication, September 17, 2024). The BLFPD participates in the countywide mutual aid agreement and has an automatic aid agreement with the Arcata Fire Protection District (AFPD), where both districts are dispatched to fires and other major emergency calls in Blue Lake and the Valley West area of Arcata (Humboldt LAFCo, 2019).

### **Police Department**

The City of Blue Lake contracts with the Humboldt County Sheriff Department for law enforcement services. The contract with the Sheriff Department facilitates the full spectrum of police services, including 24/7 call and response services and related auxiliary services such as investigative, community services, criminalistics, supervisory, and traffic service functions. Support services include records management, dispatch services, and property/evidence services. The contract provides services at a level not less than that provided by the Sheriff in adjacent areas in the County (City of Blue Lake, 2024c).

### **Schools**

Public schools in the City include the Blue Lake Union Elementary School, which is located on Greenwood Avenue and enrolls students from transitional kindergarten to eighth grade. The Blue Lake Union Elementary School District serves students within and outside the City limits. Their services are supplemented by various private schools and programs conducted by the Office of Education. The current capacity of the elementary school is 300 students, and the current enrollment is approximately 150 students (D. Waldvogel, personal communication, September 17, 2024).

### **Parks and Recreational Facilities**

City standards concerning parkland require that there be at least 3 acres of parkland per 1,000 residents and were enacted pursuant to Govt. Code Section 66477. The City currently has approximately 9 acres of parks and recreational facilities. As of 2024, 570 households and a population of 1,149 residents were serviced by the 4 park and recreational facilities in Blue Lake, which includes Perigot Park, The Tot Lot, the Town Square, and the rodeo grounds (DOF, 2024). The City's recreation program includes numerous recreation programs, including a public skate program, a trail network, two baseball/softball fields, as well as a dog park and a yearly Summer and break camp program. The City is in the process of building a new bike park and routinely facilitates recreation events, including the Mad River Enduro Bike Race and the Blue Lake Elementary All-Schools Cross Country Event (A. Mager, personal communication, September 17, 2024).

### **Other Public Facilities**

There are two hospitals within the Humboldt Bay Region that provide medical services: 1) Mad River Hospital in Arcata, and 2) St. Joseph's Hospital in Eureka. The City has partnered with the County of Humboldt to host a public library, which is located in the same building as City Hall and is open to the public two days per week. The library routinely hosts public literacy events. The City of Blue Lake has partnered with Providence Health to facilitate the Blue Lake Resource Center and has entered into an MOU with Providence to facilitate the use of City owned facilities in support of the program. The Resource Center provides various programs and services to the community, including a food distribution program, senior programming, a clothing distribution program, as well as various programs to support health and wellness counseling and referrals (A. Mager, personal communication, September 17, 2024).

## Regulatory Framework

### Local

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

#### Land Use Element - Utilities and Services Policy:

Policy 5 Development should be encouraged to achieve efficient use of existing public utilities and services.

#### Land Use Element - Sense of Community Policy:

Policy 2 The City should promote neighborhood organizations and involvement in improving local services, facilities and living conditions.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a, i- v) Less Than Significant Impact.** The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan.

As discussed in the section on Population and Housing, development of the RHNA allocation of 34 units is estimated to result in a population increase of approximately 72 residents, which would be a 6.3 percent increase in population. Additionally, if all the vacant and likely developable sites listed in the site inventory of the Housing Element Update were developed as estimated in **Table 2** (89 total units), this could result in an estimated population increase of approximately 189 residents, which would be a 16.4 percent increase.

Future residential development in the City as projected in the Housing Element Update could result in an increase in the need for public services. Under CEQA, the need for additional equipment and/or personnel to support public services is not considered a significant impact unless new facilities need to be constructed, that could potentially result in physical impacts. The projected population increase from residential development on the vacant and likely developable sites in the City (189 residents and 16.4 percent increase in population), would not increase the need for public services to the extent that new governmental facilities would need to be constructed. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Recreation

**Would the project result in:**

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

City standards concerning parkland require that there be at least 3 acres of parkland per 1,000 residents and were enacted pursuant to Government Code Section 66477. The City currently has approximately 9 acres of parks and recreational facilities. As of 2024, 570 households and a population of 1,149 residents were serviced by the 4 park and recreational facilities in Blue Lake, which includes Perigot Park, The Tot Lot, the Town Square, and the rodeo grounds (DOF, 2024). The City’s recreation program includes numerous recreation programs, including a public skate program, a trail network, two baseball/softball fields, as well as a dog park and a yearly Summer and break camp program. The City is in the process of building a new bike park and routinely facilitates recreation events, including the Mad River Enduro Bike Race and the Blue Lake Elementary All-Schools Cross Country Event (A. Mager, personal communication, September 17, 2024).

## Regulatory Framework

### **Local**

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

Land Use Element - Preservation of Open Space and Agricultural Lands Policies:

- Policy 7     A pedestrian/equestrian pathway system should be developed to connect open space and recreational areas, utilizing existing open space corridors.
  
- Policy 8     Flood prone areas should be designated for agricultural or recreational uses and kept free from urban development wherever possible.



- Policy 10 Areas on the river side of the levee, and the levee shall be retained in undeveloped open space; public access to this area, for recreational purposes, shall be encouraged.
- Policy 12 Maximum use of school land, utility rights-of-way and other public lands for parks, recreation and open space purposes shall be encouraged.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-b) Less Than Significant Impact.** The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan.

As discussed in the section on Population and Housing, development of the RHNA allocation of 34 units is estimated to result in a population increase of approximately 72 residents, which would be a 6.3 percent increase in population. Additionally, if all the vacant and likely developable sites listed in the site inventory of the Housing Element Update were developed as estimated in **Table 2** (89 total units), this could result in an estimated population increase of approximately 189 residents, which would be a 16.4 percent increase. If all these sites were developed as projected, the City's population would increase from 1,149 (DOF, 2024) to approximately 1,338.

Future residential development in the City as projected in the Housing Element Update could result in an increase in the use of parks and recreational facilities. As noted in the Setting, the City currently has 9-acres of parkland and the City's standards concerning parkland require that there be at least 3 acres of parkland per 1,000 residents. With the projected population increase from residential development on the vacant and likely developable sites in the City (increase to approximately 1,338 residents), the acres of parkland needed to meet the City's standard would be approximately 4 acres. Based on the amount of parkland in the City relative to this projected population increase, it is not anticipated that the Housing Element Update would result in substantial physical deterioration of parks and recreational facilities in the City. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Transportation

### Would the project:

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (for example, sharp curves or dangerous intersections) or incompatible uses (for example, farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

Regional access to the City of Blue Lake is provided by State Route 299, Blue Lake Boulevard, Glendale Drive, Maple Creek Road, West End Road, and Hatchery Road.

### Vehicle Traffic

Pursuant to SB 743, traffic congestion is no longer considered a significant impact on the environment under CEQA. Although not required by CEQA, the following discussion about the operational capacity of streets in the City is provided for informational purposes only.

At the time of preparation of the City's 1986 General Plan Circulation Element, traffic counts were obtained within City limits in mid-1985 by City staff with the assistance of the Humboldt County Department of Public Works (City of Blue Lake, 1986; see page 74b of the 1986 Circulation Element). The highest traffic volumes in the City were measured along Blue Lake Boulevard, Greenwood Avenue, and Hatchery Road. Blue Lake Boulevard is the old State Route 299, Greenwood Avenue is the main entrance into the City, and Hatchery Road is the access to the City from the south, which crosses the Mad River. The traffic counts measured approximately 370 vehicles per hour during peak hour traffic and an Average Daily Traffic (ADT) of 3,764 on Greenwood Avenue.

Additional traffic counts were taken by City staff on Greenwood Avenue in the summer of 2015, which measured the following traffic levels:

- 1,973 ADT
- 16% generated by truck traffic
- 131 am Peak (6.6%)
- 185 pm Peak (9.4%)

The traffic levels obtained for Greenwood Avenue in 2015 were significantly lower than the levels obtained in mid-1985 (3,764 ADT in 1985 versus 1,973 ADT in 2015). One possible explanation could be the decline of the timber industry and resulting mill closures and associated decrease in economic activity. Additionally, the City's population has also decreased since the mid-1980s. In contrast to the decreased traffic levels on Greenwood Avenue, the development of the Blue Lake Casino provides a higher level of traffic throughout the day and night on roads such as Blue Lake Boulevard and Chartin Road (County), which provides primary access to the Rancheria.

In the 1986 Circulation Element, it was stated that approximately 1,200 to 1,300 cars per hour would be a high level of traffic for a street with Greenwood's capacity. Additionally, it was also stated that the traffic volume on Greenwood would have to be quadrupled (3,764 to 15,056 vehicle trips per day) to reach capacity. With the decrease in traffic volume since the mid-1980s, it is not anticipated that Greenwood will reach capacity because of build out in the City since the road is fully capable, with its present make-up (parking, width, surface, traffic controls) of handling the increase in volume.

The 1986 Circulation Element includes an analysis of the implications of future growth on the transportation system. As a result of this analysis, the highest priority road improvements were directed towards addressing congestion on Greenwood Avenue, Railroad Avenue, and Hatchery Road (the designated industrial truck route), and the Downtown area. In the last few years, the City completed an intensive engineering and design study for the truck route and the project has been funded to install improvements to the route to slow down traffic and encourage safe access for pedestrians and bicyclists. The planned improvements to the Greenwood portion of the truck route are currently under construction.

### **Public Transportation**

The Humboldt Transit Authority has a transit bus that travels between Willow Creek and Arcata, which serves two bus stops in Blue Lake during the week (City Hall and Blue Lake Casino). Monday through Friday there are 3 westbound runs and 2 eastbound runs. On Saturdays there are 3 westbound and 3 eastbound runs (HTA, 2024).

### **Trails**

In the mid-1980s, much interest was expressed by the community in support of an equestrian and pedestrian trail to the Mad River. Blue Lake's size and topography is conducive to pedestrian and bicycle activity, which allows convenient access to the river and other scenic attractions in the surrounding area. Equestrian use is also common within the City.

In the late 1990s, the City adopted a trails plan, entitled the Blue Lake Community Trail and Pathway Plan, which led to the expansion of trails in the City, including the Powers Creek District loop (former Industrial Park and Business Park loop). This has also included the installation of a pedestrian bridge connecting

Broderick Lane with Monda Way and providing an additional connection between the Downtown and the trail system in the Powers Creek District. Most recently, it has resulted in the installation of a portion of the Annie & Mary Trail (Class I multi-use path) along South Railroad Avenue between Chartin Road and H Street. These trails are used by pedestrians, bicyclists, and equestrians in the community and visitors to the area.

### **Bicycle Facilities**

Class II bike lanes exist on Chartin Road and on Hatchery Road north of the Mad River bridge crossing. As noted above, a Class I multi-use path is located alongside South Railroad Avenue and is part of the planned Annie and Mary Trail that would connect the cities of Arcata and Blue Lake. Bicyclists also ride in the roadway and/or on sidewalks along other streets in the City.

## Regulatory Framework

### **State**

Pursuant to SB 743, traffic congestion is no longer considered a significant impact on the environment under CEQA. The new metric bases the traffic impact analysis on vehicle miles traveled (VMT), and potential impacts are reviewed based on land use efficiency rather than road capacity. VMT refers to the amount and distance of automobile travel attributable to a project.

### **Local**

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

#### Circulation Element - Circulation Patterns Policies:

Policy 6 Adequate local circulation plans shall be required for future divisions and new development.

#### Circulation Element - Development Policies:

Policy 7 New development shall be required to provide sidewalks or other street improvements and necessary traffic control signs as determined by the City of Blue Lake.

Policy 8 Adequate street access shall be provided to all newly divided parcels and/or new development. "Flag lots" shall be discouraged.

#### Circulation Element - Public Transportation Policies:

Policy 15 Public transit service, linking Blue Lake to the nearest public transportation corridor, shall be made available at convenient hours and convenient places within the City.

#### Circulation Element - Non-Vehicular Access Policies:

Policy 16 The City should establish safe access for non-vehicular traffic to and along the Mad River.

## Circulation Element - Truck/Industrial Policy:

Policy 23 As long as the City uses the existing truck route, the City should consider minimizing potential densities for residential lots within one local street or one block of Greenwood Avenue.

### Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a) Less Than Significant Impact.** The Housing Element Update does not include specific development proposals, nor does it grant development entitlements. The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan. Development of these sites would be considered infill development as these sites are surrounded by existing development and can be served by existing utilities and infrastructure.

As discussed in the section on Population and Housing, development of the RHNA allocation of 34 units is estimated to result in a population increase of approximately 72 residents, which would be a 6.3 percent increase in population. Additionally, if all the vacant and likely developable sites listed in the site inventory of the Housing Element Update were developed as estimated in **Table 2** (89 total units), this could result in an estimated population increase of approximately 189 residents, which would be a 16.4 percent increase. If all these sites were developed as projected, the City's population would increase from 1,149 (DOF, 2024) to approximately 1,338.

Future residential development in the City as projected in the Housing Element Update would result in an increase in vehicle trips on City streets and the use of facilities for alternatives modes and transit service. Future development projects would be reviewed on a case-by-case basis to ensure consistency with applicable regulations that address the circulation system. Depending on the size and character of future projects, a Traffic Impact Study may be required to analyze potential transportation impacts.

Considering the modest increase in population that could result from residential development on the vacant and likely developable sites in the City (189 residents and 16.4 percent increase in population), and the design capacity of the main artery roadway in the City (Greenwood Avenue, Railroad Avenue, and Hatchery Road), it is not anticipated that the Housing Element Update would conflict with any program, plan, ordinance, or policy addressing the circulation system. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

**b) Less Than Significant Impact.** Senate Bill (SB) 743 established vehicle miles traveled (VMT) as the metric to be applied for determining transportation impacts associated with development projects. Pursuant to SB 743, traffic congestion is no longer considered a significant impact on the environment under CEQA, and potential

impacts are reviewed based on land use efficiency rather than road capacity. VMT refers to the amount and distance of automobile travel attributable to a project.

CEQA Guidelines Section 15064.3(b) provides the criteria for analyzing transportation impacts related to VMT. The City of Blue Lake has not yet established thresholds of significance for VMT. CEQA Guidelines Section 15064.3(b)(3) states that if existing models or methods are not available to estimate the vehicle miles traveled for a particular project, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such qualitative analysis could evaluate factors such as the efficiency of land use patterns, proximity to other destinations, and proximity to facilities for alternative modes.

The Housing Element Update does not include specific development proposals, nor does it grant development entitlements. The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan. Development of these sites would be considered infill development as these sites are surrounded by existing development and can be served by existing infrastructure. Depending on the size and character of future projects, a Traffic Impact Study may be required to analyze potential VMT impacts.

The Housing Element Update indicates that most of the residential development potential on vacant and likely developable sites is located within the City's Powers Creek District, which is zoned to require a mixture of residential and commercial uses. For example, the District is zoned to not allow residential-only development, in order to promote a beneficial mixture of residential and commercial uses. Land use regulations that promote infill and mixed-use development have the potential to reduce vehicle miles traveled.

The City has planned for the following improvements to support pedestrian and bicycle use, which would encourage the use of alternative modes by the future residents on the sites identified as vacant and likely developable in the Housing Element Update. Several of these improvements would specifically improve the pedestrian and bicycle access to and from the Powers Creek District, where most of the residential development potential is projected to occur.

- Paving the existing trail system.
- Eliminating pedestrian facility gaps to improve access between the Powers Creek District, Downtown, and the Blue Lake Elementary School.
- Constructing complete streets improvements along the City's industrial truck route.
- Providing bicycle parking spaces at public facilities and other City-owned property.

Given the proximity of most of the sites planned for residential development to the center of Blue Lake, and the required mix of uses in the Powers Creek District, future residential development would encourage short trips to access a variety of destinations by alternative transportation modes and the completion of these improvements would be expected to reduce VMT. Additionally, most of the sites planned for residential development are within walking distance (<1/3 mile) of the bus stops at City Hall and the Blue Lake Rancheria.

Based on the above discussion, the Housing Element Update would not conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b). Therefore impacts would be less than significant in this regard.

**c-d) Less Than Significant Impact.** The Housing Element Update does not include specific development proposals, nor does it grant development entitlements. The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan. Development of these sites would be considered infill development as these sites are surrounded by existing development and can be served by existing utilities and infrastructure.

There are multiple routes for access in and out of the City that could be used for emergency access including Blue Lake Boulevard, Hatchery Road/West End Road, Maple Creek Road, Glendale Drive, and State Route 299. The City's designated industrial truck route (Greenwood Avenue, Railroad Avenue, and Hatchery Road) is the main artery roadway through the City that would serve most future residential development identified in the Housing Element Update. According to recent traffic counts, the traffic volumes on Greenwood Avenue are well below its design capacity and it currently operates at an acceptable level of service of C or better (W-Trans, 2023). Although the City's industrial truck route would serve most of the projected residential development in the Housing Element Update, the percentage of truck traffic is a small portion of the overall traffic volume and would not result in incompatibility between the existing industrial and future residential uses.

Future residential development may require new access roads and driveways to development sites that will require review by the Public Works Department, Engineering Department, and Volunteer Fire Protection District to ensure that they comply with applicable design standards for adequate emergency access and do not result in any hazardous design features. In compliance with existing design standards, the Housing Element Update would not increase hazardous design features or incompatible uses and would not result in inadequate emergency access. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Tribal Cultural Resources

Would the project:

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.









## Setting

Public Resources Code Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and meets either of the following criteria:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.



The City lies within the traditional territory of the Pat-a-wat division of the Wiyot Indian tribe. By the time of the arrival of European settlers in 1850, the Blue Lake area had become a borderland zone between the territories of the Wiyot and Whilkut tribes (Loud, 1918). The Wiyots of Mad River were a subunit of the larger Wiyot tribe, and were known as Pat-a-wats, after the Wiyot name for Mad River. The territory for the Pat-a-wats was generally described as the lower Mad River from Blue Lake near the junction of the North Fork down to the coast, and thence south to the southern shore of Humboldt Bay (Merriam, 1976).

The sites identified as vacant and likely developable in the site inventory of the Housing Element Update are not known to contain any tribal cultural resources.

## Regulatory Framework

### State

#### Senate Bill (SB) 18

CGC §65352.3 (SB 18) requires local governments to contact tribal organizations prior to adopting or amending a general plan or specific plan, and prior to designating open space. The intent of SB 18 is to provide Native American tribes an opportunity to participate in land use decisions for the purpose of protecting or mitigating impacts to Native American cultural resources and sacred sites. Tribes have 90 days to respond to the request for consultation under SB 18.

#### Assembly Bill (AB) 52

Public Resources Code (PRC) §21084.2 (AB 52) establishes that *“a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment.”*

Pursuant to AB 52, in order to determine whether a project may have such an effect, a lead agency is required to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if the tribe requested to the lead agency, in writing, to be informed through formal notification of proposed projects in the geographical area, and the tribe responds, in writing, within 30 days of receipt of the formal notification and requests the consultation.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a, i-ii) Less Than Significant Impact.** The Housing Element Update does not include specific development proposals, nor does it grant development entitlements. The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan. As noted in the Setting, the sites identified as vacant and likely developable in the site inventory of the Housing Element Update are not known to contain any tribal cultural resources.

To satisfy the requirements of SB 18, the City provided written notice of the proposed 2019-2027 Housing Element Update to the Tribes in the Humboldt Bay region at the beginning of August 2022. Tribes have 90 days to respond to the request for consultation under SB 18 and no responses were received. To satisfy the requirements of AB 52, the City provided written notice of preparation of a CEQA Initial Study for the 2019-2027 Housing Element Update to the Tribes in the Humboldt Bay region at the end of January 2024. Tribes have 30 days to respond to the request for consultation under AB 52 and no responses were received.

All future residential development within the City would be required to comply with local and State regulations that protect cultural resources. At the local level, the City's General Plan and the regulations in Municipal Code Chapter 15.12 (Grading, Erosion, and Sediment Control) require the implementation of an inadvertent discovery protocol for all development. This protocol requires construction activity to cease if cultural resources are encountered during permitted or non-permitted construction activities. Future projects that require discretionary review would also be subject to review under CEQA, which could require consultation with local Tribes and preparation of a site-specific Cultural Resources Investigation. If a site is considered sensitive for cultural resources or resources are discovered during site-specific investigation, mitigation would be required to reduce potential impacts.

Therefore, in compliance with existing regulatory requirements, the Housing Element Update would result in a less than significant impact related to tribal cultural resources.

*Potentially Significant Impact*     
 *Less Than Significant With Mitigation Incorporated*     
 *Less Than Significant Impact*     
 *No Impact*

## Utilities and Service Systems

### Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

### Water

The City of Blue Lake obtains all of its domestic water supply through a contract with the Humboldt Bay Municipal Water District (HBMWD). Water is delivered to the city via a booster pump station northwest of the City on Glendale Drive. The City's water system includes two redwood water storage tanks, transmission mains, fire hydrants, valves, and the water services from the mains to individual water meters. The City owns and operates the booster pump station on Glendale Drive, which pumps water through a single pipe into the City's main distribution system to a pressure needed to fill two storage tanks. The distribution system consists of 51,050 feet of pipeline which is mostly asbestos cement, installed in the early 1970s. The booster station pumps water into town and the water that is not used flows through the system and into the City's

storage tanks. The City has two redwood storage tanks with a total storage capacity of 900,000 gallons (Humboldt LAFCo, 2019). There is an existing water main line along Taylor Way that was designed to serve industrial development and is available to serve most of the residential development potential projected in the Housing Element Update.

The City's daily water use allotment is currently 400,000 gallons, established via the contract with HBMWD. Currently, the City reports that the average water use during peak use months is approximately 150,000 gallons per day (gpd), 38% of the daily allotment from HBMWD. Based on the City's current population of 1,149 residents as estimated by the California Department of Finance (DOF, 2024), daily per capita water use is conservatively estimated to be approximately 131 gallons per day (gpd) based on the peak use months noted above (150,000 gallons).

### **Wastewater**

The Blue Lake Wastewater Treatment Plant (WWTP) is located in the northwest portion of the City. The WWTP is a primary headworks facility followed by a 7.5 acre, 4-cell secondary treatment lagoon system, a chlorine disinfection system, and two effluent disposal percolation ponds. The WWTP has an average dry weather flow (ADWF) of 0.18 million gallons per day (MGD). The wastewater treatment capacity is 1 million gallons per day (mgd). The system is designed for average flows of 0.25 mgd and peak flows of 1.54 mgd (Humboldt LAFCo, 2019). According to the City Public Works Department, the City's average dry weather flows are currently 0.09 mgd, which is approximately 9 percent of the plant's 1 mgd capacity and 36 percent of the average flow design capacity. To date, the system has not experienced any sewer overflow events.

In 2013, the City adopted an Interim Policy Pertaining to the Release of Sewer Capacity. It determined that the WWTP had a remaining unallocated sewer capacity equal to 100 residential equivalent units (REUs). The City has approved projects to use the remaining REUs, but these projects have not yet been constructed. The City is planning capital improvements to the WWTP to serve the development in the Powers Creek District, which includes electrical panel upgrades and installation of two (2) 5 h.p. aerators at the treatment plant. These improvements, which would increase treatment capacity by approximately 180 residential equivalent unit (REUs), were previously planned to serve an expansion of production at the Mad River Brewery (MRB). The proposal by MRB to expand their production was ultimately abandoned and the City did not construct the improvements to the WWTP to provide the additional capacity.

### **Stormwater**

A large portion of the City of Blue Lake's stormwater infrastructure dates back to the 1950s and 60s and some of the facilities may need to be serviced or replaced in the near future. The City constructed stormwater infrastructure in the early 1980s in the Powers Creek District, when the City was planning to redevelop the former McIntosh Mill site as an industrial park. The City has not adopted its own stormwater regulations and is not within the municipal separate storm sewer systems (MS4) permit area in Humboldt County. Onsite and offsite stormwater improvement requirements for development projects are applied on a case-by-case basis.

### **Dry Utilities**

Electricity is supplied to the City through Redwood Coast Energy Authority Community Choice Energy Program (RCEA, 2024), which utilizes the Pacific Gas and Electric Company (PG&E) electrical grid. Gas is supplied to the City through PG&E. Telecommunications are supplied to the City by Optimum and AT&T.

### **Solid Waste**

Humboldt Waste Management Authority (HWMA) was formed through a joint powers' agreement in 1999, and is comprised of six jurisdictions within Humboldt County: the cities of Arcata, Blue Lake, Eureka, Ferndale, Rio Dell, and representing the unincorporated areas, Humboldt County. Solid waste produced in the City of Blue Lake is collected by Blue Lake Garbage and transported to a transfer station in the Humboldt Bay region such as the HWMA transfer station in Eureka, California. The solid waste is then transported to the Dry Creek Landfill in White City, Oregon. The Dry Creek Landfill has an operational life exceeding 100 years (Dry Creek Landfill, Inc., 2024).

## Regulatory Framework

### **Local**

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policy including:

#### Land Use Element - Utilities and Services Policies:

- Policy 3 Solid waste, whether public or private, shall be properly collected, stored and transported to protect public health and safety and to ensure a clean community appearance.
- Policy 4 The City shall not allow development which would exceed the City's sewage treatment capacity; nor shall the City knowingly allow development which could adversely affect water quality in the Mad River.
- Policy 5 Development should be encouraged to achieve efficient use of existing public utilities and services.
- Policy 6 In approving development, the City shall be consistent in requiring street improvements, sidewalks, curbs, gutters, fire protection systems, utility undergrounding and other pertinent improvements.
- Policy 7. The City shall provide adequate supply of good quality water to all current users; new users shall be accommodated without diminishing existing levels of service.
- Policy 8 The City shall reserve sewer capacity for the residential build-out projected in the Housing Element. Any remaining unallocated sewer capacity shall be made available to nonresidential uses as approved by the City Manager and/or City Council.
- Policy 11 Due to limited remaining sewer capacity, large water users/strong dischargers shall be required to use alternative treatment/pre-treatment methods, where feasible, rather than the City

sewage treatment system.

Policy 12 Fees shall be charged by the City for water and sewer system users; these fees shall be determined equitably, based on the entire system costs. Multiple uses of the same hookup shall be discouraged unless sufficient justification, as determined by Public Works, can be provided to do otherwise.

Land Use Element – Utilities and Services Implementation Measures:

Measure C The City should develop an annual Capital Improvements program for major construction, repair, and replacement of public facilities. During the upcoming period, for instance, the City should consider the following capital improvements:

- Improvements to the sewer treatment plant to increase capacity to accommodate new commercial and industrial users.

Housing Element Update – Wastewater Treatment Plant Improvements Program:

HI-18 To address the potential insufficient wastewater treatment capacity during a portion of the planning period, the City shall construct the wastewater treatment plant improvements identified in the City’s Capital Improvement Plan within two years of adopting the housing element. These improvements include electrical panel upgrades and the installation of two (2) 5-horsepower aerators, which are estimated to provide an additional 180 residential equivalent units (REUs).

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a) Less Than Significant Impact.** The Housing Element Update does not include specific development proposals, nor does it grant development entitlements. The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City’s General Plan. Development of these sites would be considered infill development as these sites are surrounded by existing development and can be served by existing utilities and infrastructure.

Future residential development in the City would require utility infrastructure improvements that would result in physical impacts to the development sites and the adjacent public right-of-way to connect to existing infrastructure. These potential impacts from future residential development will be addressed when permit applications are submitted. Through the building permit process, impacts would be addressed through compliance with existing infrastructure design standards and regulatory requirements. If the future projects

require a discretionary permit, then analysis of the impacts would also be required under CEQA.

In compliance with existing design standards and regulatory requirements, potential impacts related to the construction or relocation of utility infrastructure from future residential development would not cause significant environmental effects. Therefore, impacts would be less than significant in this regard.

**b) Less Than Significant Impact.** The City's daily water use allotment is currently 400,000 gallons, established via the contract with HBMWD. Currently, the City reports that the average water use during peak use months is approximately 150,000 gallons per day (gpd), 38% of the daily allotment from HBMWD. Based on the City's current population of 1,149 residents as estimated by the California Department of Finance (DOF, 2024), daily per capita water use is conservatively estimated to be approximately 131 gallons per day (gpd) based on the peak use months noted above (150,000 gallons).

The HBMWD draws water from the unconfined Holocene River Channel Deposits aquifer at a depth of 60 to 90 feet below the bed of the Mad River through Ranney wells situated in or in close proximity to the Mad River. Water is extracted from this aquifer instead of directly from the river since percolation through surface ground layers help to naturally filter water and improve quality of the drinking water supply. The amount of water supplied to the City under existing conditions is less than 1 percent of the annual yield of the Mad River. The HBMWD Groundwater Management Plan indicates that groundwater recharge is achieved by inundation of the recharge areas in the Mad River channel through the District's operation of Matthews Dam and Ruth Lake. As a result, additional residential development within the City would not have a direct impact on the volume of groundwater available to HBMWD. Additionally, the HBMWD has indicated that there is sufficient supply for currently forecasted development in the Humboldt Bay Region.

As discussed in the section on Population and Housing, if all the vacant and likely developable sites listed in the site inventory of the Housing Element Update were developed as estimated in **Table 2** (89 total units), this could result in an estimated population increase of approximately 189 residents, which would be a 16.4 percent increase. If all these sites were developed as projected, the City's population would increase from 1,149 (DOF, 2024) to approximately 1,338. With this increase in population, it is estimated that daily water use would increase by approximately 24,760 gallons for a total of 174,760 gallons during peak use months. Since the estimated increase in daily water use would be well within the City's daily water use allotment of 400,000 gallons, there would be sufficient water supplies available to serve the residential development projected in the Housing Element Update. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

**c) Less Than Significant Impact.** In 2013, the City adopted an Interim Policy Pertaining to the Release of Sewer Capacity. It determined that it had a remaining unallocated sewer capacity equal to 100 residential equivalent units (REUs). Of the estimated remaining REUs, 60 REUs were reserved then for residential connections, including both single- and multi-family uses, and 40 REUs were then made available for non-residential use. According to the City Engineer, the remaining wastewater treatment capacity is anticipated to be used by the approved (not constructed yet) and proposed development projects in the City. Therefore, improvements to the City's wastewater treatment facility will be required in order to have adequate capacity to serve the residential development potential projected in the Housing Element Update. As identified in the City's Capital Improvement Plan, these improvements include electrical panel upgrades and the installation

of two (2) 5 horsepower aerators, which are anticipated to provide an additional 180 REUs. To address the potential for insufficient wastewater treatment capacity during a portion of the 6<sup>th</sup> cycle planning period, the City has included Program HI-18 in the Housing Element Update, which commits the City to construction of the wastewater treatment plant improvements within two years of adoption of the Housing Element. This implementation schedule will ensure there is sufficient wastewater treatment capacity available during the planning period for development on the vacant and likely developable sites identified in the site inventory of the Housing Element Update. The City anticipates requiring future residential development projects to pay a fair share contribution to the improvements to the WWTP through a development impact fee, which will be determined based on the estimated REUs for the projects. In compliance with Program HI-18, the City would have sufficient wastewater treatment capacity to serve the projected residential development potential. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

**d-e) Less Than Significant Impact.** The Housing Element Update does not include specific development proposals, nor does it grant development entitlements. The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan. Development of these sites would be considered infill development as these sites are surrounded by existing development and can be served by existing utilities and infrastructure.

Future residential development within the City would increase the demand for solid waste services and would increase the amount of solid waste generated and sent to landfills. Solid waste produced in the City is collected by Blue Lake Garbage and transported to a transfer station in the Humboldt Bay region such as the HWMA transfer station in Eureka, California. The solid waste is then transported to the Dry Creek Landfill in White City, Oregon. The Dry Creek Landfill has an operational life exceeding 100 years (Dry Creek Landfill, Inc., 2024). The HWMA transfer station and the Dry Creek Landfill have sufficient capacity for the foreseeable future to accommodate the solid waste generated by future residential development in the City of Blue Lake. Additionally, all future development would be required to comply with application regulations related to reducing solid waste, recycling, and so on. Therefore, the Housing Element Update would result in a less than significant impact in this regard.



	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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## Wildfires

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

The City of Blue Lake is an incorporated city located in Humboldt County, California, eight miles inland from Humboldt Bay on State Route 299 (see **Figure 1**). The City is situated in the Mad River Valley and the Mad River borders the City on the south and west. The lands surrounding Blue Lake are comprised of steep hillsides to the north and east and generally flat agricultural lands to the west and south. The land uses surrounding Blue Lake are a combination of rural residential, agriculture, timberland, commercial, industrial, and open space land uses.

Fire protection in Humboldt County is provided by local districts, cities, and the California Department of Forestry and Fire Protection (CAL FIRE, 2024a). The City limits are located in a Local Responsibility Area (LRA), which is served by the Blue Lake Volunteer Fire Protection District. Forestlands surrounding the City are in a State Responsibility Area (SRA) that is served by CAL FIRE. The closest fire station to the project site is the main station for the Volunteer Fire Protection District, which is near City Hall on First Avenue. The forestlands in this part of Humboldt County could be subject to wildfire and are classified by CAL FIRE as Moderate, High, and Very High Fire Hazard Severity Zones. The City limits and forestlands immediately surrounding the City are classified by CAL FIRE as being in a Moderate Fire Hazard Severity Zone (CAL FIRE, 2024).

## Regulatory Framework

### State

#### **California Department of Forestry and Fire Protection (CAL FIRE)**

The Bates Bill (AB 337), enacted in 1992, required CAL FIRE to work with local governments to identify high fire hazard severity zones throughout each county in the State. CAL FIRE adopted Fire Hazard Severity Zone (FHSZ) Maps for SRAs in November 2007. Pursuant to CGC §51175-51189, CAL FIRE also recommended FHSZs for Local Responsibility Areas (LRAs). Over the years, CAL FIRE has updated the maps and provided new recommendations to local governments based on fire hazard modeling.

The fire hazard model considers wildland fuels (natural vegetation that burns during the wildfire); topography (fires burn faster as they burn up-slope); weather (fire burns faster and with more intensity when air temperature is high, relative humidity is low, and winds are strong); and ember production and movement (how far embers move and how receptive the landing site is to new fires). The model recognizes that some areas of California have more frequent and severe wildfires than other areas.

#### **California Fire, Building, and Residential Codes**

California Fire Code, Part 9, Chapter 49 (Wildland-Urban Interface Fire Areas), California Building Code Chapter 7A (Materials and Construction Methods for Exterior Wildfire Exposure), and California Residential Code Section R337 include standards for new construction in Wildland-Urban Interface Fire Areas (fire hazard severity zones). A Wildland-Urban Interface Fire Area is defined as a geographic area identified by the State as a Fire Hazard Severity Zone in accordance with PRC §4291 through §4204, and Government Code §51175 through §51189, or other areas designated by the local enforcing agency to be at a significant risk from wildfires. The purpose of the standards is to prevent a building from being ignited by flying embers that can travel as much as a mile away from a wildfire and to contribute to a systematic reduction in fire-related losses through the use of performance and prescriptive requirements. In addition, as of 2011, the CRC requires that automatic fire sprinkler systems be installed in all new single-family residences to protect all areas of a dwelling unit in the event of a fire.

### Local

Future development on any sites identified for residential development in the Housing Element Update will be required to comply with all relevant General Plan policies including:

#### Public Safety Element Policies:

- Policy 11 The City of Blue Lake should ensure good fire protection by improving the water and hydrant system wherever necessary to eliminate dead end mains, provide adequate valving, provide a minimum of 1,500 gallons per minute from any single hydrant at the maximum daily residential consumption rate, provide hydrants within 300 feet of any point, and provide adequate storage for the types of fire encountered.

- Policy 12 Enforcement of the Building Code, the Housing Code, and Title 19 of the California Administrative Code and the City Weed Abatement Ordinance should be given high priority to ensure adequate new construction and the correction of unsafe fire conditions.
- Policy 15 Where existing streets are narrow, on street parking should be controlled so that emergency vehicles will be able to pass at all times. Downtown Blue Lake needs to be studied to determine the types of control that will relieve existing congestion.
- Policy 37 State Highway 299 (in both directions), Glendale Boulevard and Blue Lake Boulevard, Maple Creek Road and West End Road should be designated as evacuation routes from the planning area, Greenwood Avenue, Railroad Avenue and I Street are the evacuation routes within the city. These routes should be kept passable in major emergencies recognizing that the type and location of the disaster will determine which will be most needed.

## Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a-d) Less Than Significant Impact.** The Housing Element Update does not include specific development proposals, nor does it grant development entitlements. The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan. Development of these sites would be considered infill development as these sites are surrounded by existing development and can be served by existing utilities and infrastructure.

There are multiple routes for access in and out of the City that could be used for emergency evacuations including Blue Lake Boulevard, Hatchery Road/West End Road, Maple Creek Road, Glendale Drive, and State Route 299. The City's designated industrial truck route (Greenwood Avenue, Railroad Avenue, and Hatchery Road) is the main artery roadway through the City that would serve most future residential development identified in the Housing Element Update. According to recent traffic counts, the traffic volumes on Greenwood Avenue are well below its design capacity and it currently operates at an acceptable level of service of C or better (W-Trans, 2023). Future residential development may require new access roads and driveways to development sites that will require review by the Public Works Department, Engineering Department, and Volunteer Fire Protection District to ensure that they comply with applicable design standards for emergency access including, but not limited to, lane widths, road surfaces, vertical clearance, brush clearance, and allowable grades. Based on the projected buildout identified on vacant and likely developable sites in the site inventory of the Housing Element Update (89 units; see Table 21 in Housing Element Update; City of Blue Lake, 2024b), it is not anticipated that future residential development in the

City would impair implementation of an adopted emergency response plan or emergency evacuation plan. Therefore, there would be a less than significant impact in this regard.

Fire protection in Humboldt County is provided by local districts, cities, and the California Department of Forestry and Fire Protection (CAL FIRE). The City limits are located in a Local Responsibility Area (LRA), which is served by the Blue Lake Volunteer Fire Protection District. Forestlands surrounding the City are in a State Responsibility Area (SRA), which is served by CAL FIRE. The closest fire station to the project site is the main station for the Volunteer Fire Protection District, which is near City Hall on First Avenue. The forestlands in this part of Humboldt County could be subject to wildfire and are classified by CAL FIRE as Moderate, High, and Very High Fire Hazard Severity Zones. The City limits and forestlands immediately surrounding the City are classified by CAL FIRE as being in a Moderate Fire Hazard Severity Zone (CAL FIRE, 2024).

There are three primary factors that are used in assessing wildfire hazards - topography, weather, and fuel. The sites identified as vacant and likely developable in the site inventory of the Housing Element Update would be in a Moderate Fire Hazard Severity Zone and do not exhibit topography, vegetation patterns, or other factors (for example, fuels, aspect, etc.) that would expose future residents or structures to a significant risk of wildland fires or exacerbate wildfire risks. The future residents would be at no greater risk of experiencing pollutant concentrations from wildfires than other residents in the Humboldt Bay region. Future residential development will require new infrastructure and utilities, which would be installed and maintained at the development sites and adjacent public right-of-way. The location of new infrastructure would occur in a Moderate Fire Hazard Severity Zone in City limits and is not anticipated to exacerbate fire risk or result in ongoing impacts to the environment. The residential development potential projected in the Housing Element Update would occur on sites that are generally flat and would not be subject to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Therefore, the Housing Element Update would result in a less than significant impact in this regard.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant With Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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### Mandatory Findings of Significance:

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

The Housing Element Update is a policy document that does not result in physical changes to the environment but encourages the provision of housing in areas of the City that are already designated and zoned to allow residential development. While policies could require amendments to the Zoning Code or result in actions of the City that could cause a physical change, the policies would not result in specific physical changes to the environment. Additionally, any amendments to the Zoning Code would be subject to project-specific environmental review pursuant to CEQA.

**a) Less Than Significant Impact.** As discussed in the applicable environmental resource sections above, the proposed 2019-2027 Housing Element Update does not have the potential to degrade the quality of the environment, substantially reduce fish or wildlife habitats, impact wildlife populations or ranges, or eliminate important examples of the major periods of California history or prehistory.

The proposed 2019-2027 Housing Element Update does not entitle, propose, or otherwise require the construction of new housing units or rehabilitation of existing housing units, and does not allow development

in areas that are not already designated and zoned for residential development as identified in the City's General Plan Land Use Element and Zoning Code.

Through the City's development review process, future residential development projects would be evaluated to identify potential environmental impacts to biological and cultural resources and ensure compliance with existing laws and regulations protecting these resources. Where applicable, appropriate project changes and/or mitigation measures would be required to avoid/minimize potential impacts associated with future projects. In compliance with existing laws and regulations, the Housing Element Update would result in a less than significant impact in this regard.

**b) Less Than Significant Impact.** As defined in §15355 of the CEQA Guidelines, a cumulative impact consists of an impact that is created as a result of the combination of a proposed project together with other closely related past, present, and reasonably foreseeable future projects that cause related impacts. As noted in §15064(h)(4) of the CEQA Guidelines, the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

The proposed 2019-2027 Housing Element Update is a policy document that identifies goals, policies, and implementation programs that are necessary to accommodate adequate housing in the City in accordance with the RHNA. The Housing Element Update does not include specific development proposals, nor does it grant development entitlements. The Housing Element Update plans for development on sites that are already designated and zoned for residential development and would be consistent with the projected growth in the City's General Plan. Development of these sites would be considered infill development as these sites are surrounded by existing development and can be served by existing utilities and infrastructure.

As discussed in the section on Population and Housing, development of the RHNA allocation of 34 units is estimated to result in a population increase of approximately 72 residents, which would be a 6.3 percent increase in population. Additionally, if all the vacant and likely developable sites listed in the site inventory of the Housing Element Update were developed as estimated in **Table 2** (89 total units), this could result in an estimated population increase of approximately 189 residents, which would be a 16.4 percent increase. If all these sites were developed as projected, the City's population would increase from 1,149 (DOF, 2024) to approximately 1,338. Considering the decrease in population and economic activity in the City over the last two decades, it is not anticipated that this level of growth would result in significant cumulative impacts in any of the resource categories analyzed in this document.

As discussed in the various resource sections of this document, in compliance with existing laws and regulations, future residential development in the City is not anticipated to result in significant environmental impacts. Future development projects would be evaluated on a case-by-case basis through the City's development review process to identify potential impacts and ensure compliance with existing laws and regulations. Where applicable, appropriate project changes and/or mitigation measures would be required to avoid/minimize potential impacts. In compliance with existing laws and regulations, the Housing Element Update would result in a less than significant impact in this regard.

**c) Less Than Significant Impact.** As discussed in the applicable environmental resource sections of this document, the proposed 2019-2027 Housing Element Update does not have any components that would

result in adverse effects on human beings. Future development projects would be evaluated on a case-by-case basis through the City's development review process to identify potential impacts and ensure compliance with existing laws and regulations for the protection of public health and safety. Where applicable, appropriate project changes and/or mitigation measures would be required to avoid/minimize potential impacts on human beings. In compliance with existing laws and regulations, the Housing Element Update would result in a less than significant impact in this regard.

## References

The following documents were used in the preparation of this document. The documents are available for review at the Blue Lake City Hall during regular business hours (9 a.m. to 12 p.m. and 1 p.m. to 4 p.m.) or online as noted in the references below.

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- . 2024b. *General Plan: Draft Housing Element, 2019-2027*.
- . 2024c. *Contract for Law Enforcement Services between the City of Blue Lake and the County of Humboldt*. July.

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## **Attachment 2**

**Comments Received on the Draft CEQA Negative Declaration for  
the Blue Lake General Plan Housing Element Update**



Outlook

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**Re: NCRWQCB comment on Blue Lake Housing Element**

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**From** Garry Rees <grees@shn-engr.com>**Date** Thu 10/17/2024 10:00 AM**To** Bauer, Heidi M.@Waterboards <Heidi.M.Bauer@Waterboards.ca.gov>**Cc** McLaughlin, Kelsey R.@Waterboards <Kelsey.McLaughlin@Waterboards.ca.gov>; citymanager@bluelake.ca.gov <citymanager@bluelake.ca.gov>; Leanna Brotherton <lbrotherton@shn-engr.com>

2 attachments (4 MB)

Figure 3\_Vacant Parcels Map\_HE Update Neg Dec.pdf; GeoTracker-BL LUST Cleanup Sites.pdf;

Heidi,

Thank you for your comments on the CEQA Negative Declaration for the Blue Lake Housing Element Update.

Attached is the vacant parcels map (Figure 3) included on page 6 of the Negative Declaration prepared for the Housing Element Update. This map shows the parcels that are included in the site inventory of the Housing Element Update and are projected to be likely developable for residential uses. Also attached is a map from the Geotracker website showing the leaking underground storage tank (LUST) cleanup sites in the City of Blue Lake. To clarify and as indicated on the attached maps, none of the vacant parcels shown on Figure 3 are sites that are listed as hazardous materials sites that are under the oversight of the North Coast Regional Water Quality Control Board.

Therefore, the City's Housing Element Update is not planning for residential development on the LUST cleanup sites in the City.

Thanks.

**Garry Rees, AICP**

Principal Planner



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Geosciences, Planning & Permitting, Surveying  
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**From:** Bauer, Heidi M.@Waterboards <Heidi.M.Bauer@Waterboards.ca.gov>**Sent:** Monday, September 30, 2024 2:29 PM

**To:** Garry Rees <grees@shn-engr.com>

**Cc:** McLaughlin, Kelsey R.@Waterboards <Kelsey.McLaughlin@Waterboards.ca.gov>

**Subject:** NCRWQCB comment on Blue Lake Housing Element

**CAUTION:** This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Garry Rees, we reviewed the City Of Blue Lake proposed housing element [The City of Blue Lake 2019-2027 Housing Element Update \(ca.gov\)](#) and as noted in the Initial Study on Pages 74 -78 there are nine sites listed as hazardous materials release sites, most of them being under the oversight of our agency, the North Coast Regional Water Quality Control Board. While these sites are considered closed, most of them were closed using screening criteria intended for the current use which most often was commercial/industrial. Since these sites were closed using commercial screening criteria, they may contain contaminants above residential screening thresholds and thereby not be appropriate for residential development without further investigation and/or remediation. Furthermore, some of these sites already have soil management plans which require proper management and handling of any soils excavated at the site. This is because the remaining soils at the site are above screening levels, and while they pose no significant threat to human health or the environment as undisturbed soils in the current use setting, they could pose a threat if unearthed without proper mitigations.

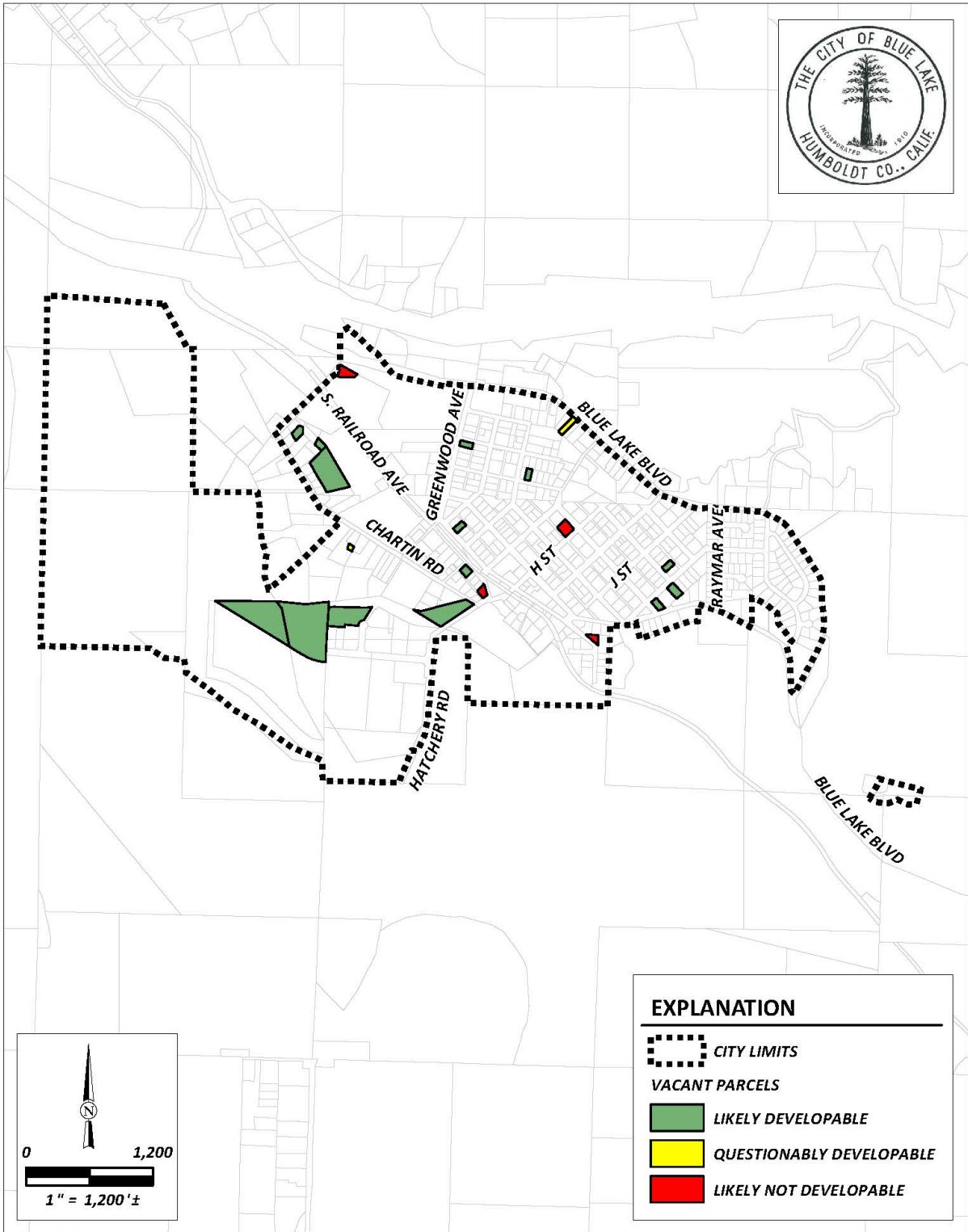
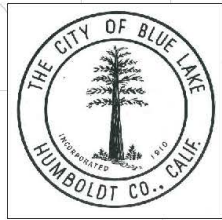
We are supportive of the Housing Element for the City of Blue Lake, but please note that precautions and additional work may be necessary in order to develop these parcels into residential units so that there are no significant health risks to future occupants. Please let me know if you have any questions or would like to discuss this further.

Best,

Heidi

Heidi M. Bauer, P.G.  
Senior Engineering Geologist  
Site Cleanups Unit Supervisor  
North Coast Regional Water Quality Control Board  
5550 Skylane Blvd. Suite A  
Santa Rosa, CA. 95403  
[heidi.m.bauer@waterboards.ca.gov](mailto:heidi.m.bauer@waterboards.ca.gov)  
Office: (707) 570-3769





**EXPLANATION**

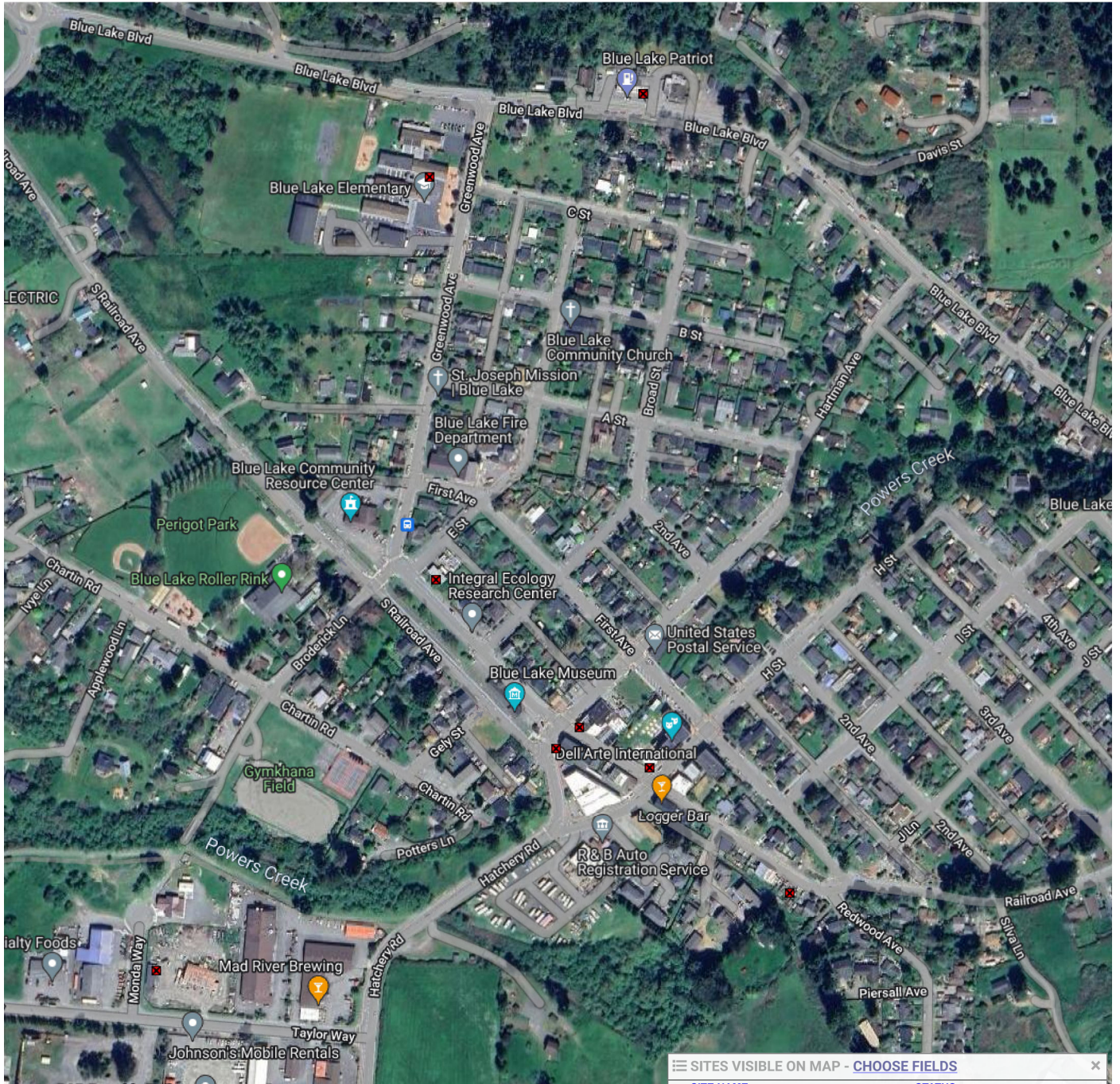
- CITY LIMITS
- VACANT PARCELS**
- LIKELY DEVELOPABLE
- QUESTIONABLY DEVELOPABLE
- LIKELY NOT DEVELOPABLE



City of Blue Lake  
 Housing Element Update  
 Blue Lake, California  
 February 2022

Vacant Parcels with  
 Residential & Mixed Use Zoning  
 SHN 021022.001  
 Figure 3





**LEGEND - CHOOSE MORE SITES**

- LUST Cleanup Sites - REMOVE
- Cleanup Program Sites - REMOVE
- Military Cleanup Sites - REMOVE
- Military Privatized Sites - REMOVE
- Military UST Sites - REMOVE

Signifies a Closed Site

**ACTIVE MAP COVERAGES:**

- Military Bases - REMOVE

**SITES VISIBLE ON MAP - CHOOSE FIELDS**

SITE NAME	STATUS
<span style="color: red;">■</span> BIG OIL & TIRE - BLUE LAKE BP	COMPLETED - CASE CLOSED
<span style="color: red;">■</span> BLUE LAKE BELTING AND LEATHER WORKS	COMPLETED - CASE CLOSED
<span style="color: red;">■</span> BLUE LAKE MARKET	COMPLETED - CASE CLOSED
<span style="color: red;">■</span> BLUE LAKE PUBLIC WORKS YARD	COMPLETED - CASE CLOSED
<span style="color: red;">■</span> BLUE LAKE UNION ELEMENTARY SCHOOL	COMPLETED - CASE CLOSED
<span style="color: red;">■</span> HCDPW BLUE LAKE MAINTENANCE STATION	COMPLETED - CASE CLOSED
<span style="color: red;">■</span> JACKSONS GARAGE	COMPLETED - CASE CLOSED
<span style="color: red;">■</span> LUNDBLADE PROPERTY	COMPLETED - CASE CLOSED
<span style="color: red;">■</span> PRIVATE RESIDENCE	COMPLETED - CASE CLOSED





Outlook

---

**Re: Notice of Intent for a Negative Declaration\_Housing Element\_follow-up**

---

**From** Garry Rees <grees@shn-engr.com>  
**Date** Thu 10/17/2024 3:09 PM  
**To** Idiane <ldiane@sonic.net>  
**Cc** Leanna Brotherton <lbrotherton@shn-engr.com>

Hi Lisa,

I am back in the office from vacation and am getting through my emails. Apologies for the delayed response.

The current draft of the Housing Element Update (dated Feb. 2024) is available on the City's website at the following link:

<https://bluelake.ca.gov/wp-content/uploads/2024/09/02012024-BlueLake-6thCycle-HousingElementUpdate.pdf>

Below is a response to the questions in your 10/13/24 email:

1. In the information letter it says that "The update identifies the potential for development of up to 89 new housing at full buildout of the City's existing vacant lot inventory." By "City's" existing lot inventory--does that apply to just the City-owned property on Taylor Way or empty lots throughout the town? I recall a map showing a lot inventory throughout the town--are those the lots available AND is that map current?  
**The existing vacant lot inventory is listed in Table 21 (Inventory of Vacant Land Available for Residential Development) and shown on Figure 1 (Vacant Site Inventory) in the Housing Element Update (dated Feb. 2024). The existing vacant lot inventory includes both publicly and privately owned properties in the City.**

2. Please elaborate on what "full build-out means". Number of stories/height....etc.  
**When the term "full build-out" is used, it is referring to the number of residential units that are projected to occur on the vacant and likely developable sites identified in the City's Housing Element Update. In the Housing Element Update, it is projected that 89 units could occur on the vacant and likely developable sites in the City. The number of stories/height is dependent on the development standards for each zone that these sites are located in, which varies by zone. The maximum height allowed in the zones containing sites identified as vacant and likely developable typically ranges from 35-45 feet.**

Thanks.

**Garry Rees, AICP**

Principal Planner





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Geosciences, Planning & Permitting, Surveying  
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(707) 441-8855

---

**From:** Idiane <Idiane@sonic.net>  
**Sent:** Sunday, October 13, 2024 7:29 AM  
**To:** Garry Rees <grees@shn-engr.com>  
**Subject:** Fwd: Notice of Intent for a Negative Declaration\_Housing Element\_follow-up

**CAUTION:** This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello Garry,  
Would appreciate hearing back on the questions below. When I return I could schedule a meeting if that would be better. Let me know.  
Also Anali sent the link to the Housing Element yet it was dated some months ago--please let me know if what is online IS the most current version.  
Thank you.  
Lisa Hoover

----- Original Message -----

**Subject:** Notice of Intent for a Negative Declaration\_Housing Element  
**Date:** 2024-10-04 16:39  
**From:** Idiane <Idiane@sonic.net>  
**To:** grees@shn-engr.com

Hello Garry,  
I saw this item on the Blue Lake Webpage. Is the environmental document associated with this posted on the web page? If not, would you please have the City post the document AND please let me know when this takes place.  
Questions:

- In the information letter it says that "The update identifies the potential for development of up to 89 new housing at full buildout of the City's existing vacant lot inventory." By "City's" existing lot inventory--does that apply to just the City-owned property on Taylor Way or empty lots throughout the town? I recall a map showing a lot inventory throughout the town--are those the lots available AND is that map current?
- Please elaborate on what "full build-out means". Number of stories/height....etc.

I would schedule a meeting with you but will not be in town for a couple of weeks so wanted to see if as a start, an email exchange might work.

Thank you.  
Lisa Hoover



# CITY OF BLUE LAKE

Post Office Box 458, 111 Greenwood Road, Blue Lake, CA 95525  
Phone 707.668.5655 Fax 707.668.5916

DATE: October 21, 2024

FROM: Mandy Mager, City Manager  
Garry Rees, City Planner

TO: Blue Lake Planning Commission

**RE: Agenda Item 5 - Discussion: Presentation from staff on the status of the Regional Climate Action Plan (CAP)**

The County of Humboldt, in coordination with the seven incorporated cities, is developing a Regional Climate Action Plan (CAP) to reduce greenhouse gas (GHG) emissions Countywide.

The County released the new public review draft of the CAP on August 14, 2024 (the 2024 Draft CAP). Attached to this staff report is the 2024 Draft CAP and the following documents prepared by other local jurisdictions that provide additional information about the status of the CAP process.

**Attachment 1:** 2024 Draft Regional CAP Executive Summary

**Attachment 2:** 2024 Draft Regional CAP with Appendices

**Attachment 3:** Regional CAP Public Meeting Presentation

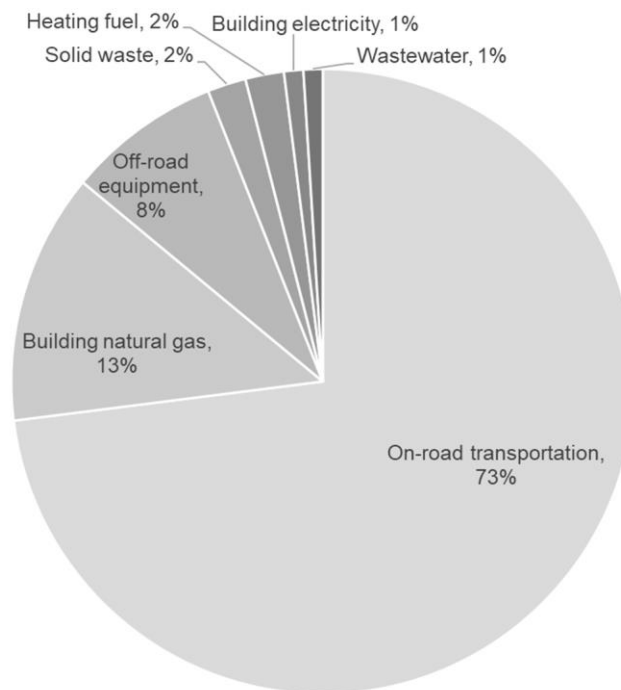
## **Background**

Humboldt jurisdictions adopted a Memorandum of Understanding in 2019 committing to CAP development, and, in late April 2022, the County released a first public review draft of the CAP (the 2022 Draft CAP). Shortly thereafter the County secured funding from the Humboldt County Association of Governments (HCAOG) through a sub-allocation of HCAOG's Regional Early Action Planning (REAP) grant from the State of California to pay for a consultant to prepare an Environmental Impact Report (EIR) to analyze the environmental impacts of the CAP under the California Environmental Quality Act (CEQA), a necessary step in CAP adoption. In the summer of 2022, the County entered into contract with Rincon Consultants, Inc. to begin work on the EIR. During their review of the 2022 Draft CAP, Rincon identified concerns with the document and proposed revisions necessary to gain "qualified" status by the State (a qualified CAP allows for

CEQA streamlining of future development projects). At their October 17, 2023 meeting, the Humboldt County Board of Supervisors authorized the reallocation of the REAP grant funds to pay for Rincon to redraft the CAP rather than pay for Rincon to prepare the EIR. As a result, Rincon has prepared the new 2024 Draft CAP which was available for public review.

The 2022 Draft CAP's goal of reducing Countywide GHG emissions to 40% below 1990 levels by 2030 remains the same in the new 2024 Draft CAP, but the GHG emissions level baseline inventory and forecast have been recalculated. The 2024 Draft CAP includes an updated 2022 inventory of Countywide GHG emissions (the inventory in the previous 2022 Draft CAP was from 2015). The new inventory does not include emissions from industrial point sources (due to a lack of local influence/control) nor agricultural emissions (due to limited local control and a lack of adopted State guidance on quantification methodology). Humboldt's total GHG emissions for 2022 were estimated to be 1,531,167 metric tons of CO<sub>2</sub> equivalent (MT CO<sub>2</sub>e), with the largest source of GHG emissions from on-road transportation, which accounted for 73 percent of the inventoried emissions.

**Figure 1. Humboldt GHG Emissions 2022 Inventory**



This 2022 inventory was used along with other data sources to backcast 1990 emission levels and forecast future 2030 emissions, to determine that Countywide annual emissions will need to be reduced by approximately 218,000 MT CO<sub>2</sub>e by implementing specific policies and programs at the local level to meet the goal of 40% below 1990 emissions levels by 2030.

An interactive community survey was released in May 2024 to gain an understanding of what strategies the community would like to see prioritized to meet emission reduction targets. One-

hundred sixty (160) survey responses were received, with respondents’ top priorities including efforts to reduce organic waste sent to landfills, increase zero-emission vehicle use, and increase public transit use.

Ultimately eleven overarching strategies were chosen for the 2024 Draft CAP, including a “cornerstone” strategy and strategies related to building energy, transportation, solid waste, water supply, wastewater treatment, and carbon sequestration (see **Table 1**).

**Table 1.** GHG Reduction Strategies Grouped by Sector

Sector	Strategy
Cornerstone	1. Develop a regional climate coalition
Building Energy	2. Increase carbon-free electricity 3. Decarbonize existing construction 4. Decarbonize new construction
Transportation	5. Shift driving to walking and biking 6. Shift driving to public transit or car-share 7. Shift land use to reduce vehicle miles traveled 8. Increase zero-emission vehicle adoption
Waste	9. Reduce organic waste
Water & Wastewater	10. Conserve water and reduce wastewater emissions
Carbon Sequestration	11. Increase carbon sequestration

The 2024 Draft CAP includes 26 measures to implement the 11 strategies, 14 of which include quantified GHG emission reduction estimates, while the rest are unquantified “supportive” measures. The 14 quantified measures are related to building energy, transportation, and solid waste and are included in **Table 2**.

**Table 2.** Quantified GHG Reduction Measures

Building Energy		
Strategy	Measure	GHG Reduction
Increase carbon-free electricity	By 2030, source 90% of grid-supplied electricity from renewable and carbon-free sources.	15,403 MT CO <sub>2e</sub>
Decarbonize existing construction	Reduce existing residential building natural gas consumption by 4% by 2030.	2,603 MT CO <sub>2e</sub>
	Reduce existing nonresidential building natural gas	3,821 MT CO <sub>2e</sub>

	consumption by 5% by 2030.	
Decarbonize new construction	Decarbonize 95% of new residential building construction by 2027.	2,252 MT CO <sub>2e</sub>
	Decarbonize 95% of new nonresidential building construction by 2027.	1,374 MT CO <sub>2e</sub>
<b>Transportation</b>		
<b>Strategy</b>	<b>Measure</b>	<b>GHG Reduction</b>
Shift driving to walking and biking	Increase the mode share of active transportation in <u>urbanized</u> areas from 9% to 12% by 2030.	1,147 MT CO <sub>2e</sub>
	Increase the mode share of active transportation in <u>rural</u> areas from 5% to 6% by 2030.	1,080 MT CO <sub>2e</sub>
Shift driving to public transit or car-share	Increase public transit mode share from 2% to 20% in <u>urbanized</u> areas.	18,055 MT CO <sub>2e</sub>
	Increase public transit mode share from 1% to 10% in <u>rural</u> areas.	20,180 MT CO <sub>2e</sub>
Increase zero-emission vehicle adoption	Decarbonize 15% of passenger vehicle miles traveled by 2030 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.	55,726 MT CO <sub>2e</sub>
	Increase commercial zero-emission vehicle use and adoption to 10% by 2030 through a regional charging network and development of hydrogen hubs.	17,441 MT CO <sub>2e</sub>
	By 2030, electrify or otherwise decarbonize 12% of applicable small off-road engines (SOREs) off-road equipment and replace fossil diesel consumption with renewable diesel in 55% of applicable large diesel in alignment with EO N-79-20.	49,143 MT CO <sub>2e</sub>
<b>Solid Waste</b>		
<b>Strategy</b>	<b>Measure</b>	<b>GHG Reduction</b>
Reduce organic waste	Establish a local waste separation facility and organics management to be able to reduce waste sent to landfills by 75% by 2030.	29,689 MT CO <sub>2e</sub>
	Achieve SB 1383 procurement requirements (0.08 tons recovered organic waste per person) by 2030.	1,532 MT CO <sub>2e</sub>

Of the 12 unquantified “supportive” measures not listed above, two call on municipal governments to lead by example by:

- Electrifying or otherwise decarbonizing 50% of municipal fleets by 2030 in alignment with the State’s Advanced Clean Fleet Rule; and
- Decarbonizing 30% of municipal buildings and facilities by 2030.

Appendix C of the 2024 Draft CAP includes details on the substantial evidence (case studies, scientific articles, calculations, etc.) used to quantify the GHG emissions reduction attributable to each measure. For each of the 26 GHG emissions reduction measures, the 2024 Draft CAP also lists a number of implementing actions and includes an Implementation Work Plan which identifies the responsible parties and timeframe for each action.

One key difference between the 2022 and 2024 Draft CAPs’ reduction measures is that the 2024 Draft CAP includes different transportation and building energy measures for urban and rural areas of the County, such as a higher percentage of urban car trips to be replaced by biking/walking than rural car trips. Another key difference is that unlike the 2022 Draft CAP, the 2024 Draft CAP does not break down reduction targets by jurisdiction; the County and seven Cities must work together to meet overall GHG emission targets rather than focus on jurisdiction-specific targets.

The 2024 Draft CAP calls for a Regional Climate Committee to facilitate implementation of the CAP, including representatives from municipalities across Humboldt County as well as representatives from regional agencies such as HCAOG, Humboldt Transit Authority (HTA), Humboldt Waste Management Authority (HWMA), and Redwood Coast Energy Authority (RCEA). The 2024 Draft CAP’s transportation-related strategies and measures align with HCAOG’s adopted Regional Transportation Plan (VROOM 2022-2042), and HCAOG’s Technical Advisory Committee and Board already regularly meet to coordinate on implementing these strategies and measures regionally. Similarly, the 2024 Draft CAP’s electricity- and electrification-related strategies and measures align with RCEA’s adopted Comprehensive Action Plan for Energy (RePower Humboldt)

Although lesser for smaller jurisdictions such as Blue Lake, significant staff time will be required of local jurisdictions to carry out the CAP’s implementing actions, as well as to track progress on the reduction measures, regularly update the GHG emissions inventory, administer the Regional Climate Committee, seek grant funding to build capacity, etc. The CAP calls for the creation of at least one dedicated staff position to lead the regional coordination efforts, referred to in the CAP as a “Climate Program Manager.” The City of Blue Lake will need to consider contributing funding to this regional staff position as well as allocating internal City staff time to support CAP implementation. Humboldt County Planning & Building has now identified funding to pay for the CAP’s environmental review under CEQA, and a Notice of Preparation (NOP) for the CAP EIR

was filed on Friday, August 30, 2024. A subsequent public scoping meeting was held on Tuesday, September 17 at the Agricultural Center in Eureka.

Comments on the filed NOP were accepted until September 30, 2024. A Draft EIR is anticipated to be published in early February 2025, with a public comment period running through late March. The County Board of Supervisors would then potentially adopt the Final EIR and CAP in late June 2025.

**RECOMMENDATION:**

Staff recommends that the Planning Commission:

- 1) Receive a presentation from staff about the status of the Regional CAP.
- 2) Open the item for public testimony.
- 3) Close the item for public testimony.
- 4) Discuss the proposed Regional CAP and ask questions of staff.
- 5) Provide comments on the Regional CAP for consideration by the City Council.

# **Attachment 1**

## **2024 Draft Regional CAP Executive Summary**



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## Humboldt RCAP Executive Summary

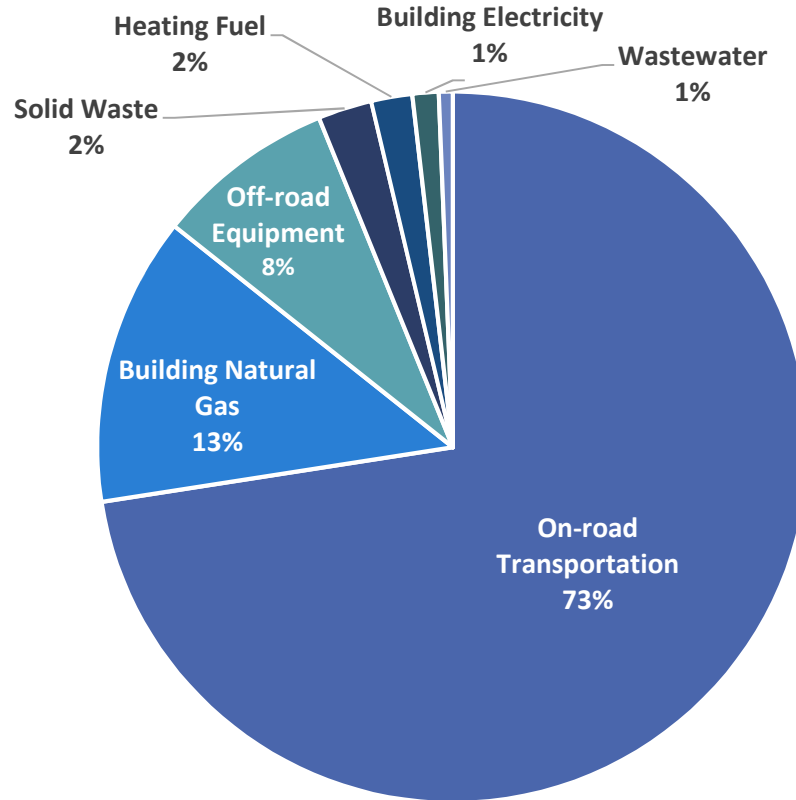
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Recognizing the strength in collaboration, the County of Humboldt, City of Arcata, City of Blue Lake, City of Eureka, City of Ferndale, City of Fortuna, City of Rio Dell, and City of Trinidad, collectively referred to as Humboldt hereafter, have crafted a Regional Climate Action Plan (RCAP) to provide a framework to reduce regional greenhouse gas (GHG) emissions in alignment with the State's goal to reduce emissions by 40 percent below 1990 levels by 2030 (Senate Bill 32) and to reach carbon neutrality by 2045 (Assembly Bill 1279) . Through the development of a climate committee and the regional implementation of the measures and actions included in this RCAP, Humboldt will be able to maximize regional efficiencies, overcome challenges facing rural areas, attract funding, build a green economy, mitigate emissions, and increase resilience.

### Humboldt GHG Emission Inventory

The 2022 Humboldt GHG emissions inventory encompasses regional community-wide activities from both incorporated and unincorporated jurisdictions within the boundary of Humboldt County. Pursuant to the International Council for Local Environmental Initiatives (ICLEI) methodologies, specifically, the United States Community Protocol for Accounting and Reporting Greenhouse Gas Emissions Version 1.2 (Community Protocol), the GHG inventory encompasses sectors associated with Humboldt's community activities and over which the local government has jurisdictional control or influence (Building energy, transportation, solid waste, water and wastewater) Note that water services to Humboldt occur fully within Humboldt county boundary and are therefore already encompassed within the energy sector. In 2022 Humboldt emitted 1,531,167 metric tons of carbon dioxide equivalents (MT CO<sub>2</sub>e). Figure ES- 1 shows the share of total emissions for the community broken out by community-wide activity.

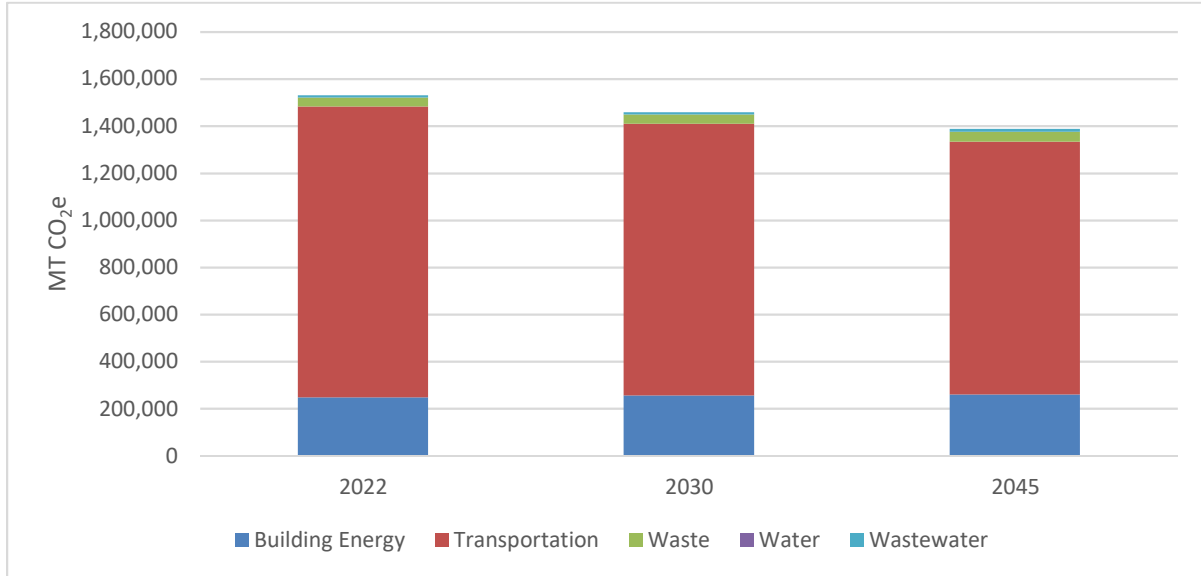
**Figure ES- 1 Humboldt GHG Emissions for 2022**



### Humboldt Projected GHG Emission Forecast

Based on current community activity rates from the 2022 inventory and projected population and employment change in the region, future Humboldt GHG emissions were projected through 2045. Two scenarios were forecast to estimate the future emissions for Humboldt in the years 2030, 2035, 2040 and 2045. This includes a *business-as-usual scenario* (BAU) forecast that estimates how future GHG emissions would change if consumption trends continued as they did in 2022 without consideration of any local or state regulations. Additionally, a *legislative adjusted scenario* (adjusted) forecast was developed that accounts for how currently adopted state legislation, such as the California Renewable Portfolio Standards, Title 24 building energy efficiency standards, and transportation legislation, would reduce GHG emissions from the *business-as-usual scenario*. Humboldt’s adjusted forecast projects emissions to be 1,459,598 MT CO<sub>2</sub>e in 2030 and 1,387,943 MT CO<sub>2</sub>e in 2045. Forecasted emissions by community sector for both the 2030 and 2045 target years are shown in Figure ES-2.

**Figure ES- 2 Humboldt Forecasted GHG Emissions by Sector for 2022, 2030 and 2045**



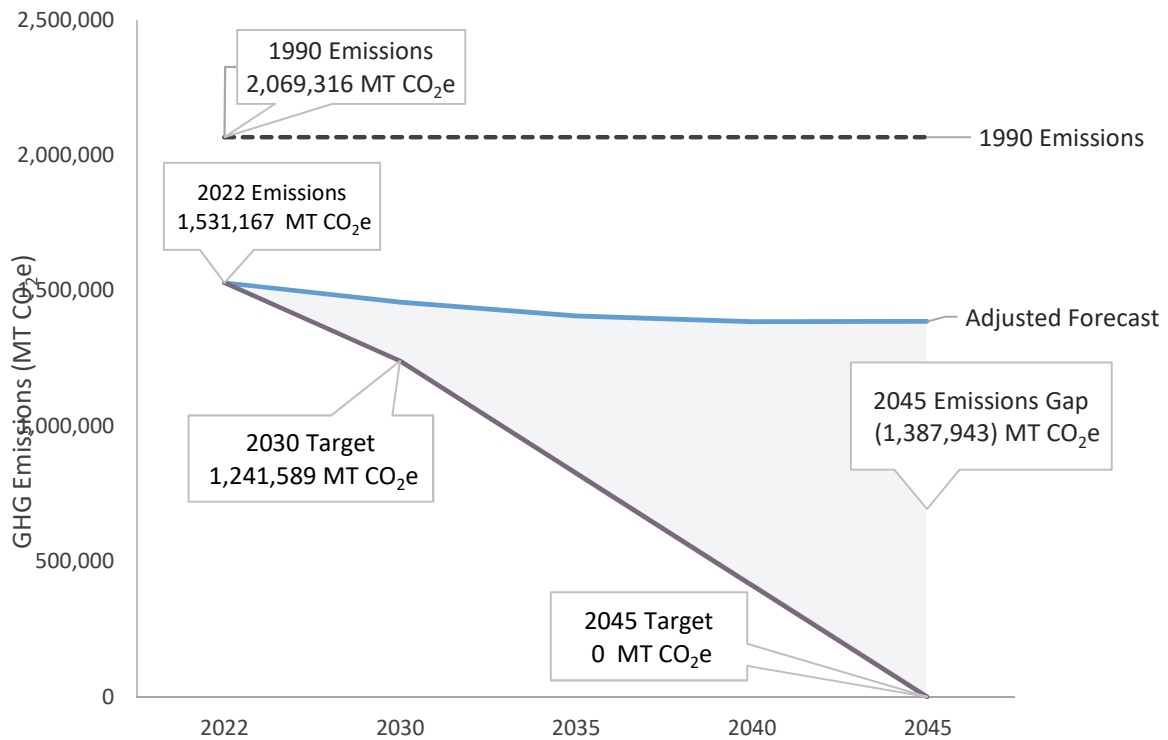
### Humboldt GHG Emissions Targets

California has established Statewide GHG reduction goals for 2030 and 2045 that are relative to a 1990 baseline emissions level. The State has encouraged communities to adopt their own plans consistent with the goals included in the California Air Resources Board (CARB) 2022 Scoping Plan. Humboldt does not have a 1990 GHG emissions inventory from which to develop GHG reduction targets consistent with SB 32, however, 1990 GHG emissions can be estimated for the community relative to Humboldt’s updated 2022 inventory using a state-level emissions change metric. As part of the RCAP, 1990 emission levels for Humboldt were calculated following the State-recommended procedure. In 1990, it is estimated that Humboldt GHG emission levels were 2,069,316 MT CO<sub>2</sub>e. In support of State climate goals, Humboldt has adopted the following GHG emission reduction targets:

- Reduce GHG emissions to 40% below 1990 levels by 2030 (SB 32 target year)
- Carbon neutrality by 2045 (AB 1279 target year)

This results in an emission target of 1,241,589 MT CO<sub>2</sub>e by 2030 and 0 MT CO<sub>2</sub>e by 2045. The corresponding GHG emissions target pathway over the coming decades is illustrated in Figure ES- 3. The emissions gap between Humboldt GHG emission forecast and the emission targets is the quantity of GHG emissions that Humboldt is responsible for reducing with regional actions.

**Figure ES- 3 Humboldt GHG Emission Reduction Targets**



The measures and actions in the RCAP and the establishment and emphasis of the climate committee will provide Humboldt with the GHG reduction necessary to achieve Humboldt’s 2030 climate action target and substantial progress towards the 2045 target, as shown in Table ES- 1. However, the 2045 GHG emissions reductions quantified for their longer-term measures are not yet enough to meet Humboldt’s 2045 climate action target of carbon neutrality. This RCAP strives to institute equitable and resilient systems and make substantial progress towards eventual carbon neutrality. Further updates to the Humboldt RCAP beyond 2030 will also delineate new technologies, legislation, and additional measures and actions that Humboldt will implement to close the remaining gap to achieve the carbon neutrality target.

**Table ES- 1 Humboldt GHG Emission Reduction Pathway**

Target/Forecast	2030 GHG Emissions (MT CO <sub>2</sub> e)	2045 GHG Emissions (MT CO <sub>2</sub> e)
Adjusted Forecast	1,459,598	1,387,943
Reductions from Full Implementation of Measures	219,446	1,228,128
GHG Emissions after Measure Reductions	1,240,151	159,815
Climate Action Targets	1,241,589	0
Target Anticipated to be Met?	Yes	Substantial progress demonstrated

## Humboldt RCAP Measures to be Implemented by 2030

The RCAP's overarching approach emphasizes leveraging a formal climate coalition to implement region-wide measures for impactful reduction of GHG emissions. Effective strategies are those that are specific, measurable, feasible, relevant, and time-bound. The RCAP strategies are organized by sector where measures establish specific goals measurable through a discrete performance metric to reduce GHG emissions by a quantifiable level within a specific time period. Measures are supported by actions, the discrete steps Humboldt will take to achieve the measure goal. The measures and actions are supported by substantial evidence and have been designed using principles called key attributes that support changes that are robust, effective, and inclusive. Key attributes include structural change, engagement, equity, feasibility studies, funding, and partnerships. Further, the measures and actions have been developed to account for strategy differences in rural (i.e., dispersed population with limited access to energy and transportation infrastructure) versus urbanized areas (i.e., more densely developed areas with greater access to energy and transportation infrastructure). Through full implementation of the RCAP suite of measures summarized in Table ES- 2, Humboldt will achieve the regions 2030 target of 1,241,589 MT CO<sub>2</sub>e and make substantial progress towards the 2045 target.

**Table ES- 2 Humboldt RCAP GHG Emission Reduction Measures Overview**

Measure ID	Measure Text	GHG Emission Reduction Potential (MT CO <sub>2</sub> e)
Measure C-1	Establish a Regional Climate Committee comprised of elected officials from each jurisdiction, HTA, HCAOG, HWMA, and RCEA.	Supportive/Critical
Measure BE-1	By 2030, source 90% of grid-supplied electricity from renewable and carbon-free sources.	2030: 15,403 2045: 0
Measure BE-2	Increase the development of micro-grids and storage across the region to support RCEA's RePower Humboldt goals of enhancing grid capacity and facilitating the electrification of buildings and transportation.	Supportive
Measure BE-3 Urban	Reduce existing residential building natural gas consumption by 4% by 2030 and 74% by 2045.	2030: 2,603 2045: 55,866
Measure BE-3 Rural	Reduce existing residential fossil-fuel consumption in households not connected to natural gas infrastructure by 2% by 2030.	Supportive
Measure BE-4	Reduce existing nonresidential building natural gas consumption by 5% by 2030 and 79% by 2045.	2030: 3,821 2045: 42,887

County of Humboldt  
**Humboldt County Regional Climate Action Plan**

Measure ID	Measure Text	GHG Emission Reduction Potential (MT CO <sub>2</sub> e)
Measure BE-5	Decarbonize 95% of new residential building construction by 2027.	2030: 2,252 2045: 13,907
Measure BE-6	Decarbonize 95% of new nonresidential building construction by 2027.	2030: 1,374 2045: 8,492
Measure BE-7	Decarbonize 30% municipal buildings and facilities by 2030.	Supportive
Measure BE-8	Lobby Off-shore Wind developers and PG&E to build electrical infrastructure to supply Humboldt with energy produced by the off-shore wind project which will increase supply and resilience.	Supportive
Measure TR-1 Urban	Implement programs, such as those identified in HCAOG’s RTP, to increase the mode share of active transportation in urbanized areas from 9% to 12% by 2030, thereby achieving a regional active transportation mode share of 8%.	2030: 1,147 2045: 2,594
Measure TR-1 Rural	Implement programs, such as those identified in HCAOG’s RTP, that increase access to safe active transportation, to increase the mode share of active transportation in rural areas from 5% to 6% by 2030 thereby achieving a regional active transportation mode share of 9%.	2030: 1,080 2045: 4,405
Measure TR-2 Urban	Expand the public transit network in support of HCAOG’s Regional Transportation Plan to increase public transit mode share from 2% to 20% public transit mode share in urbanized areas to achieve a regional 13% public transit mode share by 2030.	2030: 18,055 2045: 26,482
Measure TR-2 Rural	Develop a robust public transit network in support of HCAOG’s Regional Transportation Plan to increase public transit mode share from 1% to 10% in rural areas and achieve a regional 13% public transit mode share by 2030.	2030: 20,180 2045: 29,703
Measure TR-3	Reduce regional VMT by increasing promotion of mixed-use development in infill priority areas in alignment with HCAOG’s baseline connectivity score included in the RTP.	Supportive
Measure TR-4	Develop and implement regional mobility hubs and ZEV car-share programs to support mode shift from single occupancy vehicles.	Supportive
Measure TR-5	Require commercial and industrial employers with 25 employees or more to develop a Transportation Demand Management plan.	Supportive
Measure TR-6	Decarbonize 15% of passenger vehicle miles traveled by 2030 and 100% by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.	2030: 55,726 2045: 590,124
Measure TR-7	Increase commercial zero-emission vehicle use and adoption to 10% by 2030 and 100% by 2045 through a regional charging network and development of hydrogen hubs.	2030: 17,441 2045: 279,775
Measure TR-8	Electrify or otherwise decarbonize 12% of applicable SORE off-road equipment by 2030 and 100% by 2045 and replace fossil diesel consumption with renewable diesel in 55% of applicable large diesel in alignment with EO N-79-20 by 2030.	2030: 49,143 2045: 139,645
Measure TR-9	Establish Humboldt as a pilot program for the decarbonization of the transportation sector to help drive state and philanthropic investment throughout Humboldt.	Supportive

Measure ID	Measure Text	GHG Emission Reduction Potential (MT CO <sub>2</sub> e)
Measure TR-10	Work with the state and biofuel industry to establish a biofuel network within Humboldt thereby funding new green industry and job growth to support the decarbonization of the transportation sector.	Supportive
Measure TR-11	Lead by example and electrify or otherwise decarbonize 50% of the municipal fleet by 2030 in alignment with the state’s Advanced Clean Fleet Rule.	Supportive
Measure SW-1	Establish a local waste separation facility and organics management to be able to reduce waste sent to landfills by 75% by 2030. Reduce GHG emissions by limiting truck trips required to ship waste out of the county and import compost from out of the county.	2030: 29,689 2045: 32,568
Measure WW-1	Expand regional opportunities for implementation of wastewater decarbonization technologies such as anaerobic digesters to reduce GHG and produce renewable fuel sources.	Supportive
Measure WW-2	Reduce per capita potable water consumption by 15% by 2030.	Supportive
Measure CS-1	Research and implement feasible carbon sequestration technology opportunities to support growth and expansion of green jobs industry within the region.	Supportive
Measure CS-2	Offset fossil-based emissions and increase carbon sequestration in the community by achieving SB 1383 procurement requirements (0.08 tons recovered organic waste per person) by 2030.	2030: 1,532 2045: 1,681
Measure CS-3	Develop a County-wide Natural and Working Lands GHG Inventory baseline by 2027 to better understand the existing and future GHG sequestration and help obtain resources to protect and increase natural carbon sequestration occurring in the region as well as promote biodiverse forests and wetlands resistant to wildfire.	Supportive
<b>Total GHG Emission Reduction Potential</b>		<b>2030: 219,446 2045: 1,228,128</b>

\* Measures and actions marked as “supportive” may also be quantifiable and have substantial evidence to support their overall contribution to GHG reduction, but they are not quantified for one of several factors. Refer to RCAP Appendix C for more information.

## Humboldt RCAP Implementation and Monitoring

The RCAP has established an implementation plan and schedule to achieve the 2030 GHG emissions reductions goals and make substantial progress to the 2045 goals. As part of the RCAP, Measures will be implemented using a phased approach with progress reports prepared on a bi-annual basis starting in 2026. The bi-annual progress reports will include the preparation of a regional community-wide GHG emissions inventory, as well as status update on implementation of RCAP Measures and Actions. Tracking implementation of the plan in conjunction with the inventory updates will demonstrate the progress the region is making in reducing GHG emissions and achieving its 2030 goal. If the actions identified in the RCAP to meet

the 2030 GHG emissions reduction milestone goal are not implemented or if the bi-annual inventory and progress report indicates that the region is off-track from achieving the 2030 goal, the RCAP will be updated to include additional actions or revised actions necessary to meet the 2030 goals.

The RCAP is a long-term programmatic plan consistent with California Environmental Quality Act (CEQA) Guidelines Section 15183.5(b) that will be implemented through regular monitoring and updates to meet the State’s SB 32 GHG emission reduction goals and demonstrate substantial progress towards the State’s AB 1279 carbon-neutrality goals. The RCAP is currently undergoing CEQA environmental review. Following environmental review and adoption in a public process, the RCAP will fulfill the CEQA requirements to be considered a “qualified” GHG reduction plan. Meeting these requirements means that if projects and plans within the Humboldt region in jurisdictions that have adopted the RCAP are consistent with the RCAP, CEQA analysis can be streamlined for projects by establishing consistency with the RCAP such that project GHG emissions may be considered to have a less than significant impact.



## **Attachment 2**

**2024 Draft Regional CAP with Appendices**



# Humboldt County Regional Climate Action Plan

Public Draft

*prepared by*

**Humboldt County**

825 5th Street

Eureka, California 95501

Contact: John Ford, Director of Planning and Building

*prepared with the assistance of*

**Rincon Consultants, Inc.**

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**July 2024**



**RINCON CONSULTANTS, INC.**

Environmental Scientists | Planners | Engineers

[rinconconsultants.com](http://rinconconsultants.com)



# Acknowledgements

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This Regional Climate Action Plan (RCAP) has been prepared for the benefit of the region, and its completion would not have been possible without the contributions of key partners. We are grateful for your active involvement, feedback, and support during this process. The RCAP was a coordinated effort between:

## Cities and County

- County of Humboldt
- City of Arcata
- City of Blue Lake
- City of Eureka
- City of Ferndale
- City of Fortuna
- City of Rio Dell
- City of Trinidad

## Regional Partners

- Redwood Coast Energy Authority (RCEA)
- Humboldt Transit Authority (HTA)
- Humboldt County Association of Governments (HCAOG)
- Humboldt Waste Management Authority (HWMA)
- Recology

## Regional RCAP Coordination Team

- John Ford, County of Humboldt Director of Planning and Building
- Megan Acevedo, County of Humboldt Associate Planner
- Elizabeth Schatz, County of Humboldt Planning Manager
- Tom Mattson, County of Humboldt Director of Public Works
- Hank Seemann, County of Humboldt Deputy Director (Environmental Services) Public Works
- Rincon Consultants, Inc.



**RINCON CONSULTANTS, INC.**

Environmental Scientists | Planners | Engineers

[rinconconsultants.com](http://rinconconsultants.com)

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# Glossary

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Term	Definition
Active Transportation	A means of transportation that is powered by human energy, for example walking or biking.
Adaptation	Adjustment or preparation of natural or human systems to a new or changing environment which moderates harm or exploits beneficial opportunities.
Anthropogenic	Made by people or resulting from human activities; usually used in the context of emissions that are produced as a result of human activities.
Bus headway	The amount of time between two vehicles (e.g., buses) on the same route. The amount of headway on a bus route dictates the length of time a rider will wait between buses.
CALGreen	An abbreviated reference to the California Green Building Standards code, which sets minimum requirements for sustainable practices for construction (residential and commercial) projects throughout the state. It is updated every three years in accordance with the building cycle.
CALGreen Tier 1 & 2	Requirements beyond the mandatory measures laid out by CALGreen: Tier 1 adds additional requirements to the mandatory sustainability requirements, and Tier 2 further increases those sustainability requirements.
CalRecycle	Agency that administers and provides oversight for all of California's state-managed non-hazardous waste handling and recycling programs.
California Air Resources Board (CARB)	The lead agency for climate change programs that also oversees all air pollution control efforts in California to attain and maintain health-based air quality standards.
Carbon-free Energy	Energy produced by a resource that generates no carbon emissions, for example, wind power, solar, large hydropower, and nuclear. Not all carbon-free energy sources are considered eligible renewable by California's Renewable Portfolio Standard defined below.
Carbon-neutrality/ Net-Zero Emissions	Balancing anthropomorphically generated emissions out by removing GHGs from the atmosphere in a process known as carbon sequestration.
Carbon sequestration	The long-term storage or capture of carbon dioxide and other forms of carbon from the atmosphere through biological, chemical, and physical processes.
CH <sub>4</sub>	Methane, a hydrocarbon that is a greenhouse gas produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.
Climate	The average of weather patterns over a long period of time (usually 30 or more years).
Climate Change	A change in the average conditions — such as temperature and rainfall — in a region over a long period of time.
Complete Streets	Are designed and operated to enable safe use and support mobility for all users. Complete Streets approaches address a range of elements including sidewalks, bicycle lanes, bus lanes, public transportation stops, and median islands.
CO <sub>2</sub>	Carbon dioxide, a naturally occurring gas and a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes.
CO <sub>2</sub> e	Carbon dioxide equivalent, a metric measure used to compare the emissions from various greenhouse gases based upon their GWP.
Decarbonization	Replacing technologies and services that run on fossil fuels (ex. natural gas) with ones that run on zero-carbon sources of energy (for example electricity from renewable energy like solar or wind power), ideally from renewable sources.



Term	Definition
Disadvantaged Communities	Refers to the areas throughout California disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure or environmental degradation. This includes areas with concentrations of people that are of low income, high unemployment, low levels of home ownership, high rent burden, or low levels of educational attainment.
Electric Vehicle (EV)	Refers to Battery Electric Vehicles (BEVs) and Plug-In Hybrid Electric Vehicles (PHEVs). BEV refers to any vehicle that operates solely by use of a battery or battery pack, or that is powered primarily through the use of an electric battery or battery pack but uses a flywheel or capacitor that stores energy produced by the electric motor or through regenerative braking to assist in vehicle operation. PHEV refers to a hybrid electric vehicle with the capability to charge a battery from an off-vehicle electric energy source that cannot be connected or coupled to the vehicle in any manner while the vehicle is being driven.
Energy Storage	Can provide frequency regulation to maintain balance between the network's load and detected power generated, achieving more reliable power supplies. Batteries are an example of energy storage.
Fossil Fuel	A general term for fuel formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the Earth's crust.
Greenhouse Gas (GHG)	A gas that absorbs infrared radiation, traps heat in the atmosphere, and contributes to the greenhouse effect.
Global Warming Potential (GWP)	Total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.
Greywater	Graywater refers to water that has been used domestically, commercially, and industrially.
Local Governments for Sustainability (ICLEI)	A global network of more than 1,750 local and regional governments committed to sustainable urban development – emissions estimates were calculated using ICLEI's best available methodologies.
Mitigation	An action that will reduce or prevent greenhouse gas emissions, such as electrifying buildings that previously ran on natural gas.
Metric Tons (MT)	Common international measurement for the quantity of greenhouse gas emissions – one metric ton is equal to 2205 pounds or 1.1 short tons.
Metric tons carbon dioxide equivalent (MT CO <sub>2</sub> e)	Metric/unit that GHG emissions are reported per standard practice; when dealing with an array of emissions, the gases are converted to their carbon dioxide equivalents for comparison purposes.
Microgrid	A group of interconnected loads and distributed energy resources that act as a single controllable entity in respect to the grid. A microgrid can operate in 'island mode' and disconnect from the wider grid, or operate while connected to the wider grid.
Mode Shift	Changing from one form of transportation to another, specifically, switching from traveling via car to traveling via bicycle or public transport.
N <sub>2</sub> O	Nitrous Oxide, a powerful GHG with a high global warming potential; major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.
Organic Material	Natural or organic materials, for example food scraps and yard waste.
Reach Code	A building code which requires a higher level of energy efficiency than the standard statewide code. Reach codes are allowed and encouraged under Title 24.
Regional Housing Needs Allocation (RHNA)	Refers to the first two steps (Determination and Allocation) of a multi-step process that California governments utilize to plan for housing needs in each region of the state. The RHNA is a minimum projection of additional housing units needed to accommodate projected household growth of all income levels.

Term	Definition
Remodels/Alterations	A building update that changes the exterior detail of a structure, but not its basic shape or size.
Renewable Energy	Energy derived from natural sources that are replenished at a higher rate than they are consumed (ex. wind, biomass); sources qualifying as renewable in California are listed in the State's Renewables Portfolio Standard.
Resilience	Ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate.
Supportive Measure or Action	One which has not been quantified and does not provide a direct or easily quantified GHG reduction; however, these measures are expected to contribute to overall GHG reductions and/or provide co-benefits.
Transportation Demand Management (TDM)	Transportation Demand Management focuses on how people make their transportation decisions, and facilitates greater usage of infrastructure for transit, ridesharing, walking, biking, and telework.
Vehicle Miles Traveled (VMT)	The amount of total miles traveled by motor vehicle that are generated over a population over a given timeframe (Ex. 1 year).
Vehicle to Grid Charging	A device that absorbs electricity from a car battery and pushes it back to the grid, allowing EVs to function as backup storage cells for the electrical grid.
Vulnerable Community	Communities that experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/ or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality. In Humboldt, this includes low-income families, fixed-income seniors, agricultural workers, etc
Zero-Emissions-Vehicle (ZEV)	A vehicle that produces zero exhaust emissions of any criteria pollutant (or precursor pollutant) or greenhouse gas, excluding emissions from air conditioning systems, under any possible operational modes or conditions.
Zero Waste	The conservation of all resources by means of responsible production, consumption, reuse, and recovery of materials and packaging, without burning, and with no discharges to land, water, or air that threaten human health. CalRecycle defines Zero Waste as a circular economy that collects and reuses items or remakes them into new products, SB 1383 established specific State goals for waste reduction.

# 1 Introduction

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## 1.1 Vision

Humboldt County is a diverse region made up of communities, rural areas, ecosystems, and infrastructure that are impacted by climate change and acknowledges that to avoid the most catastrophic effects of climate change, greenhouse (GHG) emissions must be reduced significantly over the next two decades. Recognizing the strength in collaboration, the County of Humboldt, City of Arcata, City of Blue Lake, City of Eureka, City of Ferndale, City of Fortuna, City of Rio Dell, and City of Trinidad, collectively referred to as Humboldt hereafter, have crafted this Regional Climate Action Plan (RCAP) as a regional approach for addressing climate change. This RCAP is a starting place for a regional coalition focused on change and details a set of strategies to reduce GHG emissions, increase climate resiliency, and strengthen the growing regional green economy.

## 1.2 Purpose

### Climate Action

The Humboldt RCAP is a long-range planning document that guides the Humboldt region towards long-term GHG emission reduction in accordance with the State’s goal to reduce GHG emissions by 40 percent below 1990 levels by 2030 and achieve carbon neutrality by 2045.<sup>1</sup> See Appendix A for a written description of regulations related to climate action planning. This RCAP focuses on creating a climate coalition to maximize regional efficiencies, overcome challenges facing rural areas, attract funding, build a green economy, mitigate emissions, and increase resilience. By prioritizing collaborative efforts and tailored strategies, this RCAP aims to address the unique needs of the rural communities in the region while advancing comprehensive GHG reduction and economic development goals.

### CEQA GHG Emissions Analysis Streamlining

California Environmental Quality Act (CEQA) Guidelines Section 15183.5(b) provides a methodology for agencies to analyze and mitigate the significant impacts of GHGs at a programmatic level using a qualified CAP. This methodology allows project-specific environmental documents to tier from that programmatic review. A qualified CAP is one that clearly demonstrates that GHG emissions within a defined geographic area will be reduced over time in a manner consistent with State reduction targets. State guidance and recent CEQA case law makes it clear that tiering from a qualified CAP provides a defensible method of achieving GHG CEQA clearance for new development proposals.

This RCAP fulfills the requirements of California Environmental Quality Act (CEQA) Guidelines Section 15183.5(b) to be considered a “qualified” GHG reduction plan.<sup>2</sup> In compliance with CEQA and State CEQA Guidelines, local agencies must evaluate the environmental impacts of new development projects or plans, including impacts related to GHG emissions associated with the construction and operation of projects or plans. This process can be cumbersome for local agencies

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<sup>1</sup> The State carbon neutrality goal established by Assembly Bill 1279 considers carbon neutrality to be at least an 85 percent reduction in GHG emissions with the remaining fraction achieved through removals such as carbon sequestration.

<sup>2</sup> Governor’s Office of Planning and Research (OPR) (2019). *General Plan Guidelines - Chapter 8: Climate Change*. Accessed May 20, 2024 from [https://opr.ca.gov/docs/OPR\\_C8\\_final.pdf](https://opr.ca.gov/docs/OPR_C8_final.pdf)

and developers alike and can result in project delays. The CEQA Guidelines provide an option for new projects to streamline the CEQA analysis of GHG emissions by tiering from a qualified GHG reduction plan.

The RCAP is consistent with the criteria set forth in CEQA Guidelines Section 15183.5 (b) as outlined in Table 1. For jurisdictions that adopt the RCAP, CEQA analysis of GHGs can be streamlined for projects by establishing consistency with the RCAP and GHG emissions may be considered to have a less than significant impact.<sup>3</sup>

Table 1 CEQA Guidelines Section 15183.5(b) Criteria Addressed in RCAP

CEQA Criteria	RCAP Chapter Addressing Criteria
1. Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area	Chapter 3 Appendix B
2. Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable	Chapter 3
3. Identify and analyze sector specific GHG emissions from specific actions or categories of actions anticipated within the geographic area	Chapter 3 Appendix C
4. Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level	Chapters 4 Appendix C
5. Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels	Chapter 5
6. Adopt in a public process following environmental review	Pending Adoption

### 1.3 Background

The Humboldt region is a geographic area that has long been committed to sustainability initiatives focused on environmental conservation, renewable energy, and sustainable agriculture. There are strong environmental conservation efforts, with numerous protected areas and initiatives aimed at preserving the county's natural beauty and biodiversity. Many local businesses and organizations focus on sustainable tourism and promoting activities that do not harm the environment.

The Humboldt region is most vulnerable to sea level rise, extreme weather events, and wildfire. In recent years the region has experienced a growing frequency and intensity of precipitation events leading to flooding that regularly closes the primary routes into Humboldt County. This further isolates communities in the region, impacts the movement of goods across the region, and results in economic losses that the region counts on.<sup>4</sup>

Humboldt jurisdictions came together in 2019 and began preparing the RCAP to tackle climate change regionally, recognizing that a regional approach best leverages limited resources in the region. Further, regional coordination maximizes the effectiveness and benefit of GHG reduction strategies. Humboldt obtained a Rural Energy for America Program (REAP) grant from the US

<sup>3</sup> Governor's Office of Planning and Research (OPR) (2019). *General Plan Guidelines - Chapter 8: Climate Change*. Accessed May 20, 2024 from [https://opr.ca.gov/docs/OPR\\_C8\\_final.pdf](https://opr.ca.gov/docs/OPR_C8_final.pdf)

<sup>4</sup> Governor's Office of Planning and Research (OPR), California Energy Commission (CEC), and California Natural Resources Agency (CNRA) (2018). *California's Fourth Climate Change Assessment - North Coast Region Report*. Accessed June 10, 2024, from [https://www.energy.ca.gov/sites/default/files/2019-11/Reg\\_Report-SUM-CCA4-2018-001\\_NorthCoast\\_ADA.pdf](https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCA4-2018-001_NorthCoast_ADA.pdf)

Department of Agriculture and the Humboldt County Association of Governments (HCAOG) to prepare the RCAP.

## Humboldt Community

Located on the northern coast of California, Humboldt County is 270 miles north of San Francisco. Humboldt is known for its natural beauty with rugged coastlines, pristine rivers, mountainous terrain, and for being home to one of the largest densities of old-growth coast redwood forests in the world. Historically, logging and the timber industry were the backbone of the county's economy. However, the timber industry has been in decline over the past few decades. Other drivers of the economy in the region include agriculture, particularly dairy farming and specialty crops, tourism, and in recent decades cannabis production.

The county is approximately 4,052 square miles and has a population of approximately 135,010 people, with over half the population living in the unincorporated county. There are seven incorporated cities including Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad that range in population size from a few hundred residents to just under 30,000 residents. Per the U.S. Census Bureau 81.7 percent of the population are white and 5.7 percent are Native American. The median household income in the region is \$57,000 with much of the region denoted as low-income as defined for California Climate Investments. Approximately 18 percent of residents are living in poverty, compared to 11.6 percent national average. The combination of geographic isolation, economic disparities, and demographic diversity in the region contribute to varied vulnerabilities to climate change impacts. Vulnerable populations, including low-income communities, may face heightened risks from climate-related hazards such as wildfires, sea level rise, and extreme weather events.

Though the community is largely rural and faces significant economic constraints, the unique community characteristics and ample natural resources provide climate action opportunities that may not be possible in other communities. The region has a strong sense of community, a vibrant local culture, and is passionate about their natural heritage contributing to a strong sense of environmental stewardship and conservation. The RCAP seeks to maintain the values of the Humboldt community and region while leveraging these opportunities with solutions that are impactful and feasible in Humboldt.

## *Regional Constraints*

While addressing climate change and implementing climate change policies it is critical to understand the constraints facing the region both at a jurisdictional and community level. The Humboldt region faces unique obstacles that must be overcome for effective climate change. The primary constraints in the region for climate action policy implementation include:

1. ***Geographic Isolation and Accessibility:*** Humboldt's rural character presents challenges in terms of achieving population densities needed for cost effective public transportation, reducing vehicle miles traveled (VMT), and developing infrastructure economically. Limited economic opportunities due to geographic and social isolation further complicate these efforts. Implementing projects over a geographically dispersed population can be costly and logistically complex. For example,

- a. Jurisdictions have historically lacked integration of public transit in long range land use planning efforts. Combined with dispersed population centers and low populations densities, implementing effective public transit systems under current federal, state and local funding structures is difficult.
  - b. The region’s remote and rural location requires long-distance transportation of waste to processing facilities, increasing both costs and emissions.
  - c. The large area, dispersed communities and geographic isolation limits the region’s ability to bring in and rely upon current ZEV technologies and reduce VMT.
2. **Limited Infrastructure:** The region lacks local waste management facilities such as recycling, composting, or processing centers, which diminishes local control, hinders compliance with state mandates, and necessitates long-distance transportation of waste out of the county. Additionally, being on the periphery of natural gas and electrical infrastructure presents challenges for developing renewable energy projects and electrification efforts due to transmission and distribution limitations. Building and maintaining infrastructure like roads, utilities, and telecommunications networks can be more expensive and challenging in remote areas.
  3. **Economic Dependence and Limited Resources:** Recently Humboldt has lost some of the major economic engines the region had historically relied on like logging and fishing. Beyond being economically constrained, due to the low population, Humboldt also faces limited human resources to dedicate to obtaining funding and implementing climate mitigation and adaptation efforts. Converting infrastructure and transitioning to more sustainable practices can be challenging without adequate staffing, funding support, and incentives.
  4. **Social Vulnerability:** Approximately 40 percent of the Humboldt population is either at or below the 80th percentile of the statewide median income<sup>5,6</sup>, categorizing them as low-income and increasing their social vulnerability to climate change.

Despite these challenges, Humboldt also has strengths that can support climate action, including a strong tradition of regional collaboration and environmental stewardship, active community organizations, and a growing interest in sustainable agriculture and renewable energy.

### *Regional Opportunities*

Humboldt, with its rich natural resources and an environmentally conscious and engaged community, offer several opportunities to overcome the constraints the region faces:

1. **Partnerships and Collaboration:** No single agency is responsible for mitigating GHG emissions, just as no community can avoid impacts related to climate change. One of the benefits of isolated areas like the Humboldt region is the recognized need to establish capable agencies and to foster collaboration to overcome challenges. This recognition has helped the region establish strong cross agency coordination and partnerships. Continuing

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<sup>5</sup> California Air Resources Board (2021). Identification of Low-Income Communities under AB 1550 Methodology and Documentation for Maps. Accessed May 20, 2024, from [https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/kml/ab1550\\_maps\\_documentation.pdf](https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/kml/ab1550_maps_documentation.pdf)

<sup>6</sup> U.S. Census Bureau (2022). American Community Survey (ACS) 5 Year Estimates (2017-2022) S1901. Accessed June 10, 2024, from <https://data.census.gov/table/ACSST1Y2022.S1901?g=050XX00US06023>

to work together through a formal coalition to implement the RCAP is a powerful way for the region to make rapid progress with GHG mitigation and increased resilience.

2. **Green Economic Growth:** Transitioning to a low-carbon economy presents opportunities for new green industries and job creation in Humboldt. Investments in clean energy, sustainable agriculture, eco-tourism, composting, and green infrastructure projects can stimulate economic growth while reducing GHG emissions.
3. **Funding Opportunities:** There are several funding opportunities for rural and low-income areas in California. This includes state and federal funding, incentives, and partnerships to implement climate-related projects in Humboldt.
4. **Abundant Renewable Energy Resources:** Humboldt has significant potential for renewable energy generation, particularly from wind, solar, and biomass sources. Expanding renewable energy infrastructure can reduce greenhouse gas emissions and create local jobs and stimulate economic development. Recently, the Bureau of Ocean Energy Management (BOEM) has auctioned two lease areas for potential commercial wind energy development in Federal waters off the coast of Humboldt County, referred to as the Humboldt Wind Energy Area (WEA).<sup>7</sup>
5. **Carbon Sequestration in Natural Ecosystems:** Humboldt's diverse ecosystems, including forests, wetlands, and coastal habitats, provide valuable opportunities for carbon sequestration. Protecting and restoring these natural areas can enhance resilience to climate change impacts while mitigating carbon emissions. With its extensive natural lands there are significant opportunities to implement sustainable land practices that sequester carbon, protect biodiversity, and support local economies.

Overcoming the obstacles to climate change policy implementation will require collaboration, innovation, and commitment. Coalition building is a core concept of the RCAP as collaboration between stakeholders in rural areas will be the key to successful implementation of climate action policies and improving climate resiliency in Humboldt. Several resources including the California Climate Adaptation Strategy, Community Organization Boards (COBs), and the California Air Resources Board (CARB) 2022 Scoping Plan for Achieving Carbon Neutrality offer partnership strategies to reduce GHG emissions. Collaboration efforts have the potential to increase green jobs and provide other economic resources to mitigate GHG emissions and build increased resilience across the Humboldt region.

## Past GHG Reduction Efforts

Humboldt has been committed to increasing sustainable operations and policies for many years and strives to reduce GHG emissions throughout the region. There are numerous community-based groups and advocacy groups established that focus on initiatives to address climate change through policy-change. For example, North Coast Resource Partnership (NCRP) collaborates on various efforts to reduce GHG emissions across the North Coast which includes Humboldt County. This collaboration works to obtain grant funding, provide educational and promotional events, and implement a variety of programs across the region such as energy efficiency programs and land use and conservation projects that reduce GHG emissions and increase climate resilience. They are also

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<sup>7</sup> Bureau of Ocean Energy Management (BOEM) (2024). *Humboldt Wind Energy Area*. Accessed June 6, 2024, from <https://www.boem.gov/renewable-energy/state-activities/humboldt-wind-energy-area>

involved in transporting, planning and supporting the development of renewable energy sources in the region to create an independent energy system.<sup>8</sup>

Additionally, Redwood Coast Energy Authority (RCEA), a local not for profit government agency that procures electricity for the Humboldt region as a community choice aggregator is implementing several initiatives to reduce GHG emissions through the energy sector. RePower Humboldt<sup>9</sup>, RCEA's Comprehensive Action Plan for Energy in the region, lays out a strategy to provide 100 percent clean and renewable energy by 2027. Based on community input, the final report outlines policies and goals to lower utility rates and offer clean energy from local sources. RCEA's long-term energy portfolio aims to be 100 percent renewable by 2030. In addition, RCEA offers several energy efficiency, fuel switching, and clean transportation programs to convert household and vehicle energy use from fossil fuels to renewable (low-carbon) sources.

Redwood Community Action Agency (RCAA) also offers a Weatherization Program that provides home repair services to increase energy efficiency for low-income households. Implementation of energy efficiency efforts and a continual increase of renewable and carbon-free energy on the grid through such efforts have led to a significant decrease in GHG emissions associated with electricity use in the region.

The Humboldt region is also dedicated to reducing vehicle miles traveled in the community and consequentially GHG emissions in its transportation sector. The Humboldt County Association of Governments (HCAOG) has developed numerous planning documents to decrease VMT in the region and is currently funding the County-led development of VMT thresholds for the region that would establish what amount of VMT change from development would be considered a significant impact and would require mitigation. This helps to limit increasing VMT. Additionally, HCAOG has secured numerous grants for the region for a variety of programs that aim to reduce VMT.<sup>10</sup> Several communities are planning and developing with climate change and GHG impacts in mind. For example, the City of Arcata recently adopted the Gateway Area Plan that focuses on a high-density mixed-use development that is in close access to the City's center and key amenities of the city to reduce the need to drive.<sup>11</sup> The City adopted the Gateway Area Code to establish the specific requirements and standards to implement the Gateway Area Plan.<sup>12</sup> Land use decisions and developments such as this reduce VMT by placing residents near amenities, economic centers and access to other modes of transportation that is less GHG emitting.

The Humboldt Transit Authority (HTA) is committed to fully transitioning their fleet to zero emission in compliance with the Innovative Clean Transit regulation. In 2022 HTA was awarded a \$38.7 million grant funded by the California Climate Investment fund through California State Transportation Agency's Transit and Intercity Rail Capital Program (TICRP) to introduce 11 New Flyer fuel cell electric buses (FCEBs) and a hydrogen fueling station at HTA's facility in Eureka. With 11

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<sup>8</sup> North Coast Resource Partnership (NCPA) (n.d.). Homepage. Accessed June 15, 2024, from <https://northcoastresourcepartnership.org>

<sup>9</sup> Redwood Coast Energy Authority (RCEA) (2019). *RePower Humboldt*. Accessed May 5, 2024, from <https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>

<sup>10</sup> Humboldt County Association of Governments (HCAOG) (2023). *HCAOG 2023 Highlights*. Accessed May 21, 2024, from [https://www.hcaog.net/sites/default/files/HCAOG%202023%20Highlights%20\(Canva\).pdf](https://www.hcaog.net/sites/default/files/HCAOG%202023%20Highlights%20(Canva).pdf)

<sup>11</sup> City of Arcata (2024). *Resolution No. PC-24-05, Gateway Area Plan 2024*. Accessed May 15, 2024, from [https://www.cityofarcata.org/DocumentCenter/View/14232/25\\_Gateway20240514PC](https://www.cityofarcata.org/DocumentCenter/View/14232/25_Gateway20240514PC)

<sup>12</sup> City of Arcata (2024). *Arcata Municipal Code Chapter 9.110 - Gateway Area Districts*. Accessed May 15, 2024, from [https://www.cityofarcata.org/DocumentCenter/View/14200/Gateway-FBC20240514\\_PC-Adopted](https://www.cityofarcata.org/DocumentCenter/View/14200/Gateway-FBC20240514_PC-Adopted)



new zero-emission FCEBs added to the fleet and the hydrogen station, this project will help kick-start a hydrogen supply chain on the North Coast.<sup>13</sup>

Numerous community planning documents have been adopted in the Humboldt region that include a number of policies, goals, and projects that are focused on the reduction of GHG emissions including the County and local General Plans, City of Arcata Community GHG Reduction Plan<sup>14</sup>, RePower Humboldt<sup>15</sup>, Humboldt County Transit Development Plan 2023 - 2028,<sup>16</sup> HCAOG Humboldt Bay Area Bike Map, HCAOG RTP<sup>17</sup>, and RCEA North Coast Medium-Duty and Heavy -Duty ZEV Blueprint Plan<sup>18</sup>.

## 1.4 Regional Climate Action Plan Development Process

### Process

The RCAP was built off the completed 2022 GHG emissions inventory calculated for activities within the geographic area of Humboldt County and included future GHG emissions forecasts and analysis of GHG emission reduction targets in support of state reduction goals. After the targets were analyzed, GHG emission reduction measures and supporting actions were designed based on the success of the work done previously in Humboldt, current best practices, and information gathered from interested parties including the County, incorporated Cities, regional partners (e.g., HTA, RCEA, HCAOG), and community groups. Feedback from interested parties were considered to establish a list of priority projects and measures that were then further refined based on feasibility and substantial evidence for GHG reduction capacity. Figure 1 shows the iterative nature of the RCAP development process.

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<sup>13</sup> California Climate Investments (2023). *Kick-Starting Zero-emission Fleets and Expanding Transit on California's North Coast*. Accessed June 10, 2024, from <https://www.caclimateinvestments.ca.gov/2023-profiles/hta>

<sup>14</sup> City of Arcata( 2006). *Community Greenhouse Gas Reduction Plan*. Accessed June 7, 2024, from [https://www.ca-ilg.org/sites/main/files/file-attachments/resources\\_\\_Greenhouse\\_Gas\\_Reduction\\_Plan\\_0.pdf?1460653786](https://www.ca-ilg.org/sites/main/files/file-attachments/resources__Greenhouse_Gas_Reduction_Plan_0.pdf?1460653786)

<sup>15</sup> Redwood Coast Energy Authority (RCEA) (2019). *RePower Humboldt*. Accessed May 5, 2024, from <https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>

<sup>16</sup> Humboldt County Association of Governments (HCAOG) (2023). *Humboldt County Transit Development Plan 2023-2028*. Accessed May 10, 2024, from [https://www.hcaog.net/sites/default/files/humboldt\\_county\\_transit\\_development\\_plan\\_-\\_final\\_report\\_no\\_appendices\\_compressed\\_0.pdf](https://www.hcaog.net/sites/default/files/humboldt_county_transit_development_plan_-_final_report_no_appendices_compressed_0.pdf)

<sup>17</sup> Humboldt County Association of Governments (HCAOG). *Regional Transportation Plan, VROOM 2022-2042*. Accessed May 10, 2024, from [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)

<sup>18</sup> Redwood Coast Energy Authority (RCEA) (2023). *North Coast Medium-Duty and Heavy-Duty ZEV Blueprint Plan*. Provided by the County via SharePoint on March 15, 2023.

Figure 1 RCAP Development Process



Developing a comprehensive strategy to tackle climate change requires collaboration among various interested parties, community members, decision-makers, County and incorporated City staff. By working together, a plan that is representative of the needs of the community at large was developed.

### Jurisdictional Collaboration

The RCAP was developed to encompass the geographical region of Humboldt County and will be implemented across all the incorporated Cities and County. Success with implementation and achievement of the GHG reduction targets will require coordination and cooperation between different jurisdictions and commitment and effort from all levels of the Cities and County administration. The RCAP was developed through collaboration among the County, all incorporated Cities, RCEA, HTA, HCAOG, and HWMA. The goals and measures presented in the RCAP were developed in close collaboration with department heads and regional partners. This approach

supported the development of measures and actions that were feasible and provided a clear roadmap to address potential barriers to implementation. By incorporating insights from across the region, the RCAP struck a balance between Humboldt's operational capabilities and what needs to occur to reach the 2030 GHG reduction target. While the RCAP is regional in scope, each individual jurisdiction will need to adopt the RCAP through their City Councils or the County Board of Supervisors for the County.

### Information Sharing with the Community

During the initial drafting of the RCAP that began in 2019, the County and incorporated Cities hosted numerous community outreach events and campaigns. As part of the initial work on the CAP presentations were made to each of the City Councils for Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Del and Trinidad, and to the Board of Supervisors. Other public presentations were held with the Farm Bureau, RCEA Board of Directors, a public forum at Cal Poly Humboldt and in McKinleyville, Redway and Willow Creek. To better address transportation related issues and Transportation Advisory Group was formed to provide input on the RCAP.

During the development of the RCAP, an interactive community survey was published on the public RCAP website to inform the community of the updates to the RCAP and gain an understanding of what measures and actions the community would like to see prioritized by the County and incorporated jurisdictions during implementation. The primary goal of the survey was to share information on 1) the Humboldt regions' GHG emissions inventory, forecast, and targets; 2) how Measures and Actions are structured; and 3) the level of potential GHG emissions reduction based on the Measures. The survey was viewed over 1,000 times with a total of 160 submissions. Survey results indicated that the respondents prioritized efforts to reduce organic waste sent to landfills, increase zero-emission vehicle use, and increase public transit use the highest. Responses from public officials prioritized efforts to increase zero-emission vehicle use and establish a region-wide Climate Committee to implement the RCAP as the highest with reducing organic waste and increasing public transit use tied as the third highest priority. These responses indicated high alignment between what public officials felt should be prioritized compared with the community respondents.

## 2 Scientific Context for Climate Change

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Climate change is the observed increase in the average temperature of the Earth’s atmosphere and oceans along with other substantial changes in climate intensity (such as wind patterns, precipitation, and storms) over an extended period of time. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial 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. However, scientists have observed acceleration in the rate of warming during the past 150 years. Per the United Nations Intergovernmental Panel on Climate Change (IPCC), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (95 percent or greater chance) that the global average net effect of human activities has been the dominant cause of warming since the mid-20th century.<sup>19</sup>

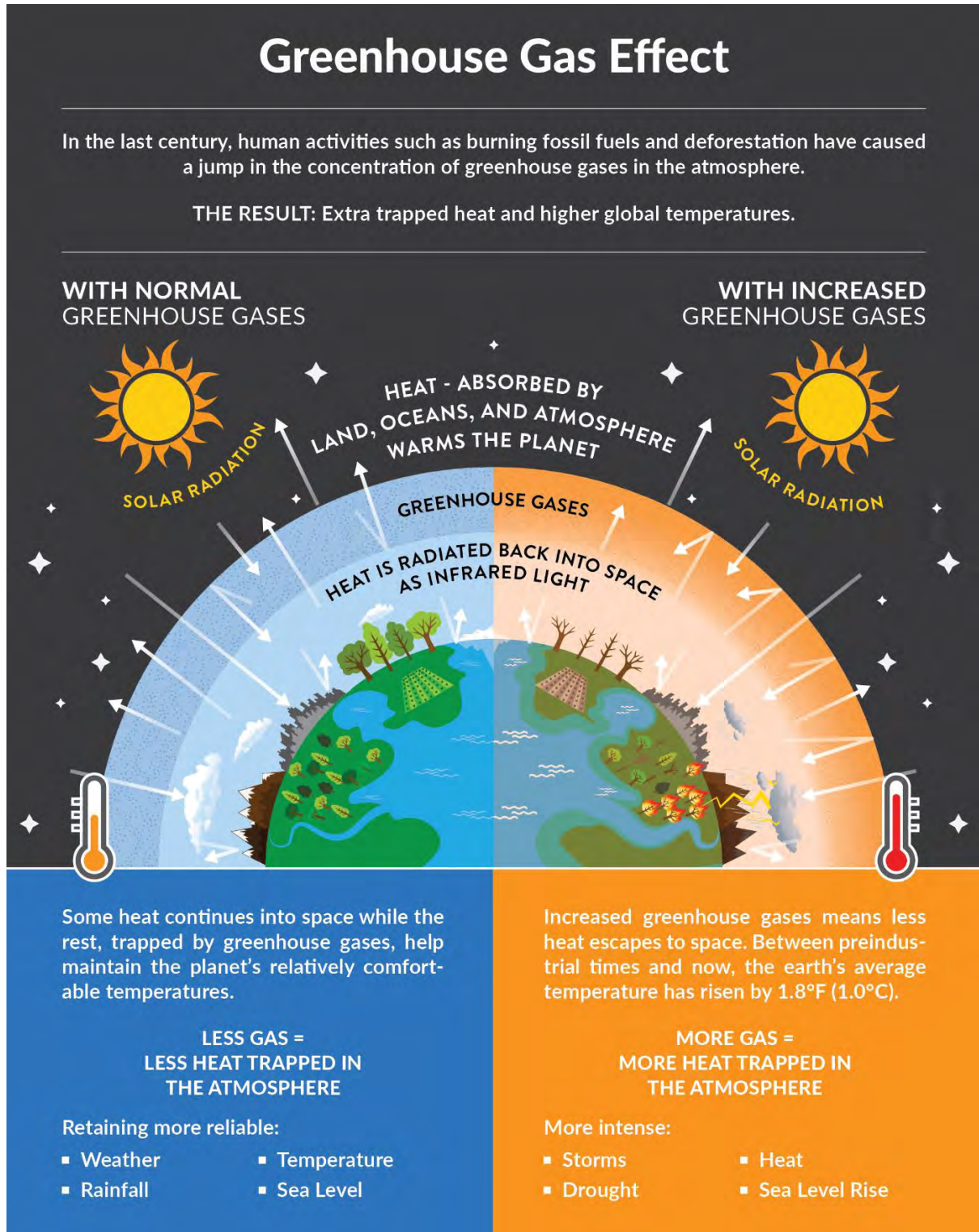
### 2.1 Background on Greenhouse Gas Emissions

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The accumulation of GHGs in the atmosphere regulates the Earth’s temperature is known as the “greenhouse gas effect”. The greenhouse effect, shown in Figure 2, is integral to sustaining life on Earth. However, human activities emit GHGs more than natural ambient concentrations, thereby contributing to the enhancement of the natural greenhouse effect. This enhanced greenhouse effect contributes to global warming, an accelerated rate of warming of earth’s average surface temperature. More specifically, by burning fossil fuels to power homes, businesses, and automobiles, we increase the amount of GHGs emitted into the atmosphere, which, in turn, leads to increased absorption of infrared radiation by the earth’s atmosphere and increasing temperatures near the surface.

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<sup>19</sup> Intergovernmental Panel on Climate Change (IPCC) (1995). *Climate Change 1995, The Science of Climate Change*. Accessed May 1, 2024, from [https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc\\_sar\\_wg\\_i\\_full\\_report.pdf](https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_sar_wg_i_full_report.pdf)

Figure 2 Greenhouse Gas Effect



## Types of GHGs

The United Nations Intergovernmental Panel on Climate Change's (IPCC) list of GHG emissions include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), as well as chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, which are collectively called fluorinated gases.<sup>20</sup> Fluorinated gases are man-made gases that can stay in the atmosphere for centuries and contribute to the GHG effect. Ninety-seven percent of the annual GHG emissions generated in the United States consist of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O,<sup>21</sup> while fluorinated gases<sup>22</sup> result in the remaining three percent of emissions. Most fluorinated gases come from industrial sources, of which there are relatively few in Humboldt. Due to CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O comprising the large majority of GHG emissions in Humboldt, the RCAP focuses on these three gases for its GHG emissions inventory, forecast, and reduction strategy, consistent with the ICLEI – Local Governments for Sustainability's U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (Community Protocol).

Each type of GHG has a differing ability to trap heat in the Earth's atmosphere over a specified timescale (generally, 100 years), referred to as the gas's global warming potential (GWP).<sup>23</sup> The reference point to compare the potential impact of different GHGs is CO<sub>2</sub>, and therefore CO<sub>2</sub> has a GWP of 1, whereas CH<sub>4</sub> has a GWP of 28. This means that each metric ton (MT) of methane causes 28 times more warming than 1 MT of CO<sub>2</sub>. Even more potent, N<sub>2</sub>O has a GWP of 265, or 265 times the GWP of 1 MT of CO<sub>2</sub>.<sup>24</sup>

## Sources of GHGs

GHGs are emitted by both natural processes and human activities. Of these gases, CO<sub>2</sub> and CH<sub>4</sub> are emitted in the greatest quantities from human activities. Emissions of CO<sub>2</sub> are largely by-products of fossil fuel combustion, whereas CH<sub>4</sub> results from off-gassing associated with agricultural practices and decomposition of organic waste in landfills. These activities release GHGs into the atmosphere and contribute to climate change. With the accelerated increase in fossil fuel combustion and deforestation since the Industrial Revolution of the 19th century, concentrations of GHG emissions in the atmosphere have increased exponentially. The United States Environmental Protection Agency (U.S. EPA) tracks the country-wide emissions and publishes an annual report: Inventory of U.S. Greenhouse Gas Emissions and Sinks.<sup>25</sup> The Inventory of U.S. Greenhouse Gas Emissions and Sinks is a comprehensive account of total GHG emissions for all man-made sources in the U.S. including CO<sub>2</sub> removal from the atmosphere by "sinks," (e.g., through the uptake of carbon and storage in forests, vegetation, and soils) from management of lands in their current use, or as lands are converted to other uses. In 2020, the most recent year in which GHG emissions have been calculated nationally, emissions in the U.S. totaled 5,222 million metric tons (MMT) of CO<sub>2</sub>e after accounting for sequestration from the land sector. Emissions decreased from 2019 to 2020 by 11

<sup>20</sup> Center for Climate and Energy Solutions (2019). *Main Greenhouse Gases*. Accessed June 12, 2024, from <https://www.c2es.org/content/main-greenhouse-gases/>

<sup>21</sup> World Resources Institute (WRI) (2020). *4 Charts Explain Greenhouse Gas Emissions by Countries and Sectors*. Accessed June 12, 2024, from <https://www.wri.org/insights/4-charts-explain-greenhouse-gas-emissions-countries-and-sectors>

<sup>22</sup> Fluorinated gases, which includes four main types: hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>), are man-made gases that can stay in the atmosphere for centuries and contribute to the GHG effect.

<sup>23</sup> Intergovernmental Panel on Climate Change (IPCC) (2014). *Climate Change 2014, Synthesis Report*. Accessed May 12, 2024, from [https://www.ipcc.ch/site/assets/uploads/2018/05/SYR\\_AR5\\_FINAL\\_full\\_wcover.pdf](https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf)

<sup>24</sup> *ibid.*

<sup>25</sup> United States Environmental Protection Agency (EPA) (2024). *Inventory of U.S. Greenhouse Gas Emissions and Sinks*. Accessed May 12, 2024, from <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>

percent due to the COVID-19 pandemic, however, preliminary estimates show that emissions rebounded in 2021 after the height of the pandemic.<sup>26</sup>

## Effects of Climate Change

In California, the impacts of climate change are already being felt, and will continue to become more severe throughout the twenty-first 21st century. Higher temperatures, more extreme heat events and wildfires, and rising sea levels are all effects of climate change experienced in California. The California Office of Environmental Health Hazard Assessment reported in 2018 that despite annual variations in weather patterns, California has seen a trend of increased average temperatures, more extreme heat days, higher acidity in the Pacific Ocean, earlier snowmelt, and lesser rainwater runoff.<sup>27</sup> From 1895 to 2011, average temperatures have increased by about 1.7°F statewide, and a smaller proportion of annual precipitation is falling as snow instead of rain. During 1972-2018, California experienced a fivefold increase in the annual area burned, largely attributable to climate change-induced atmospheric temperature rises.

Humboldt and its residents have not been immune from the impacts of climate change. In the last five years the County has experienced the highest rate of sea level rise on the west coast.<sup>28</sup> This has led to coastal erosion and flooding events along coastal communities. Elevated temperatures can harm agriculture, strain water resources, and heighten the risk of heat-related illnesses. Similar to other regions in California, Humboldt is also vulnerable to more frequent and severe wildfires due to climate change where dry and hot conditions contribute to the spread of wildfires, posing risks to communities, ecosystems, and infrastructure. The risk of wildfires is even greater in Humboldt due to the abundant stock of vegetation, which over the last decades have increased in density as vegetative clearing and prescribed burning have reduced.<sup>29</sup> The forested land in Humboldt provides a natural sink to GHG emissions for the region and the state; a loss of this natural sink would be devastating. These climate hazards are expected to intensify if GHG emissions continue to increase. Likewise, Humboldt is likely to face direct impacts from climate change.

While everyone will be impacted, the effects of these environmental hazards will vary depending on factors such as age, health, and socioeconomic status. The most vulnerable individuals will bear the greatest burden from the potential impacts of climate change. It is crucial that the development of this RCAP benefits all community members and does not disproportionately burden or harm vulnerable populations.

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<sup>26</sup>United States Environmental Protection Agency (EPA) (2024). *Climate Change Indicators: U.S. Greenhouse Gas Emissions*. Accessed June 1, 2024, from <https://www.epa.gov/climate-indicators/climate-change-indicators-us-greenhouse-gas-emissions>

<sup>27</sup>Office of Environmental Health Hazard Assessment, California Environmental Protection Agency (2018). *Indicators of Climate Change in California*. Accessed May 21, 2024, from <https://oehha.ca.gov/media/downloads/climate-change/report/2018caindicatorsreportmay2018.pdf>

<sup>28</sup>California Sea Level Rise Science Task Force, California Ocean Protection Council, California Ocean Science Trust (2024). *California Sea Level Rise Guidance: 2024 Science and Policy Update*. Accessed July 10, 2024, from <https://opc.ca.gov/wp-content/uploads/2024/05/Item-4-Exhibit-A-Final-Draft-Sea-Level-Rise-Guidance-Update-2024-508.pdf>

<sup>29</sup>Humboldt Planning & Building (n.d). *Wildfire Hazard*. Accessed June 10, 2024, from <https://humboldt.gov.org/3407/Wildfire-Hazard>



## 2.2 Public Policy Context

### California Climate Policy

California is recognized globally as a leader on climate change, having established a variety of ambitious GHG reduction targets and associated strategies. The primary policies that have driven statewide GHG emissions reductions are Executive Order (EO) S-3-05, Assembly Bill (AB) 32, Senate Bill (SB) 32, EO B-55-18, and most recently AB 1279. Signed in 2005, EO S-3-05 established statewide GHG emission reduction targets to achieve long-term climate stabilization as follows: by 2020, reduce GHG emissions to 1990 levels and by 2050, reduce GHG emissions to 80 percent below 1990 levels. In 2016, SB 32 set a target for achieving a 40 percent reduction in GHG emissions below 1990 levels by 2030. In 2018, EO S-3-05 was accelerated by EO B-55-18, which established a goal of achieving carbon neutrality by 2045 and was codified by AB 1279. Carbon neutrality refers to emitting net zero carbon emissions, which can be achieved by either eliminating all GHG emissions, or balancing carbon emissions with carbon removal (which can be achieved through carbon sequestration or carbon neutral technologies). AB 1279 requires the direct reduction in GHG emissions by 85 percent below 1990 levels by 2045. The remaining 15 percent of emissions would be removed via carbon removal technology or natural working lands.

To meet the state's 2045 goal of carbon neutrality, CARB recommends that local agencies long-term targets align with AB 1279. Specifically, CARB guidance is for jurisdictions to first strive to meet the SB 32 targets of reducing GHG emissions 40 percent below 1990 levels by 2030, while establishing a policy framework to achieve the long-term target of carbon neutrality by 2045.

### Other Key California Climate Policies

California's GHG-emissions-reduction strategies that will help achieve these reduction targets are developed through its Scoping Plan updates and various Sustainable Communities Strategies passed by local Metropolitan Planning Organizations. Other important climate legislation that will help California achieve its GHG-reduction targets include the state's green building code (Title 24), SB 1383, which set targets for reducing organic waste to landfills, and SB 100, which mandated 100 percent renewable and carbon-free electricity by 2045.

### Regional and Local Goals

In the transportation sector, the HCAOG released a County Transit Development Plan for the years 2023-2028 that includes targeted sustainability goals for each jurisdiction. These include integrating solar power PV systems in the Arcata Intermodal Transit Facility and securing funding for the Sustainable Communities Program to fund green capital improvement projects. HCAOG 2022 RTP has set ambitious goals to increase public and active transit mode share by a combined 30 percent by 2030, and 40 percent by 2050.<sup>30</sup> Additionally, HTA is committed to fully transitioning their fleet to zero emission in compliance with the Innovative Clean Transit regulation. These efforts will reduce emissions of greenhouse gases, vehicle miles traveled, and congestion.

RCEA, the local Community Choice Energy provider, has set several goals focused on energy procurement and reducing emissions in the region as they are related to energy consumption. RCEA

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<sup>30</sup> Humboldt County Association of Governments (HCAOG). *Regional Transportation Plan, VROOM 2022-2042*. Accessed May 10, 2024, from [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)



goals include: expand existing energy efficiency, conservation and electrification programs to reduce GHG emissions from fossil fuel use in buildings by 20 percent by 2030 and maintain a trajectory to reduce emissions from natural gas by 90 percent by 2050; accelerate the adoption of electric vehicles, with a target of over 6,000 electric vehicles on the road in Humboldt County by 2025 and 22,000 vehicles by 2030; by 2025 100 percent of RCEA's power mix will be from a combination of state-designated renewable energy sources; and by 2030 Humboldt County will be a net exporter of renewable electricity and RCEA's power mix will consist of 100 percent local, net-zero-carbon-emission renewable sources.<sup>31</sup>

Cal Poly Humboldt launched an initiative called the Redwood Region RISE (Resilient Inclusive Sustainable Economy) that includes Tribal Lands, Del Norte, Humboldt, Lake, and Mendocino Counties. This is an effort to increase the number of green jobs in the region to align with sustainable economic growth and California's goals to achieve carbon neutrality. With a focus on equity, RISE aims to bring together different stakeholders to understand the needs for each region and develop projects in various sectors. County of Humboldt's Economic Development Department (GoHumCo) has developed a Comprehensive Economic Development Strategy (CEDS) that is updated every five years to provide an implementation plan for policies, programs and investments that will strengthen the economy in the Humboldt region. The 2018 – 2023 CEDS initiatives included attracting and growing industry and local workforce development.<sup>32</sup>

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<sup>31</sup> Redwood Coast Energy Authority (RCEA) (2019). *RePower Humboldt*. Accessed May 5, 2024, from <https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>

<sup>32</sup> Humboldt County (2018). *Prosperity! 2018, Comprehensive Economic Development Strategy 2018 -2013*. Accessed May 11, 2024, from <https://www.gohumco.com/DocumentCenter/View/137/2018-to-2023-Comprehensive-Development-Strategy-PDF>

## 3 GHG Emissions Levels

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An important part of the RCAP process is the development of a GHG inventory. A GHG emissions inventory identifies the major sources and quantities of GHG emissions produced by community wide activities within a defined geographic area for a given year. Estimating GHG emissions enables local governments to establish an emissions baseline, track emissions trends, identify the greatest sources of GHG emissions within a defined geographic area, and set targets for future reductions.

For this RCAP a 2022 Humboldt County Regional GHG emissions Inventory was developed to comprehensively cover the entire county excluding those territories beyond local government jurisdiction, incorporating emissions data from both the incorporated cities and the unincorporated regions of Humboldt. The 2022 GHG emissions inventory was used to identify the greatest sources of GHG emissions within Humboldt and establish a GHG emissions baseline for the RCAP from which a forecast and reduction targets were established. The 2022 GHG emissions inventory identifies the major sources and quantities of GHG emissions produced by communitywide activities within the Humboldt region defined by the county geographical limits.

Emissions estimates were calculated using the International Council for Local Environmental Initiatives (ICLEI) methodologies, specifically, the United States Community Protocol for Accounting and Reporting Greenhouse Gas Emissions Version 1.2 (Community Protocol) is used for community-wide emissions. To allow for comparison among GHG emissions sources, all emissions are translated to the equivalent of one metric ton of carbon dioxide, or MT CO<sub>2</sub>e. One MT CO<sub>2</sub>e is the equivalent of using 113 gallons of gasoline or driving 2,558 miles in a standard combustion vehicle.<sup>33</sup>

### 3.1 Humboldt GHG Emissions Inventory

The 2022 GHG emissions inventory covers the relevant emissions sources within the boundary of Humboldt County, including all incorporated and unincorporated areas. The inventory thereby reflects emissions sectors resulting from Humboldt community activities over which the local governments (i.e., County and partnering jurisdictions) have jurisdictional control and influence. Sectors where the local government has limited influence are excluded from the 2022 GHG emissions inventory as the local governments do not have jurisdictional control to develop measures to impact associated emissions. In alignment with Community Protocol, the 2022 GHG emission inventory includes emissions from the five basic reporting activities that must be reported: residential and commercial energy usage, on-road transportation, off-road transportation, landfilled waste, and water and wastewater.

As part of the energy sector, electricity<sup>34</sup> and natural gas consumption from industrial operations are included as most industrial facilities in the area are not subject to regulations under the State's Cap and Trade program which typically governs industrial emissions. Further, local jurisdictions are considered to have some influence over the energy use at industrial land uses through zoning and building codes and therefore are included in the inventory. Emissions from industrial point source

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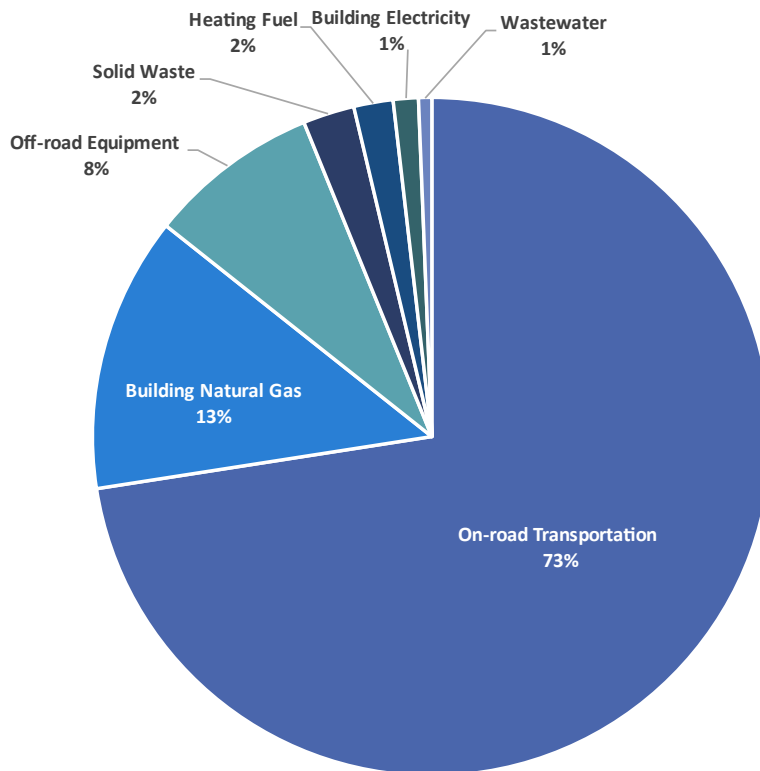
<sup>33</sup>United States Environmental Protection Agency (EPA) (2024). *Greenhouse Gas Equivalencies Calculator*. Accessed June 20, 2024, from <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

<sup>34</sup>Electricity is supplied to the region by PG&E and RCEA. GHG emissions associated with electricity use is based on the emission factor (i.e., MT CO<sub>2</sub>e/kwh) determined by the energy portfolio for each utility provider and quantity of electricity provided to the region by each provider.

discharge have been excluded due to lack of local jurisdictional control over this emissions source and because industrial point sources are regulated by the state under the Cap-and-Trade program and by the local air district. Water sector emissions, arising from electricity use in water delivery and treatment, are accounted for under electricity sector emissions as the entirety of water supplied to Humboldt community members occurs within Humboldt geographic and jurisdictional boundaries.<sup>35</sup> Emissions associated with agricultural land use practices (e.g., land management, livestock emissions) are excluded from the inventory because the County and local jurisdictional governments have limited control over these type of agricultural emissions. Further, the state has not yet issued guidance on methodology for quantifying GHG emission impacts associated with natural working lands. Therefore, GHG emission impacts and carbon sequestration of natural working lands are not included in the inventory.

Humboldt’s total GHG emissions for 2022 were estimated to be 1,531,167 MT CO<sub>2</sub>e, as depicted in Figure 3. For more information on the data and methodologies used, refer to Appendix B. According to the results of the 2022 GHG inventory, the largest source of GHG emissions in Humboldt was from on-road transportation, which accounted for 73 percent of the inventoried emissions. The second largest source of GHG emissions was from natural gas usage in buildings, which accounted for 13 percent of total emissions. Natural gas is used to heat water, homes, and businesses and to power gas-powered appliances. Off-road equipment accounted for the third largest source of emissions, for a total of 8 percent of total emissions in Humboldt as seen in Figure 3 below.

Figure 3 Humboldt GHG Emissions 2022 Inventory



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<sup>35</sup> Water sector operation information is based on feedback provided by the County and water districts which supply water to the Humboldt community.

## 3.2 GHG Emissions Forecast

While GHG inventories provide data on Humboldt’s current emissions, GHG-emissions forecasts (forecast) estimate the community’s projected GHG emissions into the future. Forecasts are developed from the most recent GHG inventory and provide an estimate of how Humboldt’s emissions might change over time due to factors such as population and job growth as well as new technologies and policies. A GHG emissions forecast estimates future GHG emission changes by accounting for projected community growth and changes. Calculating the difference between the GHG emissions forecast and GHG emissions reduction targets determines the gap in GHG emissions that needs to be closed through the implementation of local GHG reduction policies.

The 2022 GHG emission inventory was selected to serve as the baseline for the forecast as it is considered the most recent emission inventory representative of typical conditions in the community. To provide a comprehensive, forward-looking projection of demographic trends in the Humboldt community, the GHG emissions forecast utilized the Regional Housing Needs Allocation (RHNA) 6th cycle data and the U.S. Census data to estimate anticipated household growth in the region per year. RHNA data accounts for housing needs across the region based on demographic trends. Projected household estimates were used to project population and employment growth in Humboldt. These projections align with the anticipated growth reflected in the Humboldt County Association of Governments (HCAOG) Regional Transportation Plan (RPT) which projects a 1 percent population growth rate per year in the region in consideration of local project developments, growth analysis from local jurisdictions, climate trends, and State-wide population movement trends.<sup>36</sup>

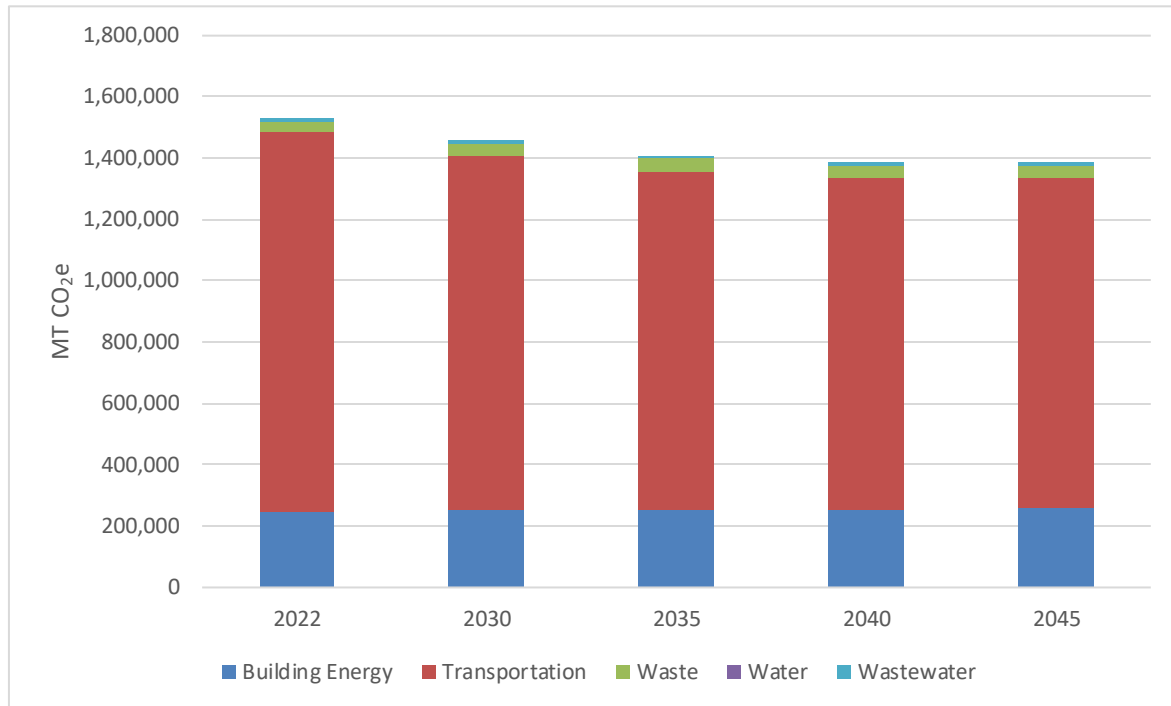
Two scenarios were forecast to estimate the future emissions for Humboldt in the years 2030, 2035, 2040 and 2045. This includes a *business-as-usual scenario* (BAU) forecast that estimates how future GHG emissions would change if consumption trends continued as they did in 2022 without consideration of any local or state regulations. Additionally, a *legislative adjusted scenario* (adjusted) forecast was developed that accounts for how currently adopted state legislation, such as the California Renewable Portfolio Standards, Title 24 building energy efficiency standards, and transportation legislation, would reduce GHG emissions from the *business-as-usual scenario*. More information on these regulations and how they were accounted for in the forecast can be found in Appendix B.

Humboldt’s adjusted forecast projects the community’s GHG emissions will decrease through 2040 and then increase slightly in 2045. This is due to State legislation, including Title 24 and California’s GHG vehicle emission standards, being fully phased in and then being offset by population, job growth, and levels of vehicles miles traveled. A summary of Humboldt’s adjusted GHG forecast through 2045 is shown in Figure 4.

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<sup>36</sup> Humboldt County Association of Governments (HCAOG). *Regional Transportation Plan, VROOM 2022-2042*. Accessed May 10, 2024, from [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)

Figure 4 Humboldt GHG Emissions Adjusted Forecast, 2022- 2045



### 3.3 Humboldt GHG Emissions Targets

GHG reduction targets are used to establish measurable metrics intended to guide the community’s commitment to achieve GHG emissions reduction and help gauge progress with reducing emissions over time. GHG targets are developed relative to a baseline emissions level. California has established Statewide GHG reduction goals for 2030 and 2045. The State has encouraged communities to adopt their own plans consistent with these goals in the CARB 2022 Scoping Plan.<sup>37</sup> Thus, local agencies are recommended to establish at a minimum, equivalent reduction targets at the local level by establishing community wide GHG reduction goals for climate action that will help California achieve its 2030 and 2045 GHG emissions goals.

Due to lack of available and accurate 1990 activity data, Humboldt does not have a 1990 GHG emissions inventory from which to develop GHG reduction targets consistent with SB 32, however, 1990 GHG emissions can be estimated for the community relative to Humboldt’s updated 2022 inventory using a state-level emissions change metric. The calculation is developed using the published Statewide emissions results from CARB<sup>38</sup>, after removing emissions from sectors not included in Humboldt’s inventory (e.g., non-specified, industrial point sources, agricultural land management practices). This approach assumes that Humboldt’s community activities and associated GHG emissions have generally tracked with the State’s activity trends and associated GHG emissions. However, since 1990, electricity and natural gas consumption and associated GHG emissions in Humboldt have declined at a much more rapid rate than the Statewide trend reflected

<sup>37</sup> California Air Resources Board (CARB) (2022). *2022 Scoping Plan for Achieving Carbon Neutrality*. Access February 19<sup>th</sup>, 2024, from <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

<sup>38</sup> California Air Resources Board (CARB) (2024). *Current California GHG Emission Inventory Data*. Accessed May 2, 2024, from <https://ww2.arb.ca.gov/ghg-inventory-data>

in the Statewide inventory. This is because Humboldt has experienced a significant decline in industrial operations leading to a significant decrease in electricity and natural gas consumption. Further, RCEA has emerged as the main alternative electricity provider in the region offering since 2017 an alternative to PG&E, the sole utility provider to the Humboldt region in 1990. Because RCEA has a more renewable and carbon-free energy profile than PG&E, GHG emissions associated with building electricity use in the region have declined to a greater extent than State wide trends reflect. Since these trends are specific to the Humboldt region and do not track with Statewide trends reflected in the Statewide inventory, electricity and natural gas emissions were also removed from the Statewide emissions to back-cast Humboldt's 1990 emissions associated with the following included inventory sectors: transportation (on and off-road), solid waste, wastewater, and heating fuel. GHG emissions from electricity and natural gas consumption in Humboldt in 1990 was quantified using 1990 county-wide activity data obtained from the California Energy Commission (CEC) and PG&E 1990 electricity emissions factor provided in the PG&E Community Report. This approach for developing a 1990 back-cast for Humboldt assumes that Humboldt's community GHG emissions associated with transportation, solid waste, wastewater, and heating fuel consumption have generally tracked with Statewide trends, while taking into consideration the more regionally applicable changes in electricity and natural gas consumption in the county.

The purpose of target setting is to develop the trajectory toward achieving the State's 2030 goal (SB 32) and prepare for the deep decarbonization needed by 2045 in a cost-effective manner by setting an incremental path toward achieving AB 1279 targets. CARB guidance is for jurisdictions to first strive to exceed the SB 32 targets of reducing GHG emissions 40 percent below 1990 levels, while establishing a policy framework to achieve the long-term target of carbon neutrality by 2045. This RCAP establishes a mass emissions target of 40 percent reduction in GHG emissions below 1990 levels by 2030 in alignment with SB 32. Additionally, the RCAP establishes strategies to make substantial progress towards carbon neutrality by 2045 in alignment with AB 1279. The pathway to achieve Humboldt targets in alignment with the state's targets is shown in Figure 5.

The emissions gap between the forecast and the target pathway represents the amount of GHG emissions that Humboldt is committed to reducing through local GHG reduction strategies and projects. As shown in Table 2, to achieve the RCAPs' 2030 goal, Humboldt emissions will need to be reduced by approximately 218,000 MT CO<sub>2</sub>e by 2030.

Emission reductions will be achieved by implementing specific policies and programs at the local level. These activities are referred to as "measures" and "actions" and they should be clear, attainable, measurable, and equitable to help achieve the desired emission reductions. The GHG emissions reductions associated with the measures in the RCAP are sufficient to meet the state-level target established by SB 32 and meet Humboldt's 2030 climate action target. The RCAP also makes substantial progress towards Humboldt's 2045 target, which aligns with the state-level carbon neutrality target established by AB 1279.

Figure 5 Humboldt GHG Emission Reduction Goals

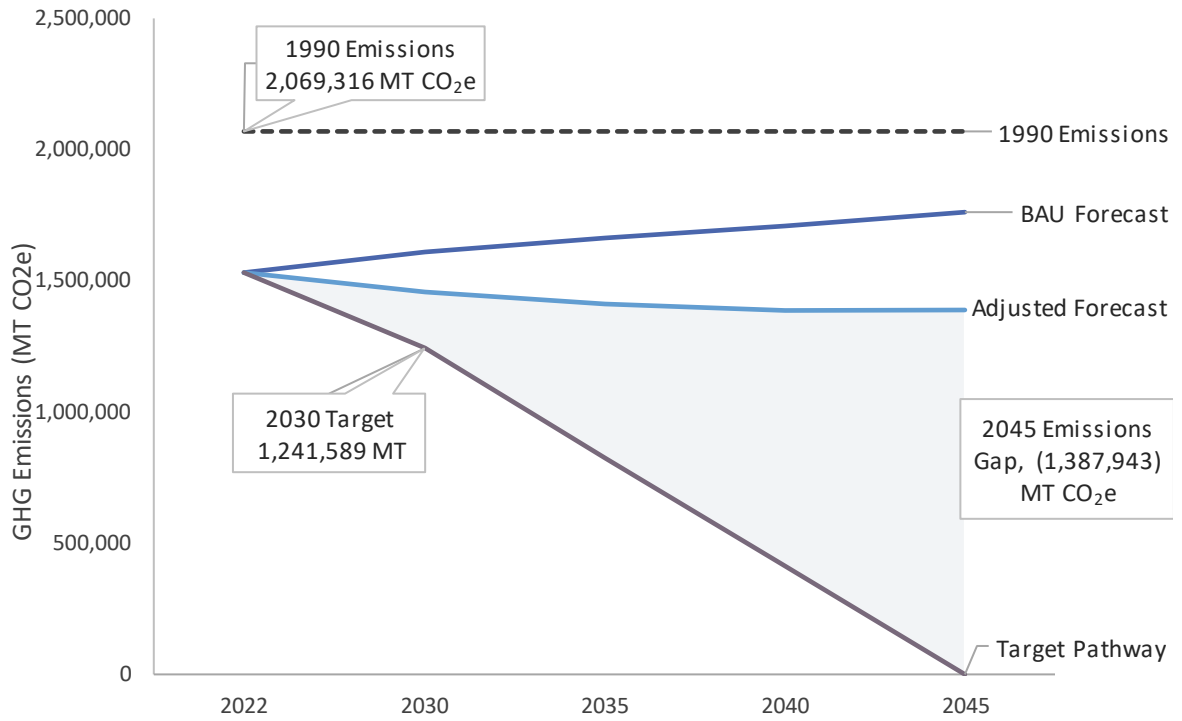


Table 2 Humboldt Region GHG Emissions Reduction Pathway

Emissions Forecast or Pathway	2030	2035	2040	2045
Adjusted Forecast	1,459,598	1,408,160	1,386,924	1,387,943
SB 32 Mass Emissions Target Pathway <sup>1</sup>	1,241,589	827,726	413,863	0
Remaining Emissions Gap	218,008	580,434	973,061	1,387,943

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>e)

Emissions have been rounded to the nearest whole number and therefore sums may not match.

1. The target pathway is calculated by reducing 1990 mass emissions by 40 percent in 2030 and to 0 in 2045. This target pathway is consistent with both SB 32 and a trajectory set forth to achieve AB 1279.

## 4 GHG Emission Reduction Strategy

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### 4.1 Strategy Development

The RCAP sets forth a roadmap for how Humboldt will reduce GHG emissions in the near term to meet the established 2030 goals and make progress towards carbon neutrality in 2045. This RCAP builds upon Humboldt’s previous efforts with actions that are equitable, achievable, and implementable. The measures and actions in the RCAP were developed through a collaborative process between County staff, incorporated jurisdictions, key stakeholders, and interested parties.

The following sections detail Humboldt’s mitigation strategies and the considerations made to develop them. The Measures are organized around a set of eleven Strategies to reduce GHG emissions. Each Measure is then supported by a set of Actions. The structure of the mitigation Strategies, Measures, and Actions are as follows:

- **Strategies:** Strategies describe an overall approach for reducing GHG emissions within a given sector
- **Measures:** Measures are long-range policies that the Humboldt region has established to ultimately reduce GHG emissions in line with the State. Some Measures may be further disaggregated to set goals for “urban” or “rural” regions, defined as follows:
  - **Urban:** Urban areas in Humboldt are more densely developed areas in the region with greater access to energy and transportation infrastructure.
  - **Rural:** Rural areas in Humboldt represent the dispersed communities in the region with limited access to energy and transportation infrastructure. This includes the unincorporated County as well as some incorporated cities that have similar constraints.
- **Actions:** Actions identify the programs, policies, funding pathways, and other specific commitments that will be implemented within the region. Each measure contains a suite of actions, which together have been designed to accomplish the measure goal and metrics.

### 4.2 Type of GHG Reduction Measures

The Measures and Actions can be either quantitative or supportive, defined as follows:

- **Quantitative:** Quantitative Measures result in direct and measurable GHG emissions reductions when their Actions, backed by substantial evidence, are implemented. GHG emissions reductions from these Measures and Actions are justified by case studies, scientific articles, calculations, and other third-party substantial evidence that establish the effectiveness of the reduction actions. Quantitative Measures can be summed to quantify how the region will meet its 2030 GHG emission reduction target and demonstrate progress towards the 2045 target.
- **Supportive:** Supportive Measures may also be quantifiable and have substantial evidence to support their overall contribution to GHG emission reductions. However, due to one of several factors – including a low GHG emission reduction benefit, indirect GHG emission reduction benefit, or potential for double-counting– they have not been quantified and do not contribute directly to achieving and making progress towards the region’s GHG emission reduction targets. Despite not being quantified, supportive Measures are nevertheless critical to the overall



success of the RCAP and provide support so that the quantitative Measures will be successfully implemented.

### 4.3 Key Strategy Attributes

Successful implementation of climate action requires behavioral changes and community buy-in which means balancing various factors beyond reducing GHG emissions. To best position the RCAP to achieve the Humboldt region's targets, measures are designed to embody six key attributes crucial for effective climate policy. Each key attribute emphasizes specific criteria that play an essential role in the implementation of climate action. The key attributes are:

- **Structural Change:** Establishing a program/policy/ordinance that will allow the Humboldt region to reach the target established by the Measure (e.g., ordinance or code)
- **Engagement:** Development of promotional materials to inform the community and interested parties, gain buy-in, and raise awareness of new and existing programs and opportunities.
- **Equity:** Actions that engage and consider vulnerable communities (low-income families, fixed-income seniors, agricultural workers, etc.) that may experience secondary impacts or not benefit directly from the Measure's objective (e.g., actions that ensure the overall community benefit).
- **Feasibility Study:** Used to understand more about the details/obstacles/feasibility or implementation of a program (e.g., analysis necessary to identify the best path or the feasibility of implementing a specific measure).
- **Funding:** The financial backing to get a program going such as general funds, local income generation, bonds as well as pursuing external sources including grant funding or financing opportunities (e.g., grants or rebates that help pay for the implementation of a measure, funding to adequately staff the program).
- **Partnerships:** Looking at outside non-profits or agencies that can help with implementation of a measure's actions (e.g., community organizations that are best positioned to move a measure forward consistently or sustainably)

The Cornerstone Strategy and Measure (C-1) illustrates how these key attributes integrate into a cohesive strategy designed for long-term implementation. The other Strategies and Measures within this RCAP follow the same structure as the Cornerstone Measure, embodying the key attributes that are essential to successful implementation of the Measure and achieving GHG emissions reductions.

### 4.4 Co-Benefits of GHG Reduction Measures

The Humboldt region's commitment to reduce GHG emissions means the community will benefit from various co-benefits that will have lasting positive impacts on the community residents and help the Humboldt region reach its goals. The co-benefits identified for each Measure include:



**Natural Resource Enhancement:** Protects and enhances regional natural resources, safeguarding biodiversity and ecosystem services like cleaner air and water. Healthy ecosystems mitigate pollution, sequester carbon, provide species habitat, and offer recreational spaces for the community. They also help manage extreme weather effects by absorbing rainwater and reducing strain on infrastructure.



**Resource Efficiency:** Many GHG reduction strategies improve resource use efficiency while minimizing waste. Efficient resource use reduces environmental impact and often results in economic savings, freeing up funds for other community needs.



**Public Health and Equity:** Vulnerable communities are disproportionately affected by climate change. Implementing GHG reduction strategies reduces emissions, leads to cleaner air, promotes healthier lifestyles, and mitigates climate hazards like extreme heat. Ensuring equitable access to these benefits supports the health, safety, and resilience of all community members, particularly those most at risk.



**Increased Resilience:** Certain GHG reduction strategies enhance community resilience to climate change, and vice versa. These initiatives increase the community's ability to prepare for, mitigate, and recover from climate hazards such as extreme heat, sea level rise, flooding, wildfires, landslides, and drought.



**Green Jobs:** Creates or advances employment opportunities in sectors contributing to sustainability or improving environmental quality. Initiatives aimed at clean energy adoption and sustainable business practices foster well-compensated and inclusive employment opportunities. These efforts support Humboldt region's climate targets and sustained economic well-being, contributing to financial stability.

## 4.5 Measures

The Strategies and Measures are organized by sector (e.g., Cornerstone, Building Energy, Transportation, Waste, Water & Wastewater, Carbon Sequestration). Each topic identifies the measures and goals the region will strive to meet by 2030 and make substantial progress toward 2045 targets. The RCAP's overarching approach emphasizes leveraging a formal coalition to implement region-wide measures for impactful reduction of GHG emissions. The Cornerstone Measure exemplifies the importance of integrating key attributes outlined in the previous section, demonstrating how each attribute contributes to comprehensive measures. All measures within the RCAP adhere to the framework established by the Cornerstone Measure.

The following sections including background information on the Strategy, a description of the Measure, a summary table that includes the specific actions that make up the measure as well as several additional details such as GHG reduction potential, co-benefits, and key performance indicators (KPI) to measure progress of implementation. Figure 6 provides an overview of how to read this section.

Figure 6 How to Read this Section

**MEASURE GOAL**  
Identifies specific objective to achieve

Measure TR-9: Establish Humboldt as a pilot program for the decarbonization of the transportation sector to help drive State and philanthropic investment throughout Humboldt.

Measure TR-9 aims to establish the region as a pilot program for decarbonizing rural transportation emissions by developing a comprehensive vision that integrates relevant measures outlined in this plan and by attracting State and philanthropic investments. Decarbonizing rural transportation faces unique challenges such as longer travel distances, higher individual vehicle use, and lower average incomes, exacerbated by historical underinvestment in rural areas. By positioning Humboldt as a pioneer in rural decarbonization, this initiative seeks to foster county-wide collaboration for integrated transportation solutions. This pilot program not only aims to attract investments to enhance local infrastructure but also positions the region as a leader in rural sustainability, driving climate mitigation efforts at both local and regional levels. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-9 are included in Table 23.

**MEASURE DESCRIPTION**  
Summary of measure and provides background information and implementation considerations associated with measure.

**Table 23 Measure TR-9 Actions**

Action ID	Attribute	Action
T-9a	Feasibility	The Regional Climate Committee will develop and promote a vision and strategy for the regional community foundation to serve as a first mover/pilot in the State in the decarbonization of America's rural transportation systems.
T-9b	Funding	As a first mover in rural America, the Regional Climate Committee will pursue investment on behalf of the jurisdictions from philanthropy, the State, private businesses, etc. to fund the development of a Humboldt decarbonized rural transportation system.
T-9c	Equity/Engagement	With the support of the Regional Climate Committee, jurisdictions will directly engage members of disadvantaged and vulnerable communities in the development of the vision and strategy that aims to benefit all members of rural communities.

**ACTION INFORMATION**  
Identifies and defines what the region will do and what pillar the action supports.

2030 GHG Emissions Reduction: Supportive  
2045 GHG Emissions Reduction: Supportive  
Co-Benefits: Natural Resource Enhancement, Resource Efficiency, Public Health and Equity, Green Jobs  
KPI: Funding received through philanthropies

**IMPLEMENTATION INFORMATION**  
Identifies the expected GHG reductions from full measure implementation, co-benefits associated with measure, and the KPIs to track progress.

## Cornerstone

A cornerstone strategy in a CAP refers to a foundational approach or key initiative that is essential for achieving the plan's overall goals. It serves as a primary focus and supports the implementation of other strategies by providing a solid framework, significant impact, or critical support.

Cornerstone strategies are typically characterized by their broad scope, potential for high impact, and their role in facilitating or enabling other actions within the climate action plan.

The Humboldt Regional Cornerstone Strategy focuses on the establishment of a coalition between jurisdictions and key organizations to guide a regional approach to climate-related challenges through coordinated efforts. Given the rural nature of the region and its dispersed population, individual municipalities and even the larger incorporated cities face significant constraints in their efforts to reduce GHG emissions due to limited resources (e.g. staffing and funding). These constraints can be overcome through a coordinated and collaborative approach to RCAP implementation. Through a collaborative approach the region can more effectively identify and build efficiencies, attract and share resources (e.g., funding, staff time), and undertake regional infrastructure initiatives needed to enhance capacity and interconnectivity in sectors such as solid waste and transportation, thereby reducing GHG emissions as outlined in the RCAP Measures.

### Strategy 1: Development of a regional climate coalition

Collaboration between jurisdictions in rural areas is crucial for leveraging limited resources and accessing state and federal funding earmarked for climate-related projects. Humboldt recognizes that a regional approach to implementing the RCAP is essential to achieving the significant GHG reductions needed to meet both regional and individual municipality goals. This Strategy is considered the cornerstone of the RCAP and will be the first to be implemented. As the region's first RCAP, establishing a collaborative approach to expanding and improving shared infrastructure, such as an interconnected energy and transportation system and regional waste management solutions, is necessary to successfully achieve GHG reductions in each sector.

*Measure C-1: Establish a Regional Climate Committee comprised of representatives from each jurisdiction, HTA, HCAOG, HWMA, and RCEA.*

Measure C-1 commits the region to establishing a Regional Climate Committee and governance to serve as a regional coalition. This committee would include representatives from municipalities across Humboldt County as well as representatives from regional agencies such as the HTA, HCAOG, HWMA, and RCEA, and other partner organizations. The purpose of this coalition is to foster collaboration and coordination among the region to address climate-related challenges and implement effective climate action strategies. By bringing together key parties from various sectors and jurisdictions, Measure C-1 leverages collective expertise, resources, and efficiencies to tackle climate change at a regional level. The committee would support RCAP implementation through information sharing, coordination of RCAP efforts, development of joint initiatives to reduce GHG emissions, support and pursue funding, and promote sustainable development practices. The Regional Climate Committee is integral to the implementation of all RCAP Measures detailed in the following sections. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure C-1 are included in Table 3.

Table 3 Measure C-1 Actions

Action ID	Attribute	Action
C-1a	Structural	Pursue and obtain funding to create a Climate Program Manager position to lead the coordination efforts of the Regional Climate Committee. The Regional Climate Committee will be responsible for implementing RCAP measures and actions. The Climate Program Manager will facilitate the work of the Regional Climate Committee made up of responsible parties from each of the region's jurisdictions and agencies. The Manager will work with the Committee to utilize the RCAP as a strategic plan outlining the goals of the Coalition. The Manager will coordinate with staff of the participating jurisdictions and agencies to undertake the work directed by the Committee. Finally, the Manager will develop an annual progress report on RCAP implementation annually to City Councils and County Supervisors to measure progress and establish accountability in achieving RCAP emissions reduction goals.
C-1b	Structural	The Regional Climate Committee will develop and provide models, pilot programs, and template policies or ordinances that enable each jurisdiction in the region to implement uniform changes and facilitating local communities in making the necessary structural adjustments to reduce GHG emissions. This will reduce inefficiencies and duplication of effort while ensuring a coordinated regional approach.
C-1c	Engagement	Develop and distribute promotional materials and programs across the region to inform the community, gain buy-in, and promote awareness of new and existing programs and opportunities. Leveraging the Regional Climate Committee to prepare such materials will allow for limited resources in the region to be pooled on such efforts thereby reducing strain on jurisdictional staff.
C-1d	Equity	Leverage regional programs to engage and support frontline communities that may experience secondary impacts or not benefit directly from the measures' objectives. Ensure these communities can access regional resources or funding opportunities to mitigate identified impacts and benefit the entire community. The Regional Climate Committee will be charged with engaging with regional programs and identifying appropriate community-based organizations to lead and guide such engagement efforts to ensure voices of vulnerable communities are involved in RCAP implementation and planning.
C-1d	Feasibility Study	Utilize regional resources to conduct efficient regional studies, avoiding redundancy, that provide a clear understanding of the details, obstacles, and feasibility of proposed programs. This includes necessary analyses to identify the best path forward or the feasibility of implementing specific measures. The Regional Climate Committee will aid in identifying the regional expertise and coordinating studies across the region to limit duplication of efforts.
C-1e	Funding	Collaborate regionally to identify and pursue relevant and impactful grants and financial backing to facilitate RCAP implementation across the region. Ensure resources and efforts are directed towards securing funds that can be distributed across the region, such as grants or rebates to support measure implementation and adequate program staffing. Direct the Regional Climate Committee to pursue 3-5 grants for regional efforts to meet RCAP goals per year.
C-1f	Partnership	Use the collaborative network of local jurisdictions, agencies, and community-based organizations (CBOs) to attract additional internal and external support

Action ID	Attribute	Action
		and expertise. This includes engaging community organizations that are well-positioned to consistently and sustainably advance specific measures. Leverage the Regional Climate Committee to identify and provide assistance to local jurisdictions’ high priority project pursuits which support the RCAP.
<b>2030 GHG Emissions Reduction:</b>		Supportive/Critical
<b>2045 GHG Emissions Reduction:</b>		Supportive/Critical
<b>Co-Benefits:</b>		Public Health & Equity, Increased Resilience, Green Jobs
<b>KPI:</b>		Establishment of Committee; Progress reports

## Building Energy

RCAP measures for the building energy sector focus on transitioning to renewable energy sources, carbon-free electricity, and building decarbonization. California is transitioning to 100 percent renewable and zero-carbon electricity by 2045, thus, when all-electric buildings are fully electrified, they will be powered by carbon-free electricity, and their operating energy footprint becomes carbon-free. Building energy makes up approximately 14 percent of Humboldt’s GHG profile. Of that, approximately 13 percent of building energy emissions are due to the use of natural gas and 1 percent due to indirect emissions associated with electricity use. In California, two of the primary strategies for reducing building energy GHG emissions are decarbonization of the electricity grid and electrification of buildings. The State has implemented several regulations to decarbonize energy including Senate Bill (SB) 100 and SB 1020 aimed towards shifting the electricity grid to 100 percent renewable and zero-carbon power sources by 2045 and the Title 24 building code that is regularly updated to increase energy efficiency and accelerate the electrification of buildings.

### Strategy 2: Increase carbon-free electricity

GHG emissions associated with electricity consumption are related to the source used to generate the electricity (i.e., combustion of natural gas, solar, geothermal). Currently, retail electricity providers, like PG&E and RCEA, are required by SB 100 to procure at least 60 percent of the electricity from eligible renewable energy sources (i.e., solar, wind, geothermal, small hydroelectric, and biomass) by 2030 and 100 percent eligible renewable resources and zero-carbon resources by 2045. PG&E offers several rate plans that ranged from consisting of 38 percent eligible renewables in the base rate to 100 percent solar in the Green Saver rate in 2022. In 2022, RCEA’s RePower electricity option sourced 50 percent of its supply from eligible renewable sources, while the RePower+ option supplied 100 percent from solar, wind, and eligible hydroelectric at a GHG emissions rate of zero.<sup>39</sup> RCEA is currently on track to provide all customers with electricity that is sourced from 100 percent net-zero-carbon emission renewable sources by 2030, exceeding the state requirements by 15 years.<sup>40</sup> GHG emission reductions related to this strategy would result from exceeding state requirements for and removing the use of fossil-fuel powered electricity from the electricity mix. Switching an electricity grid to renewable and zero-carbon sources has significant GHG reduction potential; however, it does include significant investment and some supply and technological limitations. For example, certain renewable electricity sources such as solar and wind

<sup>39</sup> California Energy Commission (CEC) (2022). *2022 Power Content Label: Redwood Coast Energy Authority*. Accessed May 12, 2024, from <https://www.energy.ca.gov/filebrowser/download/6060>.

<sup>40</sup> Redwood Coast Energy Authority (RCEA) (2019). *RePower Humboldt*. Accessed May 5, 2024, from <https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>



are zero-carbon and can be supplied in abundance, however, they are not consistently supplied throughout the day and the supply is often mis-matched with the demand, straining the electricity grid. However, recently California exceeded 100 percent of energy demand with renewables for a record 30 days.<sup>41</sup> Renewable electricity sources such as geothermal and biomass are reliable and consistent sources of power, however, these sources generate a small amount of GHG emissions and there are capacity limitations in terms of maximum output of power supplied. Some solutions include diversifying the electricity grid to ensure electricity can be always provided when needed at a reasonable cost and installation or use of energy storage systems (e.g., battery banks). As technologies continue to improve and more infrastructure is developed, an increasing and more consistent supply of renewable energy will be available.

*Measure BE-1: By 2030, source 90% of grid-supplied electricity from renewable and carbon-free sources.*

Measure BE-1 aims to increase the share of electricity-supplied to the region that is sourced from renewable and carbon-free sources such that 90 percent of all electricity consumed in the Humboldt region is carbon-free. Currently, electricity customers in the Humboldt region are automatically enrolled in RCEA’s RePower electricity option that is 50 percent eligible renewable but may choose to 1) opt-up to the RePower+ option that is 100 percent eligible renewable, 2) opt-out to receive electricity directly from PG&E at the standard rate which is 38 percent eligible renewable, or 3) opt-out to procure electricity at wholesale directly from electricity generators (i.e., direct access which range in the emission factor depending on the energy profile). Direct access is only available to a limited number of utility customers. Based on electricity data provided by RCEA and region wide electricity use from the CEC, RCEA currently supplies 77 percent of all electricity consumed in the region. RCEA currently offers electricity options with a GHG emission rate lower than the standard electricity options offered in the region. As RCEA is on track to provide 100 percent renewable electricity to all customers by 2030, this Measure would significantly aid in decarbonizing the region’s building energy sector. Increasing the percentage of community electricity supplied by RCEA or a comparable 100 percent renewable program in the region would reduce GHG emissions associated with electricity consumption. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-1 are included in Table 4.

Table 4 Measure BE-1 Actions

Action ID	Attribute	Action
BE-1a	Feasibility	<p>Coordinate and support Redwood Coast Energy Authority (RCEA) in developing an effective energy strategy. Strategy should include conducting an assessment to identify the potential obstacles and detail the steps to providing provide renewable and carbon-free power and decarbonization programs outlined in the RePower Humboldt plan such as:</p> <ol style="list-style-type: none"> <li>1. Future Capacity constraints</li> <li>2. Customer solar installations</li> <li>3. Customer electrification support</li> <li>4. EV charging infrastructure buildout</li> <li>5. Building electrification</li> </ol>

<sup>42</sup> By 2045, all electricity providers are expected to be entirely carbon-free and use eligible renewable sources, thus no further emissions reduction are attributed to increasing the procurement of carbon-free electricity in 2045.

Action ID	Attribute	Action
		<ul style="list-style-type: none"> <li>6. Advanced biofuel infrastructure</li> <li>7. Evaluate enrollment rates in RCEA programs annually to understand why residents and businesses opt out or opt to procure standard grid electricity. Use results to adjust strategy for increasing enrollment accordingly</li> </ul>
BE-1b	Structural	Through the Regional Climate Committee develop a template policy or ordinance for regional jurisdictions to use to require new commercial and industrial developments to acquire electricity from renewable and carbon-free energy sources such as enrolling with RCEA, incorporating on-site renewable generation, or enrolling in PG&E’s 100 percent renewable rate. For each jurisdiction, adapt the templated policy or ordinance as necessary and adopt by 2026.
BE-1c	Partnership	Collaborate across the region with interested parties including tribes, labor unions, workforce development boards, State agencies, colleges, universities, industries, and community organizations to increase local energy workforce development. Partner with RCEA, Humboldt State University, and College of the Redwoods to actively develop education and certifications for electrical and construction trades by 2027 to ensure develop a skilled workforce ready to meet the region's energy needs.
BE-1d	Engagement	Leverage the Regional Climate Committee to work with RCEA to reduce opt-out rate for new customers to no more than 2 percent. Develop promotional educational materials to inform community members on available incentives and benefits of clean energy and energy efficiency.
BE-1e	Equity	Engage with the community and partner with community organizations to facilitate increased communication, technical assistance, and access to energy incentives through the California Alternative Rates for Energy (CARE), Family Electric Rate Assistance (FERA), and Low-Income Home Energy Assistance Program (HEAP) programs for low/moderate income households.
BE-1f	Funding	Work with RCEA to expand and advertise regional energy funding programs as described in the RePower Humboldt plan. Facilitate Humboldt residents and businesses in utilizing energy finance programs such as the Property Assessed Clean Energy (PACE) program. Conduct targeted outreach to public entities, such as public schools, that are eligible for the California Energy Commission Energy Conservation Assistance Act (ECAA) Program loans.
BE-1g	Funding	Coordinate through the Regional Climate Committee to establish and administer a multi-jurisdictional staff position dedicated to identifying and pursuing funding opportunities to support County-wide educational programs, assisting in equitable energy workforce expansion outreach, and providing RCEA with additional funds to expand incentives or subsidies for the community to increase community enrollment. If establishing a dedicated staff position is not feasible, work with the Regional Climate Committee and regional partners to identify resource sharing opportunities for pursuing funding opportunities such as rotating the responsibility across designated agency employees.
<b>2030 GHG Emissions Reduction: 15,403 MT CO<sub>2</sub>e</b>		



Action ID	Attribute	Action
<b>2045 GHG Emissions Reduction:</b>		0 MT CO <sub>2</sub> e <sup>42</sup>
<b>Co-Benefits:</b>		Public Health and Equity
<b>KPI:</b>		Change in Humboldt Electric emission factor (%)

*Measure BE-2: Increase the development of micro-grids and energy storage across the region to support RCEA's RePower Humboldt goals of enhancing grid capacity and facilitating the electrification of buildings and transportation.*

A primary energy challenge faced in the region is having sufficient infrastructure capacity to support initiatives such as electrification. This limitation is exacerbated by slow PG&E response and the inability to meet requested capacity upgrades throughout the county. In spite of these challenges, RCEA has made significant strides to increase electricity generation, connectivity, and capacity in the region through development of nano-grids, micro-grids, and battery storage space. Micro-grids can operate independently from the traditional grid, combined with energy storage, improve grid reliability and resilience by storing excess energy during low demand and supplying it during peak periods. Measure BE-2 calls for the regional enhancement of energy grid capacity by developing micro-grids and energy storage systems, supporting RCEA's goals established in the RePower Humboldt Plan. Micro-grids, which can operate independently from the traditional grid, combined with energy storage, improve grid reliability and resilience by storing excess energy during low demand and supplying it during peak periods. This measure provides increased support to RCEA's goals to facilitate greater energy flexibility, resilience, and allow for future electrification initiatives. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-2 are included in Table 5.

Table 5 Measure BE-2 Actions

Action ID	Attribute	Action
BE-2a	Structural/ Engagement	Develop permit streamlining programs that can be adopted by local jurisdictions to facilitate the streamlined implementation of renewable energy projects as identified in regional energy feasibility study and RCEA RePower Humboldt goals such as energy storage projects, residential and commercial solar installation, and microgrid development.
BE-2b	Partnership	Direct the Regional Climate Committee to work with RCEA to develop a plan for leveraging CPUC's recently passed Limited Generation Profile option to maximize solar installation developments in alignment with RCEA's RePower Humboldt goals throughout the region.
BE-2c	Engagement	Engage with the local community, key interested parties, and local-based community organizations representing disadvantaged and vulnerable communities to raise awareness about alternative renewable energy and nano-grid opportunities available through RCEA. Emphasize the increased accessibility to electrification as well as the economic and environmental advantages of electrification while addressing concerns related to emergency

<sup>42</sup> By 2045, all electricity providers are expected to be entirely carbon-free and use eligible renewable sources, thus no further emissions reduction are attributed to increasing the procurement of carbon-free electricity in 2045.

Action ID	Attribute	Action
		response to minimize exceptions. Publicize the connection between RCEA nano-grid efforts and the increased ability to electrify leading to cost savings, funding opportunities, environmental benefits, and flexibility of electrification through jurisdiction websites and permit counters.
BE-2d	Partnerships	As part of Regional Climate Committee responsibilities identified in Measure C-1, engage with RCEA to track progress toward targets set in RCEA’s RePower Humboldt plan and identify additional opportunities for local jurisdictions to alleviate barriers to goals set in RCEA’s RePower Humboldt plan.
BE-2f	Feasibility Study	As part of Regional Climate Committee responsibilities work with RCEA and the Schatz Energy Research Center to identify locations throughout the county that are priority for utility-scale, nano-grid, and micro-grid solar, hydropower, and/or wind energy generation based on aspects such as land availability and suitability, infrastructure needs, resilience, and energy access equity. Coordinate with PG&E on interconnection needs and identify strategies with PG&E of how to best support capacity building on the grid related to micro-grid projects.
BE-2g	Equity	Conduct an equity assessment across the region that includes the identification of potential cost barriers to residential solar development, particularly for low income and rural communities at the end of PG&E distribution infrastructure and identify feasible sites for solar and battery installation and potential funding sources.
BE-2h	Partnership/Equity	Identify facilities that are suitable to operate as regional resilience hubs to protect people from climate related issues. Create a priority list of these facilities with particular focus on servicing disadvantaged and vulnerable communities and work with RCEA to prioritize implementation of on-site microgrid and energy storage on identified.
BE-2i	Funding	Regional Climate Committee will work with RCEA to pursue regional funding opportunities that can be used to develop resilient microgrids and incentivize new housing developers to install solar and on-site batteries, particularly for affordable housing developments. Aim to pursue 3 grant or funding opportunities annually focused on microgrids and/or energy storage expansion.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity, Increased Resilience
<b>KPI:</b>		Micro-grid project completion (#)

*Measure BE-8: Advocate for Off-shore Wind developers and PG&E to build electrical infrastructure to supply Humboldt with energy produced by the future off-shore wind project which will increase regional supply and resilience.*

While the Humboldt Bay Offshore Wind project is expected to provide economic growth benefits to the region, there is concern that energy generated by the project will not be accessible by the region due to infrastructure limitations. Measure BE-8 focuses on advocating for the development of appropriate electrical infrastructure by offshore wind developers and PG&E so that the community can benefit from the Humboldt Bay Offshore Wind project. Receiving access to this

electricity would increase the region’s energy resilience and increase capacity to meet the RCAP electrification goals. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-8 are included in Table 6.

Table 6 Measure BE-8 Actions

Action ID	Attribute	Action
BE-8a	Partnership	Dedicate Regional Climate Committee staff time to work with local organizations (e.g. 350Humboldt, Redwood Region Climate & Community Resilience Hub, COREHub) to petition the CEC and Humboldt Bay Off-shore Wind developers to include electricity transmission and distribution to the Humboldt region as a legally enforceable community benefit as stipulated in the Community Benefit Program to be completed as part of the Nationally Significant Multimodal Freight & Highway Projects (INFRA) grant program.
BE-8b	Equity	Have the Regional Climate Committee advocate to the CEC and State to allow for an equitable rate tiering law to provide affordable rates for LIDAC communities in Humboldt County.
BE-8c	Partnership	Leverage the Regional Climate Committee to work with California Independent System Operator (ISO), California Public Utilities Commission (CPUC), the Humboldt Bay Offshore Wind project and PG&E to identify pathways to establish equitable regional access to electricity produced by the off-shore wind project. This may include supporting permitting and development processes necessary for the proposed new Humboldt 500 kV substation as well as advocating to include distribution capacities at the substation for Humboldt County.
BE-8d	Funding	Direct the Regional Climate Committee to evaluate and pursue opportunities for the Environmental and Climate Justice Community Change Grant through the Inflation Reduction Act to advance clean energy from the wind-farm projects.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Public Health and Equity, Increased Resilience, Green Jobs
<b>KPI:</b>		Obtaining funding, development plans including interconnection

Strategy 3: Decarbonization of existing construction

Approximately 92 percent of GHG emissions from building energy usage are related to natural gas consumption. Electrifying existing buildings requires the replacement of natural gas appliances with electric equipment. The GHG reduction potential of this strategy is dependent on the degree to which the existing building stock can be electrified or otherwise decarbonized. Actions that rely on voluntary replacement of natural gas equipment or ordinances requiring decarbonization at end-of-life replacements have been shown to reduce GHG emissions by approximately 10-30 percent, whereas the adoption of an end of natural gas flow date that requires all existing buildings to convert to electric equipment would eliminate all emissions associated with natural gas consumption in buildings. Since electric appliances are approximately three to four times more efficient than similar natural gas burning equipment and appliances, the use of electric equipment instead of natural gas would result in improved energy efficiency. RCEA currently promotes energy efficiency and efficient electrification with rebates and informational resources.

*Measure BE-3 Urban: Reduce existing residential building natural gas consumption by 4% by 2030 and 74% by 2045.*

Humboldt currently experiences limitations with electrification initiatives due to electric grid constraints, limited development access, and old housing stock. Moreover, not all residential properties in Humboldt are connected to the natural gas infrastructure or electrical infrastructure. Those residents that are tied into the electrical grid have an opportunity for decarbonization due to grid available renewable electricity. Therefore, Measure BE-3 aims to assess and implement currently viable opportunities for electrification in the region’s urban areas (i.e. all incorporated cities with natural gas infrastructure). This measure charts the path to reduce existing residential natural gas consumption by approximately 4 percent by 2030 and 74 percent by 2045 to reduce GHG emissions in urban areas. The measure also focuses on setting a pathway for success for future electrification initiatives through household weatherization upgrades, particularly in low-income households. Weatherization will aid in decreasing energy consumption, reducing utility costs, and increasing future cost benefits of electrification. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-3 Urban are included in Table 7.

Table 7 Measure BE-3 Urban Actions

Action ID	Attribute	Action
BE-3a Urban	Feasibility Study/ Equity	Leverage the Regional Climate Committee to lead the development of a decarbonization plan for urban areas that assesses the feasibility and cost for electrification retrofitting for residential buildings as well as identifies potential equity concerns/impacts. The plan should identify strategies and/or specific projects to decarbonize 4 percent of existing residential and multi-family buildings by 2030 and strategies for increasing infrastructure readiness to electrify through 2045. The plan should give consideration for increased electricity capacity needs and RCEA’s RePower Humboldt goals to meet increased capacity need. The plan should also identify a variety of equitable decarbonization solutions and potential projects such as partial electrification and increased energy efficiency options for mixed-fuel residences that face barriers to full electrification. The study should also identify the funding and financing requirements necessary to support the community in this transition.

Action ID	Attribute	Action
BE-3b Urban	Engagement	As part of Regional Climate Committee responsibilities identified in Measure C-1, petition PG&E to help identify priority areas for electric grid expansion projects to increase regional electric grid capacity and islanding capabilities to allow for increased building electrification capacity.
BE-3c Urban	Structural	Develop a home energy advisory service administered by the Regional Climate Committee that assists existing homeowners to better understand the cost of building decarbonization options including partial and full home electrification, identifies service providers, and provides support for homeowners to access electrification incentives from the Energy Smart Homes program.
BE-3d Urban	Funding	Work with the Regional Climate Committee to identify and pursue funds through CARB, the Inflation Reduction Act, and the Infrastructure Investment and Jobs Act including: <ol style="list-style-type: none"> <li>1. DOE block grants</li> <li>2. On Bill financing through PG&amp;E</li> <li>3. Green bonds</li> <li>4. Grant Anticipation Notes or Short-Term Loans</li> <li>5. Tax exempt lease purchases</li> <li>6. Energy as a service</li> <li>7. Energy Performance Contracting from Energy Service Companies (ESCOs)</li> </ol>
BE-3e Urban	Engagement	Work with the Regional Climate Committee to develop and manage educational/promotional materials that each jurisdiction can use to educate the community on ways to finance home decarbonization. Materials should include information and links to existing available rebates for Heat Pumps, Weatherization, Smart Thermostats, Appliances, and Pool Pumps as well as other rebates offered through RCEA of the local jurisdiction if applicable.
BE-3f Urban	Partnership	Work with the local contractors, realtors, homeowner associations, landlords, and labor unions to develop a comprehensive training program, including hosting workforce development trainings discussing the benefits and technical requirements of electrification as well as addressing interested party concerns regarding electrification.
BE-3g Urban	Equity	Develop a fund for low income and affordable housing electrification pilot projects in collaboration with affordable housing owners, utilities, and the community. Work with RCEA to develop a program to offset cost for occupants using financing and through the sourcing of grant funds to subsidize cost.
<b>2030 GHG Emissions Reduction:</b>		2,603 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		55,866 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity
<b>KPI:</b>		Reduction in natural gas consumption

*Measure BE-3 Rural: Reduce existing residential fossil-fuel consumption in households not connected to natural gas infrastructure by 2% by 2030*

Much of rural Humboldt lies at the edge of natural gas infrastructure, and experiences reduced electric grid capacity compared to other areas in the county. These households typically rely on other fossil fuels such as propane or diesel, in place of natural gas. Measure BE-3 Rural aims to reduce fossil fuel usage in residential households not connected to natural gas infrastructure by 2 percent by 2030. Reducing fossil-fuel use in rural areas not only helps decrease GHG emissions but also encourages the adoption of alternative energy sources such as electricity or renewable fuels. Off grid solar is legal and the technology is improving. However, there are complications associated with permitting related to building, health and environmental codes. The decarbonization transition in rural communities supports the overall decarbonization efforts and aligns with other measures aimed at decarbonizing the regional energy supply. This measure also provides rural areas with weatherization assistance that will help reduce consumption rates and provide community benefits such as decreased utility costs. By focusing on these rural households, this measure seeks to make the benefits of a low-carbon transition accessible to all segments of the community. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-3 Rural are included in Table 8.

Table 8 Measure BE-3 Rural Actions

Action ID	Attribute	Action
BE-3a Rural	Feasibility Study	Regional Climate Committee to conduct a feasibility study to establish local low-carbon fuel alternative, such as renewable propane, sourced from local resources such as forest biomass which can be used as direct substitutes for propane or diesel building fuel. The feasibility study should consider procurement and cost considerations with a focus on equity for low-income households, and map communities with significant propane and wood fuel use to identify accessibility strategy for acquiring alternative fuels (e.g. renewable propane, sustainably harvested wood products, renewable diesel) and/or undergoing home electrification.
BE-3b Rural	Structural	As part of Regional Climate Committee responsibilities identified in Measure C-1, petition PG&E to help identify priority areas for rural electric grid expansion projects to increase regional electric grid capacity and islanding capabilities to allow for increased building electrification capacity.
BE-3c Rural	Engagement	Promote existing available rebates to rural communities for Heat Pumps, Weatherization, Smart Thermostats, Appliances, and Pool Pumps to educate the community on ways to finance electrification or otherwise decarbonize their residences. Provide assistance to rural homeowners in assessing the viability and permitting of installing off-grid solar and battery alternative energy sources on their homes and finance options.
BE-3d Rural	Structural	For viable alternative fuel sources identified in a feasibility study, establish procurement and distribution supply centers within easy access of rural communities.
BE-3e Rural	Funding	The Regional Climate Committee will lead the effort to identify, access, and provide funding assistance for the procurement of alternative fuels, such as biomethane, in alignment with SB 1383 procurement requirements. Advocate to the California Public Utilities Commission (CPUC) for inclusion of alternative

Action ID	Attribute	Action
		low-carbon fuels substitution, such as renewable propane, to be allowed in ratepayer funded programs including energy efficiency programs.
<b>2030 GHG Emissions Reduction:</b>		Supportive <sup>43</sup>
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Total GHG Emission Reductions from Measure:</b> Supportive		
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity
<b>KPI:</b>		Reduction in fossil fuel use for residences

*Measure BE-4: Reduce existing nonresidential building natural gas consumption by 5% by 2030 and 79% by 2045.*

In the region there is an opportunity to reduce natural gas consumption in the nonresidential sector through building code or permitting requirements. To achieve greater reductions in natural gas consumption, this measure aims to require electrification of feasible equipment in association with major renovations, as defined by local jurisdictions. Measure BE-4 puts the Humboldt region on a path to reduce commercial and mixed-use natural gas consumption by 5 percent by 2030 and 79 percent by 2045 to reduce GHG emissions. This is in alignment with RCEA initiatives and experience in building out alternative electricity sources which can aid in electrification of commercial businesses. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-4 are included in Table 9

Table 9 Measure BE-4 Actions

Action ID	Attribute	Action
BE-4a	Feasibility Study	As part of the development of the decarbonization plan led by the Regional Climate Committee referenced in Measure BE-3 Urban, identify nonresidential building electrification barriers and develop a nonresidential building decarbonization strategy with analysis supporting future adoption of a nonresidential building decarbonization ordinance. The plan should give consideration for increased electricity capacity needs and for other decarbonization strategies that would be needed to reduce nonresidential natural gas consumption by at least 5 percent. As part of strategy development, conduct outreach to small businesses to understand potential equity impacts of a decarbonization policy. The plan should also assess ordinance parameters for including large scale renovation as part of the new commercial building ordinance requirements established for each organization (Measure BE-6).
BE-4b	Structural	Work with the Regional Climate Committee to develop a template Commercial Energy Performance Assessment and Disclosure Ordinance for commercial and multi-family buildings to be adopted within each jurisdiction by 2027. The ordinance should require energy use disclosure consistent with State law (AB 1103) and the use of the ENERGY STAR Portfolio Manager benchmarking tool. nclude regulatory mechanism (e.g., permitting and

<sup>43</sup> Emissions reductions associated with this measure were conservatively not quantified due to data limitations. See Appendix C for further details.



Action ID	Attribute	Action
		approval requirements, building codes and standards modification) that limits expansion of natural gas infrastructure and incentivizes appliance replacement.
BE-4c	Structural	Establish streamlined permitting in each jurisdiction for energy efficiency technologies, onsite renewable energy, and battery storage in buildings and critical facilities that require power during emergencies or power outages. Incorporate equity considerations into permitting process for all other building battery storage including prioritization, rebates, and outreach.
BE-4d	Engagement/ Funding	As part of Regional Climate Committee responsibilities identified in Measure C-1, develop an outreach campaign to promote building decarbonization and include items in the program such as: <ol style="list-style-type: none"> <li>1. Conduct engagement efforts for the commercial and industrial sector to identify ways jurisdictions and the Regional Climate Committee can support commercial energy storage installations and neighborhood scale microgrid opportunities</li> <li>2. Facilitate funding opportunities for commercial business electrification by identifying and supporting grant opportunities available to the community, prioritizing small and frontline community owned businesses</li> <li>3. Use feedback provided during the community outreach process for small businesses to mitigate potential equity impacts of a future building performance program</li> <li>4. Distribute utility bill inserts to advertise the incentive programs or grants available and the cost benefits of electric appliances</li> <li>5. Target outreach to businesses, builders, developers, local contractors, and property managers with information describing the financial benefits of replacing natural gas appliances with all electric appliance when they apply for permits</li> <li>6. Provide informational webinars and an updated website to advertise and promote All-Electric Building Initiative rebates and incentives</li> <li>7. Promote the use of the Energy Star Portfolio Manager program and energy benchmarking training programs for nonresidential building owners</li> </ol>
<b>2030 GHG Emissions Reduction:</b>		3,821 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		42,887 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity
<b>KPI:</b>		Reduction in natural gas consumption in nonresidential buildings

*Measure BE-7: Decarbonize 30% municipal buildings and facilities by 2030.*

Measure BE-5 commits the jurisdictions within the region to lead by example through decarbonizing municipal buildings and facilities. Local government leadership in building electrification plays a crucial role by setting a standard for the community, developing a clear understanding of hurdles and opportunities, demonstrating the feasibility of reducing fossil fuel reliance, and building trust among residents and businesses. These initiatives also provide practical insights for policymaking, drive technological advancements, and can serve as educational tools. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-7 are included in Table 10.



Table 10 Measure BE-7 Actions

Action ID	Attribute	Action
BE-7a	Structural	Regional Climate Committee to develop a template resolution for each jurisdiction to decarbonize 30 percent of municipal buildings and facilities by 2030 and 100 percent by 2045 by retrofitting natural gas appliances with electric alternatives and install on-site electricity generation and storage capacity. Include in the resolution an 'electric first' purchasing policy for any equipment or appliances in need of replacement.
BE-7b	Feasibility Study	Coordinate with the Regional Climate Committee and RCEA to conduct energy audits of municipal buildings to establish a baselines of current energy consumption and identify the largest energy users or municipal buildings with the greatest natural gas consumption. Utilize audit results to prioritize municipal buildings to decarbonize. Conduct follow-up energy audits every 3 years to track progress. Leverage data from buildings reporting to the Building Energy Benchmarking Program established under AB 802 <sup>44</sup> where possible to reduce labor.
BE-7c	Feasibility Study	Develop a study through the Regional Climate Committee which estimates renewable energy generation on County and local jurisdiction facilities, identifies a priority list of sites which may serve as regional resilience hubs, and a proposed schedule for implementing the prioritized energy projects. The study should also seek to understand barriers to installing additional distributed energy resources such as solar and battery storage, or other renewable energy generation infrastructure, at municipal facilities.
BE-7d	Partnership/ Funding	Identify and pursue funding sources and partnerships needed for successful implementation as well as plan for directing resources through each jurisdiction for funding.
<b>2030 GHG Emissions Reduction:</b>		Supportive <sup>45</sup>
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Total GHG Emission Reductions from Measure:</b> Supportive		
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity
<b>KPI:</b>		Reduction in natural gas consumption in municipal buildings

<sup>44</sup> Assembly Bill (AB) 802 became effective in 2016 and established California's energy benchmarking program requiring that both commercial and multi-family buildings over 50,000 square feet submit an energy benchmark report to the California Energy Commissions annually by June 1<sup>st</sup>.

<sup>45</sup> Emissions from municipal building energy are included as a subset of the nonresidential building energy sector and therefore associated GHG emission reductions are included within the community mitigation Measures for nonresidential building energy. Therefore, emissions reduction from this measure is not quantified to avoid double counting of reductions.

Strategy 4: Decarbonization of new construction

The adjusted forecast projects that natural gas usage in the community related to new buildings would increase by approximately 5 percent by 2030 and 15 percent by 2045 in residential and nonresidential buildings. Additional GHG emissions from new buildings are best combated by implementing some form of ordinance, such energy design ratings (EDR), which promote implementation of electric equipment and avoiding new natural gas connections where feasible. As such, evaluating and establishing an appropriate ordinance has the potential to avoid an increase of approximately 15 percent of GHG emissions from new buildings. RCEA also currently promotes energy efficiency and efficient electrification with rebates and informational resources.

*Measure BE-5: Decarbonize 95% of new residential building construction by 2027.*

Electrification poses a challenge in the residential sector due to grid capacity limitations. However, electric buildings are cheaper to build than those which require natural gas and can be significantly more efficient. This measure seeks to require new construction to decarbonize and encourage developers of new residential construction to install more efficient electric equipment along with solar to meet increased EDR requirements and avoid installing natural gas meters and connections. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-5 are included in Table 11.

Table 11 Measure BE-5 Actions

Action ID	Attribute	Action
BE-5a	Structural	<p>Regional Climate Committee to develop an energy performance ordinance, EDR, reach code, or zero NO<sub>x</sub> threshold for new residential construction that can be modified by each jurisdiction as necessary to conserve staff resources. Adopt the ordinances within each jurisdiction to decarbonize 95 percent of new residential buildings by 2027 and update every 3 years thereafter if not included within State building codes. As part of building decarbonization ordinance development and subsequent updates, consider the following:</p> <ol style="list-style-type: none"> <li>1. Minimize the exemptions associated with the ordinance, while allowing for health and safety exemptions as necessary and exploring potential exemptions for specific use cases determined to have substantial economic development or business impacts</li> <li>2. Require the submittal of an infeasibility waiver to review specific end uses where electrification is technologically infeasible</li> <li>3. Require that any end-use deemed infeasible for electrification exceeds existing Title 24 energy efficiency standards and be electric ready for future electrification</li> <li>4. Specify that affordable housing developments will be all-electric to ensure no stranded assets</li> <li>5. Establish substantial remodel and improvement definitions to be included in the ordinance</li> <li>6. Track and enforce requirement compliance through a permitting compliance program managed by each jurisdiction</li> <li>7. Revise ordinance during update cycle as necessary to meet 95 percent goal</li> </ol>
BE-5b	Feasibility	<p>Conduct feasibility study(s) to identify local decarbonization barriers for new residential developments and develop a residential building decarbonization strategy with analysis. The feasibility study should include developing a new</p>

Action ID	Attribute	Action
		residential building decarbonization plan that assesses the grid feasibility and cost for electrification at certain legislative threshold requirements in consideration of leveraging RCEA residential nano-grid and battery storage options. The feasibility study should assess the potential cost impacts to multifamily and affordable housing new developments and identify potential strategies for mitigating negative impacts for equitable electrification.
BE-5c	Funding/ Equity	Leverage the Regional Climate Committee to lead engagement efforts with affordable housing developers to leverage incentives for new all-electric and efficient low-income residential buildings through the California Energy Commission Building Initiative for Low-Emissions Development (BUILD) Program, the Affordable Housing and Sustainable Communities (AHSC) Program, and the California Electric Homes Program (CalEHP). Regularly investigate and leverage other incentive programs available for electrification of new buildings.
BE-5d	Engagement	Through the Regional Climate Committee, work with local contractors, realtors, homeowner associations, landlords, and labor unions to develop a comprehensive training program, including hosting workforce development trainings discussing the benefits and technical requirements of local municipality building decarbonization legislation and the most effective pathways to achieving requirements. Include information on load calculations to avoid service upgrade requirements.
BE-5e	Partnership	Partner with RCEA and PG&E to circumvent or mitigate electric utility infrastructure capacity constraints. Collaborate RCEA to develop and fund locally implemented programs to help customers in accessing financing options for energy projects and rebates for cleaner, energy efficient technology.
<b>2030 GHG Emissions Reduction:</b>		2,252 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		13,907 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity, Increased Resilience, Green Jobs
<b>KPI:</b>		Change in number of residential buildings; reduction in natural gas consumption in residential buildings

*Measure BE-6: Decarbonize 95% of new nonresidential building construction by 2027.*

More opportunities exist to electrify new nonresidential buildings than existing due to greater opportunities to establish on-site energy sources and to build for electrification at the onset of development. This measure seeks to establish EDR requirements to require new buildings to be decarbonized and encourage developers of new nonresidential construction to install more efficient electric equipment and avoid installing natural gas meters and connections. This measure also includes workforce training to highlight the benefits, applicability, and cost-effectiveness of building electrification. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure BE-6 are included in Table 12.

Table 12 Measure BE-6 Actions

Action ID	Attribute	Action
BE-6a	Structural	<p>Adopt within each jurisdiction an energy performance ordinance, energy design rating (EDR), reach code, or zero NO<sub>x</sub> threshold to decarbonize 95 percent of new nonresidential buildings by 2027 and update every 3 years thereafter if not included within State building codes. As part of building decarbonization legislation development and subsequent updates, consider the following:</p> <ol style="list-style-type: none"> <li>1. Direct the Regional Climate Committee to develop a template ordinance that can be modified by each jurisdiction as necessary to conserve staff resources</li> <li>2. Minimize the exemptions associated with the ordinance, while allowing for health and safety exemptions as necessary and exploring potential exemptions for specific use cases determined to have substantial economic development or business impacts</li> <li>3. Require the submittal of an infeasibility waiver to review specific end uses where electrification is technologically infeasible</li> <li>4. Require that any end-use deemed infeasible for electrification exceeds existing Title 24 energy efficiency standards and be electric ready for future electrification</li> <li>5. Establish substantial remodel and improvement definitions to be included in the ordinance</li> <li>6. Enforce requirement compliance through the same permitting compliance program as for residential building decarbonization</li> <li>7. Establish EDR requirements for new non-residential buildings that incentivize electrification and, in a case, where electrification is infeasible, requires higher energy efficient and low emissions equipment to meet the EDR</li> <li>8. Track effectiveness of ordinance through permitting compliance program and revise ordinance during update cycle as necessary to meet 95 percent goal</li> </ol>
BE-6b	Feasibility	<p>Conduct feasibility study(s) to identify decarbonization barriers for commercial buildings and develop a commercial building decarbonization strategy with analysis supporting future adoption of commercial decarbonization legislation. The feasibility study should include a comprehensive nonresidential building electrification plan that assesses the grid feasibility and cost for electrification and opportunities to mitigate grid and cost barriers by leveraging RCEA microgrid and battery storage options. The feasibility study should assess potential decarbonization legislation exemptions for commercial and industrial operations that are significantly restricted by available technology for electrification.</p>
BE-6c	Funding	<p>Connect developers with RCEA to identify applicable incentive programs in line with RCEA RePower goals that could benefit new building developments such as microgrids which can aid businesses in overcoming restrictions to electrification or decarbonization of processes.</p>
BE-6d	Engagement	<p>Through the Regional Climate Committee, work with local contractors, realtors, homeowner associations, landlords, and labor unions to develop a comprehensive training program, including hosting workforce development trainings to discuss the benefits and technical requirements of decarbonization.</p>

Action ID	Attribute	Action
BE-6e	Partnership	Partner with RCEA and PG&E to establish a clear path for electrification of new nonresidential buildings which meet EDR requirements and circumvent or mitigate electric utility infrastructure capacity.
<b>2030 GHG Emissions Reduction:</b>		1,374 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		8,492 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity, Green Jobs
<b>KPI:</b>		Change in number of nonresidential buildings; reduction in natural gas consumption in nonresidential buildings

## Transportation

On- and off-road transportation makes up approximately 81 percent of Humboldt’s regional GHG profile. Of that, approximately 90 percent of transportation GHG emissions are due to on-road transportation. The primary strategies to reduce transportation involve mode shift away from single-occupancy vehicles to reduce VMT and decarbonizing the remaining vehicle miles traveled (VMT). Reducing VMT consists of transitioning residents and visitors out of single-occupancy vehicles and into active transportation mode options (i.e., walking and biking) and public and shared transit options (e.g., public buses, rail, carpools) by improving these mode options and safety and adopting policies to discourage single-occupancy vehicle commutes. Additionally, land use changes such as promoting jobs and amenities to be located near residents can help reduce the region’s average trip length as well as encourage mode shifts to active or public transit. Working with local businesses and governments to develop flexible work policies that promote working from home in conjunction with improved telecommunication to accommodate remote work can also reduce VMT. VMT reduction is further supported by the use of VMT thresholds consistent with the achievement of the state’s climate goals. The remaining VMT will then be decarbonized by increasing the adoption of zero-emission vehicles (ZEVs). When combined with renewable and carbon-free electricity, electric vehicles (EVs) eliminate GHG emissions from fossil fuel combustion and transition commutes to a zero-emission operational footprint.

### Strategy 5: Shift driving to walking and biking

The region currently supports active transportation through emphasis of complete streets to continue increasing bicycle and pedestrian routes and maintenance of existing routes. Increasing the mode shift from single-occupancy vehicles to active transportation options is largely dependent on safe routes and a behavior shift within the region. Increasing the available safe bicycle and pedestrian routes, the connectivity of such routes to locations of interest, and increasing the benefit of using such options can initiate change. Bicycle and walking trips primarily replace short vehicle trip types, not long distances. Studies have shown that a mode shift to active transportation can be increased up to 15 percent, though this level of change requires extensive change in infrastructure and behavior. Behavior change is commonly driven by education, or incentives and disincentives, such as implementing paid parking, which promote a change.

*Measure TR-1 Urban: Implement programs, such as those identified in HCAOG’s RTP, to increase the mode share of active transportation in urbanized*

*areas from 9% to 12% by 2030 thereby achieving a regional active transportation mode share of 8%.*

Community members’ use of active transportation differ in urban areas that are more densely populated and near city centers or amenities compared with rural areas that are more dispersed. Though a large part of the region is considered rural, the community and local jurisdictions generally have a higher density of people and high interest in improved infrastructure for walking and biking, particularly for greater infrastructure interconnectivity between jurisdictions. Additionally, tourism in the community also uses the active transportation infrastructure. Measure TR-1 Urban focuses on strategies and targets designed for the economic and city center hubs in the region which includes the incorporated cities such as Arcata, Fortuna, and Eureka. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-1 are included in Table 13.

Table 13 Measure TR-1 Urban Actions

Action ID	Attribute	Action
T-1a Urban	Funding/ Partnerships	Regional Climate Committee to aid the urbanized areas of Humboldt by partnering with HCAOG and HTA to identify and pursue grant opportunities such as the Active Transportation Program, AARP Community Challenge, CalEPA’s Environmental Justice Action Grants, and Caltrans Sustainable Transportation Planning Grants, etc., to fund active transportation projects identified in the Regional Transportation Plan. Aim to apply for at least 3 grants annually.
T-1b Urban	Engagement	In urbanized areas with high alternative transit expansion potential work with the Regional Climate Committee to facilitate community outreach on transportation alternatives and promote infrastructure improvements and expansion identified in HCAOG’s Regional Transportation Plan. Continually improve methods for engaging the community, gathering input, and utilizing it to prioritize projects.
T-1c Urban	Engagement	Leverage the Regional Climate Committee to pursue and access funding to develop and maintain regional webpage and app showing pedestrian and bike trails, bike lanes and bus times and routes. Distribute active transportation maps and promotional materials to hotels and tourism centers to increase visitor use of active transportation. Advertise and promote Humboldt Bikeshare program managed by the City of Arcata, Cal Poly Humboldt, and Tandem Mobility.
T-1d Urban	Feasibility Study/ Equity	Identify equity barriers to safe bike and pedestrian infrastructure through community outreach and use of big data driven analysis as well as targeted community outreach to better understand nuanced barriers. Include prompts in outreach around ways to improve social and modal equity the active transportation systems and programs. Develop a priority list of active transportation projects from HCAOG’s Regional Transportation Plan based on level of impact, expansion of inter-jurisdictional connectivity, and historically under-invested communities.
T-1e Urban	Structural	Increase inter-connectivity across the region working with HCAOG and the Regional Climate Committee representatives to: <ol style="list-style-type: none"> <li>1. Evaluate and prioritize land use projects and active transportation projects for their impact on increased regional connectivity</li> </ol>

Action ID	Attribute	Action
		<ol style="list-style-type: none"> <li>2. Identify hurdles limiting connectivity and use, such as last-mile commute limitations</li> <li>3. Facilitate coordination across jurisdictions and rural and urban areas to plan development in a coordinated and most strategic manner</li> <li>4. Apply for regional funding opportunities focused on increased inter-connection and VMT reduction</li> <li>5. Implement the VMT mitigation measures associated with VMT thresholds</li> </ol>
<b>2030 GHG Emissions Reduction:</b>		1,147 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		2,594 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Public Health and Equity
<b>KPI:</b>		Change in active transportation mode share and VMT in urbanized areas

*Measure TR-1 Rural: Implement programs, such as those identified in HCAOG's RTP, that increase access to safe active transportation, to increase the mode share of active transportation in rural areas from 5% to 6% by 2030 thereby achieving a regional active transportation mode share of 9%.*

There are more constraints for community members in rural dispersed regions to switch to active transportation in place of vehicle trips as they are often further from amenities and job centers and have less access to safe infrastructure (i.e., bikeways). Safe infrastructure that connects rural communities to economic hubs and amenities is crucial to facilitate a switch and encourage active transportation mode share. Measure TR-1 Rural focuses on strategies and targets designed for rural areas within the County and small incorporated cities such as Blue Lake, Ferndale, Rio Dell, and Trinidad. Actions primarily focus interconnectivity of active transportation networks across the region and obtaining funding for infrastructure build out. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-1 Rural are included in Table 14.

Table 14 Measure TR-1 Rural Actions

Action ID	Attribute	Action
T-1a Rural	Structural/ Partnerships	Regional Climate Committee to conduct a feasibility study evaluating existing bike parking facilities in rural areas and what improvements can be made to increase supply, reduce theft, and increase rider attraction. Include in the study an analysis of current and future land use trends and identify active transportation facility development which would result in high inter-connectivity impact. The study should focus on needs to better connect rural communities to city centers, job centers, and amenities.
T-1b Rural	Equity	Develop a priority list of active transportation projects from HCAOG's Regional Transportation Plan based on level of impact, expansion of inter-connectivity, and historically under-invested communities where there is currently no, or limited pedestrian and bicycle infrastructure as informed by feasibility study.
T-1c Rural	Funding	The Regional Climate Committee will work with the regions jurisdictions, HCAOG, and CalTrans to obtain funding for the construction of bikeway and

Action ID	Attribute	Action
		pedestrian systems to improve interconnection within Humboldt County. Focus areas will be projects that connect rural communities to high employment areas such as City of Eureka, Arcata, and Fortuna as well as nearby counties, State, and federal infrastructure through integration of bicycle facilities as part of other roadway construction projects (e.g. CalTrans mobility hub and highway projects).
T-1d Rural	Partnership	Partner with California Department of Transportation (CalTrans) District 1 Pedestrian and Bicycle Advisory Committee (PBAC) to track progress on implementation of bicycle and pedestrian projects in the region, ensure that projects being planned are consistent with the District Active Transportation Plan, and to represent the regions rural jurisdictions needs to the PBAC.
T-1e Rural	Structural	Regional Climate Committee to work with jurisdictions in rural regions that have planned land use development to establish standards for when and how new residential subdivisions, multi-family, and mixed-use developments shall provide inter- connected bicycle and pedestrian facilities and amend local codes accordingly.
T-1f Rural	Engagement	Increase community awareness of active transportation infrastructure projects occurring and those completed. Work with HCAOG to continue to fund, develop, and maintain regional webpages and apps showing pedestrian and bike trails, bike lanes, and bus times and routes. Distribute active transportation maps and promotional materials to hotels and tourism centers to increase visitor use of active transportation.
T-1g Rural	Partnerships	Partner with the tourism and business sectors of larger tourism and employment regions of the county to identify pathways to increase active transportation from tourists and employees.
T-1h Rural	Funding	Regional Climate Committee to identify and apply for grant opportunities such as the Active Transportation Program, AARP Community Challenge, CalEPA’s Environmental Justice Action Grants, and Caltrans Sustainable Transportation Planning Grants, etc., to fund rural active transportation projects identified in the Regional Transportation Plan.
T-1i Rural	Funding/ Equity	Leverage the Regional Climate Committee to fund the development of local subsidies for low-income residents across the region for bicycles, helmets, pumps, and other bicycle equipment. Continue to offer e-bike rebates with increased rebate opportunities for low-income customers. Implement an income-qualified coupon for the e-bike share program, in addition to the available 50 percent discounted e-bike share rate.
<b>2030 GHG Emissions Reduction:</b>		1,080 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		4,405 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Public Health and Equity
<b>KPI:</b>		Change in active transportation mode share and VMT in rural areas



## Strategy 6: Shift driving to public transit or car-share

To increase the mode shift from single-occupancy vehicles to using public transit or other car-share options is largely a behavior shift that relies on the initiative of community members. Increasing the access and convenience of such transportation options or increasing the benefit of using such options can initiate change. Due to the rural nature of communities in Humboldt, public transit options are currently limited and require different considerations in urbanized centers vs rural areas. The low population density and vast geographic spread of communities in rural areas of the region lead to limitations in frequency of service and have limited route options that may not serve the needs of the rural residents. Consequently, residents in rural areas rely more heavily on personal vehicles as they are more convenient and reliable. On the other hand, urban centers in the region have a more robust public transit system that has greater accessibility, connects riders to urban centers and runs at a greater frequency. However, the transit system's current frequency even in urban centers is not at a level that allows riders to view transit as more convenient than a personal vehicle. Increasing bus headway decreases the average wait time for passengers and has been shown to increase ridership.<sup>46</sup> Greater connectivity across rural and urbanized centers as well as offering other transit options or services to make transit in rural regions more convenient and reliable will be key to increasing public transit use in the region. Studies have shown that public transit use can be increased up to approximately 25 percent, though this level of change requires extensive change in infrastructure and offered services that meet the needs of the riders (e.g., commuting, local travel, travel for regional visitors). At this time, HCAOG and HTA have set goals to increase public and active transit to 30 percent of trips by 2030 and are seeking funding sources to expand access and frequency to attain a 10-minute headway to promote help achieve this goal through ease of community access.

*Measure TR-2 Urban: Expand the public transit network in support of HCAOG's Regional Transportation Plan to increase public transit mode share from 2% to 20% public transit mode share in urbanized areas to achieve a regional 13% public transit mode share by 2030*

Urbanized areas offer greater opportunities for increasing public transit use due to higher population densities, more developed infrastructure, shorter trips and concentrated economic activities. Public transit can more efficiently serve urban centers where there are more people that live closer together and there is a higher demand for transportation options. Urban centers are ideal for public transit expansion because they can provide a high return on investment, with each improvement potentially benefiting a large number of residents and reducing overall VMT more effectively. Measure TR-2 Urban aligns with HCAOG's VROOM 2022-2042 plan and supports aggressive mode share shift projects by focusing on expanding transit services and increasing reliability in the urbanized areas of Humboldt, such as Arcata, Eureka, and Fortuna, where most job centers are located. Actions include collaborating with HCAOG and Humboldt Transit Authority (HTA) to achieve a 10-minute headway and secure funding and improving access, particularly in low-income communities. The introduction of 11 zero-emissions buses by HTA further enhances the GHG reduction potential of public transit. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-2 Urban are included in Table 15.

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<sup>46</sup> Advancing Public Transport (UTIP) (Last updated March 3, 2024.). "What is bus headway? (And how it impacts public transport quality)". Accessed May 20<sup>th</sup>, from <https://www.uitp.org/news/what-is-bus-headway-and-how-it-impacts-public-transport-quality/>

Table 15 Measure TR-2 Urban Actions

Action ID	Attribute	Action
T-2a Urban	Structural/ Partnership	<p>Regional Climate Committee to work with Humboldt Transit Authority (HTA) and HCAOG to support implementation of measures to increase use of public transportation services in the region as specified in HCAOG's Regional Transportation Plan, and work toward a 10-minute headway in urban areas. This should include, but is not limited to:</p> <ol style="list-style-type: none"> <li>1. Improving passenger transfer among local routes and between local and intercity routes (e.g., Greyhound and Amtrak)</li> <li>2. Improving shelters at bus stops</li> <li>3. Electronic signage and/or real-time updates of wait time until next bus</li> </ol>
T-2b Urban	Feasibility Study	<p>For areas with significant tourism industry, conduct a feasibility study to inform the development of a tourism-based mobility plan aimed at decreasing tourism-based single passenger vehicle use. In this study:</p> <ol style="list-style-type: none"> <li>1. Identify community boundary locations for tourism designated parking and optimal route connectivity</li> <li>2. Identify opportunities for town shuttle services and park-and-ride locations for residents and tourists</li> <li>3. Gauge potential of partnerships with big tourism destinations and local businesses to implement direct public transit routes between park and ride and the relevant tourist destinations</li> <li>4. Identify opportunities for dogs to be included in a shuttle service to locations that allow dogs</li> </ol>
T-2c Urban	Engagement	<p>Leverage the Regional Climate Committee to conduct local transportation surveys to better understand the community's needs and motivation for traveling by car versus other alternatives such as the bus. Use survey results to inform policy development and outreach campaigns that are transit focused. Develop marketing materials and provide them to the local jurisdictions to publicize public transportation improvements as they are planned and implemented in a variety of methods (social media, newspaper, radio, etc.) and languages to help facilitate use and success of improvement.</p>
T-2d Urban	Equity/ Partnership	<p>Work with HTA to plan facility upgrades that include design improvements of seating and weather protection at bus stops and along transportation routes. Implementation should also include consideration of climate change impacts and increasing micro-transit access to the improved public transit network facility. Incorporate design changes throughout infrastructure modifications, including real-time updates of bus arrival.</p>
T-2e Urban	Equity	<p>Work with HTA to prioritize public transportation access and improvements in low-income areas of the region and at major destinations. This could include surveying existing transportation routes, schedules, and facilities throughout each jurisdiction as part of HCAOG's Sustainable Transportation Planning Grant Program and improving public transportation facilities and expand access to transit (i.e., first and last-mile access).</p>
T-2f Urban	Funding	<p>Regional Climate Committee to collaborate with HTA and HCAOG in obtaining grant funding for service expansion and improvements particularly in underserved and marginalized areas. Also include assistance for working with the appropriate State agencies to petition for updates to the farebox ratio to allow HTA greater access to using funds for self- advertisement.</p>

Action ID	Attribute	Action
<b>2030 GHG Emissions Reduction:</b>		18,055 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		26,482 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity, Increased Resilience
<b>KPI:</b>		Change in transit mode share and VMT reduction

*Measure TR-2 Rural: Develop a robust public transit network in support of HCAOG’s Regional Transportation Plan to increase public transit mode share from 1% to 10% in rural areas and achieve a regional 13% public transit mode share by 2030*

Expanding public transit use in rural communities is challenging due to lower population densities, greater travel distances, and limited infrastructure. However, improving connectivity between rural and urban centers can facilitate access to jobs, education, healthcare, and other essential services without relying on personal vehicles. Increasing the frequency and reliability of public transit makes it a more viable and convenient option for rural residents. Establishing park-and-ride facilities can make it more convenient to use public transit for parts of trips, and enhancing access to micro-mobility options like bike shares or car shares can provide a solution for the “first” and “last” mile. Measure TR-2 Rural focuses on enhancing connectivity between rural incorporated and unincorporated regions of Humboldt County, such as Blue Lake, Ferndale, Rio Dell, Trinidad, and Unincorporated Humboldt County and economic centers by pursuing funding to expand transit network services and establishing policies and programs to better connect rural residents to public transit. These efforts align with the with HCAOG’s RTP program, VROOM 2022-2042, to achieve significant increased public transit mode share across the region. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-2 Rural are included in Table 16.

Table 16 Measure TR-2 Rural Actions

Action ID	Attribute	Action
T-2a Rural	Structural/ Partnership	Regional Climate Committee to work with HTA and HCAOG to support implementation of measures to increase use of public transportation services in the region as specified in HCAOG’s Regional Transportation Plan and work toward a 30-minute headway in rural areas. This should include, but is not limited to: <ol style="list-style-type: none"> <li>1. Improving passenger transfer among local routes and between local and intercity routes (e.g., Greyhound and Amtrak)</li> <li>2. Improving shelters at bus stops</li> <li>3. Prioritizing infrastructure improvements in existing communities that enable people better access and use of public transit</li> <li>4. Electronic signage and/or real-time updates of wait time until next bus</li> </ol>
T-2b Rural	Feasibility Study	For areas with significant tourism industry, conduct a feasibility study to inform the development of a tourism-based mobility plan aimed at decreasing tourism-based single passenger vehicle use. In this study: <ol style="list-style-type: none"> <li>1. Identify community boundary locations for tourism designated parking and optimal route connectivity</li> </ol>

Action ID	Attribute	Action
		<ol style="list-style-type: none"> <li>2. Identify opportunities for town shuttle services and park-and-ride locations for residents and tourists</li> <li>3. Gauge potential of private partnerships with big tourism destinations and local businesses to implement direct public transit routes between park and ride and the relevant tourist destinations</li> </ol>
T-2c Rural	Feasibility Study	Work with HCAOG and HTA to conduct a feasibility study to explore alternative forms of public transit, such as micro transit including on-demand shuttles, car share programs, bike share programs, and scooter share programs. Micro transit is a type of on-demand, shared transportation service that typically operates with smaller vehicles, such as vans or mini-buses, and offers flexible routes and schedules. The analysis should include identification of potential funding sources (e.g., grants, local taxes, local business sponsorship, discretionary funds, etc.) and identification of barriers and opportunities for how such a micro-mobility program may enhance active transportation or public transit use. Evaluate the effectiveness of the micro transit pilot program in McKinleyville to determine opportunities for implementing a similar program in other rural locations of the county.
T-2d Rural	Structural	Based on the findings of the feasibility study, work with the Regional Climate Committee to develop a template micro-mobility policy that establishes a deployment protocol and permitting process, identifies any restrictions for use for safety reasons, and promotes equitable access through requirements for consistent placement of micro-mobility devices (e-scooters, e-bikes, etc.) in underserved areas or reductions in usage fees for lower-income users.
T-2e Rural	Structural	Require large nonresidential and mixed-use developments to participate in Transportation Demand Management strategies, including providing shuttle services between employment centers and key transit centers, offering telecommuting, and encouraging use of pre-tax commute benefits.
T-2f Rural	Engagement	Market and publicize public transportation improvements as they are planned and implemented in a variety of methods (social media, newspaper, radio, etc.) and languages to help facilitate use.
T-2g Rural	Equity/ Partnership	Work with HTA in the implementation of facility improvements to rural transportation stops to include design improvements of seating and weather protection. Implementation should also include consideration of increasing access to the improved public transit network facility.
<b>2030 GHG Emissions Reduction:</b>		20,180 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		29,703 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity, Increased Resilience
<b>KPI:</b>		Change in transit mode share and VMT reduction

*Measure TR-4: Develop and implement regional mobility hubs and ZEV car-share programs to support mode shift from single occupancy vehicles*

Measure TR-4 focuses on creating regional mobility hubs and implementing ZEV car-share programs to promote a shift away from single-occupancy vehicle use. This measure aims to expand transportation options across urban and rural communities, facilitating residents' adoption of zero emissions and efficient travel modes. Regional mobility hubs consolidate various transportation services, including public transit, bike-sharing, and car-sharing, at centralized locations to improve

convenience and connectivity between different modes of transport. Introducing ZEV car-share programs enhances this initiative by offering clean transportation alternatives and reducing dependence on fossil fuels. Additionally, Caltrans is currently developing mobility hubs along the State highway that traverses the county, which can enhance residents' access to these services and facilitate the transition to active or public transportation for last-mile commutes. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-4 are included in Table 17.

Table 17 Measure TR-4 Actions

Action ID	Attribute	Action
T-4a	Feasibility Study	Regional Climate Committee to work with HCAOG on the Sustainable Transportation Planning Grant Program efforts to assess regional transportation characteristics and work with regional agencies to identify multimodal land use opportunities throughout the county. As part of this program, conduct a background review of options for purchasing, operating, and maintaining shared mobility assets such as ZEVs, electric bikes, and electric scooters. The program should include identification of potential funding sources (e.g., grants, local taxes, local business sponsorship, discretionary funds, etc.) and identification of barriers and opportunities for how expanding mobility hub facilities beyond state highways access may enhance active transportation or public transit use. Also include in the feasibility study an assessment of alternative powering options in partnership with RCEA (e.g. microgrids) to support ZEV car-share infrastructure with the mobility hubs.
T-4b	Structural/ Partnership	In areas where Caltrans plans to implement mobility hubs along the state highway, local jurisdictions with support from the Regional Climate Committee will work with Caltrans to facilitate successful implementation and use the project to inform decisions on expanding mobility hub options throughout the region that will expand jurisdictional interconnectivity and provide public EV charging to the communities.
T-4c	Structural/ Equity	Regional Climate Committee will develop guidance for jurisdictions to implement mobility hub policies that establishes a deployment protocol and permitting process, identifies any restrictions for use for safety reasons, and promotes equitable access through requirements for consistent placement of mobility hub facilities in underserved areas or reductions in usage fees for lower income users. The guidance is to be developed based on the regional feasibility study above.
T-4d	Partnership	The Regional Climate Committee will coordinate with the City of Arcata in their efforts to bring in commercial autonomous EVs for car-share programs in association with regional mobility hubs.
T-4e	Funding	Dedicate staff time or leverage the Regional Climate Committee to work with work with HCAOG on the Sustainable Transportation Planning Grant Program and Caltrans in identifying and pursuing funding opportunities identified in the feasibility study with focus on linking mobility hub programs with the current Caltrans project to facilitate greater community interconnectivity and adoption of mobility services provided.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive

Action ID	Attribute	Action
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity, Green Jobs
<b>KPI:</b>		Reduction in VMT and change in mode shift

Strategy 7: Shift land use to reduce VMT

Land-use patterns are highly correlated with VMT where higher sprawl outside of urban areas is known to increase more travel. In recognition of that, the State passed the Sustainable Communities and Climate Protection Act (SB 375) which supports the State’s climate goals by helping to reduce GHG emission through coordinated transportation, housing, and land use planning. While the communities in the County are largely dispersed and well established, there are still opportunities to implement land-use strategies in areas where development is expected to occur. By concentrating on new residential development near job and amenity centers and enhancing connectivity across the region, VMT can be reduced. Further, improving land-use patterns makes measures focused on mode shift even more effective.

*Measure TR-3: Reduce regional VMT by increasing mixed-use development in infill priority areas in alignment with HCAOG’s baseline connectivity score included in the RTP.*

Population density presents challenges for public transit and active transportation across the region, as dispersed populations have limited access to transit and decreased public transit ridership. Measure TR-3 addresses this issue by emphasizing mixed-use development in designated infill priority areas within incorporated cities, in alignment with HCAOG’s VROOM 2022-2042 connectivity goals. Encouraging mixed-use development optimizes land use by integrating residential, commercial, and recreational spaces, which can alleviate traffic congestion, lower transportation emissions, and discourage urban sprawl. Urban areas within the region have already begun increasing mixed-use developments, with ongoing zoning updates offering further opportunities for infill expansion. This measure enhances community livability by fostering walkable neighborhoods that provide easy access to essential services and amenities. By aligning with regional transportation priorities outlined in the RTP, these infill projects are strategically planned to improve connectivity and accessibility. Increased population density through infill development supports transit networks, aids in meeting RHNA requirements, and reduces VMT by single-passenger vehicles. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-3 are included in Table 18.

Table 18 Measure TR-3 Actions

Action ID	Attribute	Action
T-3a	Structural	Work with the Regional Climate Committee to develop template land use and development policy to enable and encourage infill development and streamline zoning changes that allow for higher density housing development. Work with urban areas to rezone for higher residential density and mixed use, reduced parking requirements, and expedited planning and permitting processes in the downtown core, along transit corridors, and within future planned development areas that is compact, pedestrian friendly, and transit oriented where applicable.

Action ID	Attribute	Action
T-3b	Feasibility/ Equity	Leverage feasibility studies conducted by HCAOG to identify opportunities for mixed-use and infill development, map current and future planned transit networks, and establish a priority list of development that encourages regional growth to be in alignment with HCAOG and HTA transit goals. If not already included in previously conducted HCAOG studies, assess equity considerations with regards to location and distribution of developments, and potential transit access equity impacts.
T-3c	Partnership	Work with HCAOG, HTA, RCEA and CBOs to plan prospective mixed-use and infill projects so that they include design considerations with regards to alternative energy access/generation, EV charging infrastructure, and local public transit facilities. Promote development that increases walkability and is bikeable in neighborhoods.
T-3d	Engagement	Direct the Regional Climate Committees to develop promotional materials and manage a central webpage on local jurisdiction’s websites for planned projects detailing the benefits of mixed-use and/or infill developments.
T-3e	Funding	Dedicate staff time or create multi-jurisdictional staff position to be administered by the Regional Climate Committee to identify and pursue funding opportunities to support mixed-use and infill developments.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity, Increased Resilience
<b>KPI:</b>		Reduction in VMT

*Measure TR-5: Require commercial and industrial employers with 25 employees or more to develop a Transportation Demand Management Plan*

Measure TR-5 commits jurisdictions, particularly high employment areas, to require that commercial and industrial employers with 25 or more employees create a Transportation Demand Management (TDM) Plan. This measure aims to lower GHG emissions and better accommodate employees living far from their place of work by further incentivizing alternative commuting options through employer-based subsidies for alternative modes of travel, which can also reduce their commuting costs. TDM plans can include strategies such as promoting carpooling, offering public transit incentives, supporting telecommuting, and providing facilities for cycling and walking. Employer-based TDM plans with these types of strategies which combine incentives with improved commute alternatives can lead to a 25 percent reduction in employee trips. By requiring these plans, Measure TR-5 encourages employers to actively participate in reducing their transportation footprint, improving air quality, and enhancing the overall efficiency of the transportation network. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-5 are included in Table 19.

Table 19 Measure TR-5 Actions

Action ID	Attribute	Action
T-5a	Structural	Across all jurisdictions, and particularly in high employment cities, require employers to develop a Transportation Demand Management (TDM) Plan through a new ordinance and/or as a requirement to obtain a business

Action ID	Attribute	Action
		license. TDM plans should include money-based incentives for employees to bike, walk, carpool, take the bus to work, or remote work where suitable. Require large employers (more than 25 employees) to subsidize biking, walking, or bus travel. The TDM should also include a ride-sharing program and membership within a transportation management association. The ride-sharing program will consist of designated parking spaces for ridesharing vehicles, passenger loading, unloading, and waiting zones; and a website, message board, or app for coordinating ridesharing. The program will include a provision to allow employees to work remotely 2 days per week when feasible and should include consideration for increasing broadband internet access to provide adequate service for those working remote.
T-5b	Feasibility Study	Leverage the Regional Climate Committee and partnership with HCAOG to conduct local transportation surveys within each jurisdiction to better understand the community’s needs and motivation for traveling by car versus other alternatives such as the bus. Use survey results to inform policy development and outreach campaigns that are transit focused.
T-5c	Engagement	Have the Regional Climate Committee prepare marketing materials that each jurisdiction may modify and use to market and publicize public and active transportation improvements to local businesses as they are planned and implemented in a variety of methods (social media, newspaper, radio, etc.) and languages to help facilitate use and success of improvement.
T-5e	Partnership/Engagement	Work with local businesses to understand employee engagement with alternative transportation methods and barriers to entry and provide workshops to local businesses to address questions or concerns in developing TDM plans.
T-5f	Funding	Through the Regional Climate Committee, employ a multi-jurisdictional representative to support HTA and local jurisdictions in pursuing grants such as the Sustainable Communities Competitive, Caltrans Sustainable Transportation Planning Grant Program, State Transportation Improvement Program, etc., to expand public and active transit services and infrastructure.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity
<b>KPI:</b>		Implementation of TDM plans and reduction in VMT



## Strategy 8: Increase zero-emission vehicle adoption

The state has adopted Executive Order N-79-20 requiring that 100 percent of new sales of passenger vehicles be zero-emissions by 2035. Additionally, the state has invested billions of dollars into programs developed to support the expansion of zero-emission vehicle (ZEV) and electric vehicle (EV) infrastructure throughout the state and increase access to ZEVs for all Californians including low- or moderate-income consumers. There are several rules accelerating the penetration of commercial ZEVs as well, including the Innovative Clean Transit regulation, the Advanced Clean Trucks regulation, and the Advanced Clean Fleet rule. Based on consumer choice models and regulatory drivers, California's Motor Vehicle Emission Factor model has conservatively estimated that by 2030 there will be about a 6 percent and 5 percent penetration of passenger and commercial EVs, respectively. Accelerating this rate is primarily driven by increasing access to EVs and charging infrastructure and developing a connective network. The State has also established the Low Carbon Fuel Standard, to reduce the carbon intensity of transportation fuels by spurring more investment in alternative fuels such as biodiesel and biomethane made from waste as well as green hydrogen. The use of alternative fuels provides an opportunity to decarbonize vehicles that do not yet have the technology to be electric as well as provides an opportunity for decarbonization for regions that have limited access to adequate electricity infrastructure for electric vehicles, like the Humboldt region.

*Measure TR-6: Decarbonize 15% of passenger vehicle miles traveled by 2030 and 100% by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.*

Measure TR-6 aims to decarbonize VMT across the region through increased ZEV adoption and implementation of hydrogen hubs as an alternative to electric ZEVs. Though jurisdictions in Humboldt are expected to aid in aligning regional ZEV adoption with state goals, Humboldt's electricity infrastructure, and rural nature poses challenges with matching the State's goals or anticipated ZEV market rate. In recognition of these challenges as well as the pressing need to decarbonize the transportation sector this measure establishes a conservative target focused on ZEV adoption and increased electric utility capacity, which is consistent with RCEA efforts. Additionally, the measure includes promoting and informing residents of opportunities to offset cost of ZEVs and EV charging equipment installation such as those provided by the Inflation Reduction Act (IRA) tax credit opportunities for consumers. The IRA offers several tax credit opportunities for residents, businesses, and fleets to accelerate the electrification of the transportation sector. This includes tax credits for new clean vehicles (section 30D), used clean vehicles (section 25E), commercial clean vehicles (section 45W), alternative fuel vehicle refueling (section 30C), and an allocation of \$1 billion to states, municipalities, Indian tribes and non-profit transportation associations to replace class 6 and 7 heavy-duty vehicles and school buses.<sup>47</sup> Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-6 are included in Table 20.

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<sup>47</sup> Inflation Reduction Act of 2022, H.R.5376, 117<sup>th</sup> Congress (2021-2022).

Table 20 Measure TR-6 Actions

Action ID	Attribute	Action
T-6a	Engagement	Through the Regional Climate Committee partner with local organizations and community groups throughout the county to distribute outreach and promotional materials to residents and local businesses on the financial, environmental, and health and safety benefits of ZEVs and alternative fueling options. Provide information on available funding opportunities.
T-6b	Structural	Regional Climate Committee will identify jurisdictions or land-use zones, such as the Coastal Zone, that may benefit from a streamlined public and private EV infrastructure permitting process or Categorical Exemption and draft an ordinance in accordance with AB 1236. The Regional Climate Committee will develop the program as a template to be distributed to applicable jurisdictions for a coordinated approach and relieve individual jurisdiction workload on program development.
T-6c	Structural	The Regional Climate Committee will work with local jurisdictions to amend the Municipal Code to promote EV chargers in new development, redevelopment, and existing parking spaces. This may include requiring: <ul style="list-style-type: none"> <li>▪ Multifamily – CalGreen Tier 2 provisions</li> <li>▪ Non-Residential – CalGreen Tier 2 provisions</li> <li>▪ Designate 10 percent of parking spaces in urbanized areas as EV charging spaces</li> <li>▪ Require that employers with over 25 employees designate preferred parking spaces for zero emission vehicles or hybrids only</li> <li>▪ Require that new private parking lots grant ZEVs access to preferred parking spaces.</li> <li>▪ Require larger residential rental building owners (more than 15 tenants) and large commercial building owners (more than 10,000 square feet) to install working electric vehicle chargers in 10 percent of parking spaces for new and existing buildings at time of renovation if projects are valued at \$1,000,000 or greater</li> </ul>
T-6d	Equity	Support ZEV car share companies in coming to the region. In jurisdictions with prevalent or planned development of multifamily housing, identify private sector partnerships and develop affordable, zero-emission vehicle car share programs with a priority to target vulnerable communities across all jurisdictions, promoting an accessible ZEV network.
T-6e	Partnership	For high employment areas, work with RCEA to develop new public access charging stations. Work with RCEA to develop partnerships with other charging companies (e.g. Go Station) as needed to accommodate charging station needs. Apply for Federal Charging and Fueling Infrastructure (CFI) grant to install electric vehicle chargers at community centers and in high employment areas.
T-6f	Funding	Partner with RCEA to provide an EV Monthly Bill Discount Program with increased discount opportunities for low-income customers in each jurisdiction. Promote affordable EV charging rates at jurisdiction-owned EV charging stations and adjust rates as necessary to cover program costs. Explore methods for charging different rates for different user groups or other programs to offset charging costs at public stations for low-income residents.

Action ID	Attribute	Action
T-6g	Structural	Regional Climate Committee will work with interested parties and RCEA to expand home and public fueling/charging station ZEV infrastructure in alignment with RCEA RePower Plan goals and address barriers to ZEV adoption which are not related to electric grid capacity limitations as outlined in the “North Coast and Upstate FCEV Readiness Plan.” Evaluate opportunities for curbside street level II chargers in urbanized residential areas where off-street parking is limited to provide equitable access to at home chargers.
T-6h	Feasibility Study/ Funding	Regional Climate Committee, in partnership HCAOG, to lead the development of a Hydrogen Vehicle Infrastructure Implementation Plan for public access hydrogen facilities by 2030 which includes the following: <ol style="list-style-type: none"> <li>1. Evaluate a list of prioritized locations for hydrogen fueling stations across the county</li> <li>2. Consideration of procurement needs and potential sourcing from the Redding Rancheria perspective green hydrogen facility</li> <li>3. Identifies grant funding opportunities (e.g. LCFS)</li> </ol>
T-6i	Structural	Based on the results of the Hydrogen Vehicle Implementation Plan, applicable jurisdictions with opportunities identified as high priority hydrogen fueling station locations will evaluate and promote public access hydrogen fuel station development. Leverage the Regional Climate Committee and other regional partnerships to explore funding opportunities for hydrogen fueling infrastructure through the LCFS or PG&E EV Fast Charge Program as well as develop public-private partnerships to attract private developers to the region to build out ZEV infrastructure.
T-6j	Funding	Identify and promote incentives and financing options for residential EV charger installations such as applying for Inflation Reduction Act (IRA) funding.
<b>2030 GHG Emissions Reduction:</b>		55,726 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		590,124 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity
<b>KPI:</b>		Increase in passenger vehicle ZEV adoption

*Measure TR-7: Increase commercial zero-emission vehicle use and adoption to 10% by 2030 and 100% by 2045 through a regional charging network and development of hydrogen hubs*

Measure TR-7 aims to boost commercial ZEV adoption across Humboldt County, focusing on EVs and hydrogen hubs for medium- and heavy-duty (MDHD) vehicles and trucks. Key actions under this measure include refining and implementing the North Coast MDHD ZEV Readiness Blueprint in collaboration with RCEA and SERC, engaging employers and fleet owners on Advanced Clean Fleet requirements and funding opportunities, and securing state and federal funding to expand ZEV procurement and charging infrastructure. These efforts align with California's mandates for achieving 100 percent ZEV populations in commercial fleets by 2045, as set forth in Executive Order N-79-20 and regulations like the Advanced Clean Trucks and Fleets. The region also plans to leverage infrastructure funding through state and federal programs to enhance electric and hydrogen fueling along Highway 101. By also investing in hydrogen refueling infrastructure, the region is able to better diversify the fleets and continue to move towards fleet ZEV transition even with electricity infrastructure barriers. Similar to Measure TR-6, this measure directs the Regional Climate Committee to pursue funding for commercial vehicle electrification through state and

federal programs such as the IRA described in the previous section. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-7 are included in 9.

Table 21 Measure TR-7 Actions

Action ID	Attribute	Action
T-7a	Structural	<p>Through the Regional Climate Committee work with RCEA and the Schatz Energy Research Center (SERC) to refine and implement the North Coast Medium-Duty/Heavy-Duty Zero Emission Vehicle Readiness Blueprint for Humboldt County. As part of the refinement:</p> <ol style="list-style-type: none"> <li>1. Conduct in depth study of physical siting opportunities and prioritize locations and a schedule to follow</li> <li>2. Identify opportunities for local jurisdiction-supported accelerated fleet ZEV adoption and establish a strategy to promote ZEV/EV adoption within business fleets</li> <li>3. For high priority fleets, establish a strategy and protocol to collaborate with PG&amp;E</li> <li>4. For high priority fleets, conduct a grid planning study to identify necessary infrastructure upgrades to support a fully built-out fleet and coordinate with PG&amp;E regarding needs</li> </ol>
T-7b	Funding	<p>Work with the Regional Climate Committee and RCEA to secure funding from state and utility programs (such as the California Air Resources Board's Clean Vehicle Rebate Project, the Truck and Bus Voucher Incentive Program, LCFS, and the PG&amp;E EV Fast Charge Program) and federal sources to increase procurement of EV or ZEV cars, trucks, and other vehicles and installation of EV/ZEV charging/fueling infrastructure. Additionally, provide information to businesses on state and federal programs to help businesses pursue conversion of fleets to ZEVs.</p>
T-7c	Feasibility study	<p>Conduct an inventory of business vehicle fleets in each jurisdiction and identify and engage with employers and businesses subject to the Advanced Clean Fleets rule as well as those to target for accelerating ZEV/EV adoption. As part of the study, identify private trucking company or manufacturer partnership opportunities for piloting new ZEV technology in the region.</p>
T-7d	Engagement	<p>Direct the Regional Climate Committee to partner with RCEA and SERC to work with local fleet operators, vehicle operators, and fleet maintenance staff to develop a comprehensive training program, including hosting workforce development trainings to discussing the benefits and technical requirements of ZEV fleets and supporting infrastructure. In addition to retraining the existing workforce, advertise and promote opportunities in the area to attract additional workforce support such as ZEV technicians and mechanics, and charging and fueling technicians.</p>
<b>2030 GHG Emissions Reduction:</b>		17,441 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		279,775 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Public Health and Equity, Increased Resilience, Green Jobs
<b>KPI:</b>		Increase in commercial vehicle ZEV adoption

*Measure TR-8: Electrify or otherwise decarbonize 12% of applicable small off-road engines (SOREs) off-road equipment by 2030 and 100% by 2045 and replace fossil diesel consumption with renewable diesel in 55% of applicable large diesel in alignment with EO N-79-20 by 2030.*

The State is regularly updating mandates for off-road equipment. CARB's regulations specifically impact the sale and use of SOREs powered by gasoline or diesel, affecting equipment such as lawn mowers, generators, and pressure washers by 2024. State initiatives are focused on limiting sales of these engines and providing resources to replace current models. Additionally, amendments to CARB's Off-Road Diesel-Fueled Fleets Regulation require the majority of large, in-use off-road diesel equipment to use renewable diesel. Measure TR-8 aims to achieve significant emissions reductions from off-road equipment by electrifying where feasible and increasing access to renewable diesel, aligning with CARB's off-road equipment mandates. These efforts target reductions in local fossil fuel use and aim to decarbonize the off-road sector through regulatory measures, incentives, and community outreach. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-8 are included in Table 22.

Table 22 Measure TR-8 Actions

Action ID	Attribute	Action
T-8a	Engagement	Align with AB 1346 and develop and circulate educational materials regarding CARB's Small-Off Road Engines regulations requiring most newly manufactured small off-road engines such as those found in leaf blowers, lawn mowers, and other equipment to be zero emission starting in Model Year 2024. Phase 2 of the regulations will be implemented in Model Year 2028, when the emission standards for generators and large pressure washers will be zero. In addition, work with Humboldt Chamber of Commerce to disseminate information regarding the regulation to impacted businesses (e.g., lawn equipment dealers, commercial landscapers, construction companies) and promote transition of equipment sales and equipment use to electric alternatives.
T-8b	Structural	Regional Climate Committee to identify pathways to enforce CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation and the Commercial Harbor Craft Regulation requiring that diesel vehicles over 25 horsepower to procure and only use R99 or R100 renewable diesel. This should include establishing a means to track compliance and developing partnerships with fuel suppliers in the region to promote and support the increased procurement of renewable diesel in the region.
T-8c	Structural	Work with the Regional Climate Committee to develop and implement a plan to replace all jurisdiction owned end-of-life off-road equipment with zero-emission equipment as feasible. Procure renewable diesel for applicable jurisdiction owned diesel equipment that doesn't have available replacement equipment. Plan should include evaluation of current jurisdiction-owned equipment, alternative low or zero-emission options, prioritize equipment to replace first (e.g., largest GHG emission reduction potential), and a timeline for replacements that align with goals and feasibility of replacement.
T-8d	Engagement	The Regional Climate Committee will develop and manage an Off-road Equipment Replacement Program and Outreach Campaign that provides information to contractors, residents, and fleet operators in the region regarding alternatives to fossil-fueled off-road equipment, local fuel suppliers

Action ID	Attribute	Action
		with renewable diesel for sale, public health and safety benefits of alternative equipment technology, and funding opportunities available (i.e., Clean Off-Road Equipment Voucher Incentive Program), Zero-Emission Landscaping Equipment Incentive Programs).
T-8e	Funding/ Partnership	Through the Regional Climate Committee, Partner with North Coast Unified Air Quality Management District to identify funding opportunities to encourage residents to replace gas-powered landscaping equipment and off-road engines with zero emission equipment. This could include a rebate and incentive program for upgrading off-road equipment and switching to renewable diesel, or the development of an off-road zero emission landscaping equipment rental share program for county residents and businesses.
T-8f	Funding	Leverage the Regional Climate Committee to source State funding to decarbonize off-road equipment as a result of Executive Order N-79-20 and State Climate Funding Package.
<b>2030 GHG Emissions Reduction:</b>		49,143 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		139,645 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>		Natural Resource Enhancement, Resource Efficiency, Public Health and Equity, Green Jobs
<b>KPI:</b>		Reduction of fossil fuel consumption in off-road vehicles

*Measure TR-9: Establish Humboldt as a pilot program for the decarbonization of the transportation sector to help drive State and philanthropic investment throughout Humboldt.*

Measure TR-9 aims to establish the region as a pilot program for decarbonizing rural transportation emissions by developing a comprehensive vision that integrates relevant measures outlined in this plan and by attracting State and philanthropic investments. Decarbonizing rural transportation faces unique challenges such as longer travel distances, higher individual vehicle use, and lower average incomes, exacerbated by historical underinvestment in rural areas. By positioning Humboldt as a pioneer in rural decarbonization, this initiative seeks to foster county-wide collaboration for integrated transportation solutions. This pilot program not only aims to attract investments to enhance local infrastructure but also positions the region as a leader in rural sustainability, driving climate mitigation efforts at both local and regional levels. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-9 are included in Table 23.

Table 23 Measure TR-9 Actions

Action ID	Attribute	Action
T-9a	Feasibility	The Regional Climate Committee will develop and promote a vision and strategy for the regional community foundation to serve as a first mover/pilot in the State in the decarbonization of America's rural transportation systems.
T-9b	Funding	As a first mover in rural America, the Regional Climate Committee will pursue investment on behalf of the jurisdictions from philanthropy, the State, private businesses, etc. to fund the development of a Humboldt decarbonized rural transportation system.

Action ID	Attribute	Action
T-9c	Equity/ Engagement	With the support of the Regional Climate Committee, jurisdictions will directly engage members of disadvantaged and vulnerable communities in the development of the vision and strategy that aims to benefit all members of rural communities.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Natural Resource Enhancement, Resource Efficiency, Public Health and Equity, Green Jobs
<b>KPI:</b>		Funding received through philanthropies

*Measure TR-10: Work with the State and renewable fuel industry to establish a renewable fuel network within Humboldt thereby funding new green industry and job growth to support the decarbonization of the transportation sector*

Measure TR-10 aims to establish a biofuel network in Humboldt by collaborating with the State and the renewable fuel industry, focusing on green hydrogen, renewable diesel, and renewable natural gas (RNG) production. This network supports the decarbonization of transportation fuels and promotes economic development in the region. Due to challenges with electric infrastructure, biofuels serve as a transitional solution, enabling Humboldt to progress towards decarbonization goals. Hydrogen is particularly beneficial in rural areas like Humboldt, providing extended travel range compared to EVs and contributing to California's goal of establishing 200 hydrogen fueling stations by 2025. Bringing renewable diesel to the region is crucial for implementing Measure TR-8 and complying with CARB regulations. Renewable fuel production has the potential to help address wildfire risks by using existing forest biomass resulting from forest thinning projects that could otherwise fuel fires. Biofuels reduce emissions by substituting fossil fuels with renewable organic materials, which absorb CO<sub>2</sub> during growth. When combusted, biofuels release biogenic CO<sub>2</sub>, minimizing net atmospheric carbon emissions compared to traditional fuels. This measure promotes alternative energy solutions and economic growth. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-10 are included in Table 24.

Table 24 Measure TR-10 Actions

Action ID	Attribute	Action
T-10a	Feasibility	The Regional Climate Committee will lead establishing a memorandum of understanding with RCEA, PG&E, CARB, CAL FIRE, the California Department of Agriculture, forest owners, and waste management companies to establish a plan to manage biomass and organic waste through the development of biofuel infrastructure in the region to position Humboldt as a first mover in active forest management to support a carbon-free future for California.
T-10b	Structural	The Regional Climate Committee will work jurisdiction to identify and help zone and entitle opportunity locations and specific areas throughout the region for streamlined development of renewable generation facilities where applicable. As part of effort, develop guidelines for evaluating renewable opportunities that meet sustainability criteria such as those set in the Natural

Action ID	Attribute	Action
		Resources Defense Council's "Biofuel Sustainability Performance Guidelines" to limit environmental impacts related to renewable production.
T-10c	Partnerships	The Regional Climate Committee will work with RCEA, PG&E, and State agencies to explore funding opportunities including grants and green bonds to help fund the development of renewable fuel infrastructure in the region and explore revenue options through the Low Carbon Fuel Standard.
T-10d	Structural	Establish Humboldt as a hydrogen hub by: <ol style="list-style-type: none"> <li>1. Promoting the pending The U.S. Department of Energy funded HTA hydrogen fueling station to attract additional hydrogen fueling station developers to the region</li> <li>2. Partner with RCEA, SERC, and CalTrans, where applicable, to identify sites for hydrogen fueling stations that build off the North Coast and Upstate Regional Hydrogen Infrastructure Plan</li> <li>3. Pursue partnerships with private developers to develop additional hydrogen fueling stations in the region</li> <li>4. Pursue funding opportunities for hydrogen fueling infrastructure, such as through LCSF, AB 8 program, and the CEC Clean Transportation Program</li> </ol>
T-10e	Funding	The Regional Climate Committee, in partnership with applicable incorporated cities will work with local utilities and State agencies to pursue grants earmarked for biofuel infrastructure from the Inflation Reduction Act.
T-10f	Partnerships	The Regional Climate Committee will establish partnerships with organic waste haulers to establish a consistent feedstock of biomass from forests and biowaste from residential and agricultural sources and forest service businesses/property owners.
T-10g	Engagement	Partner with the forestry services and waste haulers to host an Outreach Campaign informing the community on the economic and wildfire risk benefits of active forest management for bioenergy. Establish a working group/committee to involve local community members and businesses in the planning processes related to biomass and biowaste management locally.
T-10h	Equity/ Engagement	Leverage the Regional Climate Committee to create a region-wide workforce development programs to train the local workforce for biofuel jobs. Specifically target training towards members of disadvantaged communities and establish criteria in the planning process that prioritizes/requires the employment of local residents and businesses in the industry.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Resource Efficiency, Green Jobs, Increased Resilience
<b>KPI:</b>		Increased biofuel infrastructure and access in the region



*Measure TR-11: Lead by example and electrify or otherwise decarbonize 50% of municipal fleets by 2030 in alignment with the State's Advanced Clean Fleet Rule.*

Measure TR-11 commits each jurisdiction to lead by example by electrifying or otherwise decarbonizing its municipal fleet in line with the State’s Advanced Clean Fleet Rule. Under the rule 50 percent of vehicles added to fleets subject to the regulation from 2024- 2026 must be ZEVs with 100 percent of vehicles added to the fleet after 2026 must be ZEV. Alternatively, fleets may opt-in to the Milestones Option. If the Milestone Option is selected, fleet owners must continuously meet or exceed the ZEV Fleet Milestone percentage as defined by the regulation. Compliance reporting would be required annually and within 30 days of adding vehicles to the fleet. This Measure aims to exceed State requirements by decarbonizing 50 percent of the municipal fleets by 2030. This measure will reduce GHG emissions from municipal operations and demonstrate to the community the feasibility and benefits of transitioning to clean transportation technologies. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-11 are included in Table 25.

Table 25 Measure TR-11 Actions

Action ID	Attribute	Action
T-11a	Structural	Regional Climate Committee will develop a Zero-emission Fleet Conversion and Purchase Policy to be adopted by each jurisdiction that requires new, and replacement of, municipal fleet vehicle purchases to be EVs or ZEVs. The policy will also include a schedule for replacement of fleet vehicles to comply with the State’s Advanced Clean Fleet rule requiring 50 percent of medium and heavy-duty vehicle purchases be zero-emissions beginning in 2024 and 100 percent beginning in 2027. Report annually to CARB on fleet status as required per the Advanced Clean Fleets Regulation.
T-11b	Feasibility	Leverage the Regional Climate Committee conduct a feasibility and cost assessment to determine the number of EV/ZEV chargers and funds needed to support the fleet transition to 50 percent EV/ZEV by 2030.
T-11c	Funding	The Regional Climate Committee will secure funding from programs such as the California Air Resources Board's Clean Vehicle Rebate Project and the Clean Truck and Bus Voucher Incentive Program to increase procurement of EV or ZEV cars, trucks, and other vehicles and installation of EV/ZEV charging/fueling infrastructure at municipal facilities. Evaluate credit generation opportunities within the LCFS program for ZEV/EV fueling and charging stations for the municipal fleet to offset cost of infrastructure development needed to support transition.
T-11d	Structural	Install additional ZEV chargers/fueling stations in municipal parking lots for fleet, employees, and public use to meet projected demand in alignment with feasibility study.
T-11e	Structural	Leverage the Regional Climate Committee to develop a resolution in alignment with Measure T-8a, to replace jurisdiction-owned end-of-life small off-road equipment with electric equipment (e.g., lawn equipment and leaf blowers) at time of replacement and to procure renewable diesel for all applicable jurisdiction owned equipment. Each jurisdiction will need to adopt

Action ID	Attribute	Action
		the resolution while the Regional Climate Committee will support implementation.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Resource Efficiency, Public Health and Equity
<b>KPI:</b>		Reduction in fossil fuel consumption by municipal fleets

## Waste

GHG emissions associated with solid waste generated by the community make up approximately 2 percent of Humboldt’s regional GHG profile. A majority of emissions associated with waste generation are associated with the decomposition of organic material in the landfill. Therefore, the primary strategy for reducing emissions associated with solid waste generation is the diversion from the landfill and reuse of materials.

### Strategy 8: Reduce organic waste

Senate Bill 1383 that took effect in 2022, requires all persons and entities to divert generated organic materials (e.g., food waste, green waste, etc.) from the garbage sent to the landfill. Entities that provide food are also required to donate excess food. Humboldt Waste Management Authority (HWMA) is the primary waste service provider in the region and is responsible for transferring solid and organic waste to processing facilities outside of the County. HWMA partners with waste haulers such as Recology to provide solid waste, recycling, and compost services to residents and business in the region in accordance with the solid waste recycle and diversion legislation. It is the responsibility of businesses and residents to comply with the requirements of Senate Bill 1383 through proper sorting and disposal of waste materials. Currently, waste produced in the region is sorted and trucked long distances to processing facilities which are outside of county boundaries. This not only limits the community’s influence over waste management, but also contributes to regional transportation emissions to haul waste outside of the county. The Strategy for Humboldt solid waste focuses on bolstering regional infrastructure to allow for expanded organic and inorganic materials collection and separation services and providing local organic processing.

*Measure SW-1: Establish a local waste separation facility and organics management to be able to reduce waste sent to landfills by 75% by 2030. Reduce GHG emissions by limiting truck trips required to ship waste out of the county and import compost from out of the county*

HWMA is highly invested in reducing organic waste sent to landfill, though there are significant challenges in the local infrastructure that require monetary support and land use access necessary to achieve State goals. This measure primarily seeks to achieve SB 1383 requirements by providing support to HWMA through partnerships and funding and establishing a regional organic waste processing facility to better handle capacity and eliminate shipping costs. In the landfill, organic waste decays without access to light or oxygen and produces methane (CH<sub>4</sub>) gas. Diverting organic waste from the landfill reduces the occurrence of this anaerobic decomposition, providing the region with an important opportunity to reduce solid waste GHG emissions. Diverted organic waste can be further processed and repurposed into an array of different types of products, such as compost or renewable natural gas, which can serve to sequester or offset carbon emissions. Thus,

managing organic waste provides an important opportunity to employ circular economy methods to reduce GHG emissions and sequester carbon. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure SW-1 are included Table 26.

Table 26 Measure SW-1 Actions

Action ID	Attribute	Action
SW-1a	Feasibility	Regional Climate Committee to work with Humboldt Waste Management Authority (HWMA) and Recology to develop a SB 1383 waste management plan which assesses county-wide waste diversion needs, current capacity, and land-use opportunities for developing organic waste processing facilities within Humboldt County that will meet regional requirements. The assessment should also include an analysis of green bond funding opportunities, applicable green bond programs, and a strategic plan for pursuing funding through green bond programs.
SW-1b	Structural/Funding	The Regional Climate Committee will work with HWMA and an underwriter at a desired green bond program identified in the feasibility study to develop a green bond focused on providing funding for HWMA to construct a regional organics processing facility that will be used to meet SB 1383 diversion and procurement requirements.
SW-1c	Funding	Through the Regional Climate Committee, partner with Recology and/or HWMA to pursue funding, such as the Organics Grant Program from CalRecycle or for projects through California Climate Investment, to reduce generated organic waste from multi-family homes and expand waste diversions programs within the county.
SW-1d	Structural	Meet the requirements of SB 1383 to reduce organics in the waste stream by 75 percent below 2014 levels by 2030 and work towards 90 percent solid waste diversion by 2040 in applicable jurisdictions by leveraging the Regional Climate Committee to provide implementation support. Include activities such as: <ol style="list-style-type: none"> <li>1. Implement enforcement and fee for incorrectly sorted materials with sensitivity to shared collection. Utilize funding to implement programs and efforts to increase communitywide organic waste diversion</li> <li>2. Assure adequate bin signage across commercial and residential areas of acceptable landfill, recyclable, and compostable materials</li> <li>3. Identify public areas for adding organics collection and recycling bins where needed</li> <li>4. Work with Recology and HWMA to conduct free food scrap collection pail giveaways and promote curbside organics collection service offered in applicable communities</li> <li>5. Evaluate opportunities to have community compost hubs throughout the county that is easily accessible for community members. Partner with regional community gardens to increase community wide access to local compost bins</li> <li>6. Identify long-term and alternate solutions for the community's wastewater bio-solids to avoid long hauling distances and develop local, beneficial reuse</li> </ol>
SW-1e	Structural	Leverage Regional Climate Committee to draft a templated edible food recovery ordinance for individual jurisdictions to modify and adopt as needed. Alternatively utilize the County's adopted ordinance, HCC 521-13 as a template

Action ID	Attribute	Action
		<p>or guide for drafting ordinances in individual jurisdictions that do not currently have such an ordinance. The ordinance will target edible food generators, food recovery services, or organizations that are required to comply with SB 1383. Ordinance requires all residential and commercial customers to subscribe to an organic waste collection program and/or report self-hauling or backhauling of organics. To support implementation of the ordinance, include the following activities:</p> <ol style="list-style-type: none"> <li>1. Work with community food pantries, food suppliers, HWMA, and Recology to identify infrastructure needs to ensure edible food reuse infrastructure in Humboldt is sufficient to accept capacity needed to recover 20 percent of edible food disposed of within Humboldt</li> <li>2. Regional Climate Committee to work with jurisdictions to establish an edible food recovery program where they are not currently present to minimize food waste</li> <li>3. Leverage CalRecycle funding opportunities to support projects that prevent food waste or rescue edible food</li> <li>4. Partner with existing food pantries that are locally appropriate for each jurisdiction to identify and advertise locations for surplus food to be taken in the community</li> </ol>
SW-1f	Partnership	The Regional Climate Committee will work with HWMA, Recology and individual jurisdictions to implement structural changes listed above and increase service to jurisdictions without organics collection. This is applicable to both jurisdictions subject to SB 1383 and SB 1383 exempt jurisdictions to prepare for future needs to comply with SB 1383.
SW-1g	Feasibility Study	The Regional Climate Committee will coordinate between HWMA and regional wastewater treatment facilities to evaluate the opportunities to process/co-digest food waste at the wastewater treatment plants. Study should include evaluating existing infrastructure and ability to process food waste, an evaluation of necessary infrastructure upgrades needed to process food waste that would comply with SB 1383 standards for recovered organic products, and a return-on-investment evaluation. Study should also include recommendations of viable opportunities and identification of funding opportunities to support implementation and facility upgrades as necessary.
SW-1h	Engagement	The Regional Climate Committee in partnership with Recology and HWMA, will develop and conduct a conduct a Bring Your Own (BYO) education and outreach training for each jurisdiction community on reusables and implementing more sustainable packaging into daily use. The Regional Climate Committee will develop and provide information resources on HWMA and jurisdiction’s websites. Partner with libraries and other existing facilities to market campaigns about waste reductions, reuse and repair.
SW-1i	Equity	Leverage the Regional Climate Committee to provide technical and outreach support to jurisdictions with organics and/or recycling services, by establishing relationships with multi-family property owners/managers to develop signage for their properties and to go door-to-door at each multi-family unit yearly to provide supplies and promote proper sorting.
SW-1j	Equity	HWMA to add extra bulky-item pick up service in all jurisdictions to low- and medium-income residents at a subsidized cost to help minimize illegal dumping.

Action ID	Attribute	Action
SW-1k	Feasibility Study	The Regional Climate Committee will facilitate conducting waste characterization studies every 3 years to inform programs and policies. Leverage study to understand the waste stream and create a plan to increase diversion and reduce contamination. Work with contracted waste haulers and HWMA to develop and implement a comprehensive monitoring and quality control program with a focus on consumer behavior change. This should include tracking of weight or volume of waste produced; consider including information on billing to inform customers of their waste production and including incentives for reduction. Explore reducing frequency of service for residential and commercial waste to least often possible pick up to reduce truck miles/trips.
SW-1l	Equity/Engagement	Through the Regional Climate Committee create a multi-lingual training/outreach program that can be used in all jurisdictions that is free and accessible to all residents and employees to learn about circular economy practices and diversion strategies and effects of overconsumption. Conduct targeted, multi-lingual, culturally appropriate, and geographically diverse circular economy educational and technical assistance campaigns based on outcomes of waste characterization studies and comprehensive monitoring and quality control program. Topics could include reuse, prolonging the life of common materials and items, and sustainable purchasing. Focus outreach campaign on food waste not going to landfill.
SW-1m	Partnership	Utilize the Regional Climate Committee to partner with schools, retirement communities, and other large institutions throughout the county to create waste diversion and prevention program/procedure/plan.
<b>2030 GHG Emissions Reduction:</b>		29,689 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		32,568 MT CO <sub>2</sub> e
<b>Co-Benefits:</b>	Resource Efficiency	
<b>KPI(s):</b>	Change in total tonnage of landfilled waste (%) Change in landfilled organic waste compared with 2014 baseline levels using waste characterization studies (%)	

## Water & Wastewater

Emissions associated with water are due to indirect emissions from the electricity consumption for water conveyance, treatment, and delivery to consumers. As such, the GHG emissions from water consumption are included in building electricity GHG emissions in Humboldt’s regional inventory. GHG emissions associated with wastewater make up 1 percent of Humboldt’s regional GHG profile. Emissions associated with wastewater are due to the direct fugitive emissions from wastewater treatment.

### Strategy 9: Conserve water and reduce wastewater emissions

Water and wastewater infrastructure can be managed to reduce the energy needed to transport water and wastewater, and associated GHG emissions. Residential and commercial buildings use water both indoors for cooking, cleaning, bathing, and toilet flushing, and outdoors to irrigate landscaping and maintain pools and fountains. Water efficiency measures not only reduce the amount of water used but also reduce the amount of energy needed to convey, treat, and distribute water. Additionally, water consumption and wastewater generation are interconnected, therefore water conservation efforts will lead to decreases in wastewater generated, as less water is treated through the wastewater system. Primary strategies for reducing emissions associated with wastewater generation are to reduce water consumption and wastewater generation and implement less GHG intensive processing technologies.

*Measure WW-1: Expand regional opportunities for implementation of wastewater decarbonization technologies such as anaerobic digesters to reduce GHG and produce renewable fuel sources.*

The community relies on several wastewater facilities and septic systems throughout the county, of which a couple utilize anaerobic digester systems for the capture and utilization of biogas. Additionally, one anaerobic digester in the region is not able to operate 100 percent of the time. Measure WW-1 focuses on expanding regional opportunities for the implementation of wastewater decarbonization technologies, including anaerobic digesters, throughout the Humboldt region. This measure aims to reduce GHG emissions from wastewater treatment processes and generate renewable fuel sources that can be used to decarbonize wastewater facility building energy or provide a supply of decarbonized energy to the community. It also investigates opportunities for expanding wastewater treatment capabilities to process organic waste that would otherwise go to landfill, supporting solid waste diversion and GHG reduction efforts. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure WW-1 are included Table 27.

Table 27 Measure WW-1 Actions

Action ID	Attribute	Action
WW-1a	Feasibility Study	Regional Climate Committee to conduct a feasibility study(s) in jurisdictions with wastewater processing facilities or community primary reliance on septic systems identifying improved wastewater technologies which could be used to mitigate wastewater processing emissions and generate renewable fuel such as RNG or offset on-site process energy use via electricity generated with an anaerobic digester, particularly in relation to septic system improvements. The study should include an in-depth analysis of the current wastewater treatment methods utilized throughout the region, identification of upgrade opportunities

Action ID	Attribute	Action
		and potential co-benefits to the community, and technological restrictions based on regional water quality and discharge requirements. The study should also specifically consider expanding wastewater treatment capabilities to process food waste that would otherwise go to landfill.
WW-1b	Partnership	The Regional Climate Committee will partner with regional wastewater service providers to understand current methods, areas for improvement, and whether there is interest in upgrading their wastewater treatment processes.
WW-1c	Funding	The Regional Climate Committee, with input from the wastewater treatment providers, will research and pursue grants to wastewater facility upgrades or home septic system improvements (where applicable), such as applying to the California State Water Board for Clean Water State Revolving Fund grants, or the Community Development Block Grant Program.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Natural Resource Enhancement, Resource Efficiency
<b>KPI:</b>		Reduction in wastewater generation and wastewater emissions

*Measure WW-2 Reduce per capita potable water consumption by 15% by 2030.*

Emissions associated with water are due to electricity usage. Because all water providers for the Humboldt region are located within the County boundaries, the energy use associated with water treatment is captured in the building sector and would be addressed with improvements in energy efficiency and acquiring carbon-free energy. However, water conservation efforts also have the added benefit of putting less pressure on water resources across California during times of drought and ensuring more long-term resilience of this vital resource. Measure WW-2 focuses on promoting water conservation by reducing per capita potable water consumption and increasing access to and use of recycled water. The State is currently finalizing the Making Water Conservation a Way of Life regulation, which will set water conservation standards and objectives for certain categories with targets set for each urban water retailer. This measure’s primary focus is providing support to water retail providers in the region to align with the regulation as well as providing educational and outreach materials to promote water conservation in the community and from large water users. Additionally, the Measure encourages local water providers and wastewater services to work together to identify opportunities for expanding the recycled water network in the region. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure WW-2 are included Table 28.

Table 28 Measure WW-2 Actions

Action ID	Attribute	Action
WW-2a	Structural	The Regional Climate Committee will work with regional water providers to update their Urban Water Management Plan every 5 years, as required by the State, and implement the identified demand reduction actions to ensure compliance with the State’s Making Water Conservation a Way of Life regulations. Include new actions in the UWMPs as needed to achieve State regulations, which may include:



Action ID	Attribute	Action
		<ol style="list-style-type: none"> <li>1. Develop or amend Water Shortage Contingency Plans in the region to develop water waste restrictions for households, businesses, industries, and public infrastructure</li> <li>2. Work with large water users and other stakeholders to develop an On-Site Water Reuse Plan to maximize utilization of local water supplies decreasing energy intensity of distribution</li> <li>3. Revisit and update the Model Water Efficient Landscape Ordinance as needed. Engage, through regional partnerships, with builders and developers to provide information on the requirements for development projects</li> <li>4. Develop an ordinance for installation of dual-plumbing water systems that utilize greywater or recycled water for irrigation at new residential and commercial construction</li> <li>5. Increase engagement with the community, specifically low-to-moderate income residents, to understand available incentives or rebates, options, and programs to reduce per capita water use. Leverage regional programs and partnerships with local organizations to expand water conservation outreach</li> <li>6. Revise water and wastewater rates as necessary to ensure cost of service is covered</li> </ol>
WW-2b	Engagement	Through the Regional Climate Committee work with the Humboldt County Resource Conservation District (HCRCD) to develop water conservation promotional materials, programs and outreach efforts are in multiple languages and accessible for low-income or disadvantaged and vulnerable communities. Continue to offer and expand water conservation programs to the community including educational programs like water education program for schools and water wise landscape classes as well as incentives like free water conserving devices, and rebates for rainwater collection systems and turf replacement.
WW-2c	Feasibility Study	The Regional Climate Committee will work with the local water and wastewater providers in the region to develop a Recycled Water Master Plan to assess the feasibility of expanding the recycled water system in the region and establish a roadmap for a recycled water expansion program. The plan will identify locations available for recycled water use and establish a schedule for potable water replacement with recycled water in appropriate applications residentially, commercially, and municipally, and determine recycled water user fees.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Natural Resource Enhancement, Resource Efficiency
<b>KPI:</b>		Reduction in per capita water consumption



## Carbon Sequestration

While the region will reduce GHG emissions across all sectors to achieve as close to zero GHG emissions as possible, some GHG emissions are expected to remain under each jurisdiction's control in 2045. These GHG emissions are expected to be from hard-to-decarbonize sectors, such as long-haul transportation, which have technological limitations or are costly to decarbonize. They can also be expected from sectors that require significant behavior change to decarbonize, such as VMT reduction, because it takes time to normalize new behaviors. Carbon sequestration will offset these remaining GHG emissions to help Humboldt achieve carbon neutrality.

Carbon sequestration is the process of removing carbon from the atmosphere using technology and natural solutions. Carbon can be removed from the atmosphere both naturally by trees and the carbon cycle as well as industrially via carbon capture equipment. The State recognizes that while on-the-ground action for local carbon sequestration and Natural Working Lands (NWL) management will largely be executed and managed by the local government, State agencies must support these communities to implement such actions which includes providing resources, developing implementation frameworks, and providing the increased capacity and technical assistance to the local and regional partners. The State plans to support local governments and partners through various initiatives, including the development of funding programs.

### Strategy 10: Increase Carbon Sequestration

The State goal of reaching carbon neutrality by 2045 relies on up to 15 percent of total emissions being removed via carbon sequestration. At this time, the technology is not available to achieve this level of carbon removal and further analysis would need to be conducted to determine the possibility of achieving this through improved natural land management in Humboldt's forests and wetlands. This Strategy emphasizes the identification and funding of both industrial and nature based physical removal of carbon from the atmosphere to store it in long-term forms, playing a crucial role in achieving regional carbon neutrality by 2045. It focuses on obtaining resource support from the State to obtain NWL objectives and developing private partnerships to explore alternative solutions for carbon sequestration, such as direct air carbon capture and sequestration.

*Measure CS-1: Research and implement feasible carbon sequestration technology opportunities to support growth and expansion of green jobs industry within the region*

Measure CS-1 focuses on research needed to understand the viability of carbon sequestration technologies for future regional development to aid in the reduction of GHG emissions and stimulate the growth of the green jobs industry in the area. Artificial (i.e. non-biological processes) carbon capture and sequestration technologies typically capture CO<sub>2</sub> from the atmosphere, or from point source emissions, and store the captured CO<sub>2</sub> in the natural environment. However, with advancing need for solutions, other methods of carbon capture have begun to emerge, such as CO<sub>2</sub> capture from seawater. By assessing the feasibility of the carbon capture technologies available, the region will set the groundwork for later implementation of technologies which suit the areas and the community's needs. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure CS-1 are included Table 29.

Table 29 Measure CS-1 Actions

Action ID	Attribute	Action
CS-1a	Feasibility Study	Conduct a carbon sequestration feasibility study facilitated by the Regional Climate Committee to identify emergent technology for carbon sequestration and regional viability of implementation, including consideration of identified carbon sequestration technology facilities (e.g. ocean carbon capture, agriculture methane capture, forest biomass to biochar soil amendment, biochar wastewater filtration, forest biomass as green hydrogen fuel, etc.).
CS-1b	Partnerships/Engagement	As part of Regional Climate Committee responsibilities established in Measure C-1, work with RCEA, HWMA, wastewater facilities, local tribes, businesses, and other applicable interested parties as appropriate to address potential carbon sequestration technologies available to the region, understand limitations and barriers, and develop solution pathways to implementation.
CS-1c	Partnerships/Structural	Based on feasibility study, leverage the Regional Climate Committee to explore partnerships with technology providers and regional research laboratories (e.g. Cal Poly) for viable carbon sequestration technologies to deploy carbon sequestration pilot projects in the region.
CS-1d	Funding	The Regional Climate Committee shall dedicate staff time or a representative for researching emergent carbon sequestration technologies and potential grant funding sources.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Resource Efficiency, Increase Resilience, Green Jobs
<b>KPI:</b>		Identification of viable technologies

*Measure CS-2: Offset fossil-based emissions and increase carbon sequestration in the community by achieving SB 1383 procurement requirements (0.08 tons recovered organic waste per person) by 2030.*

SB 1383 requires each jurisdiction in California to procure recovered organics waste products to meet annual procurement targets developed by CalRecycle. Recovered organic waste products include compost, mulch, renewable energy generated from anaerobic digestion (e.g., transportation fuel, electricity, and gas for heating), and electricity generated from biomass conversion. While a jurisdiction has the option to procure any combination of recovered organic waste products to fulfill 100 percent of its procurement target, jurisdictions in Humboldt currently aim to meet their procurement targets primarily through sourcing of compost to leverage the carbon sequestration benefits it provides when applied to community lands. Measure CS-2 puts the region on a path to meeting the SB 1383 procurement targets by 2030 and maintain it thereafter. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure CS-2 are included Table 30.

Table 30 Measure CS-2 Actions

Action ID	Attribute	Action
CS-2a	Structural Change	Leverage the Regional Climate Committee to support jurisdictions in enforcing compliance with SB 1383 and aim to exceed the baseline requirement by establishing a minimum level of compost application per year on

Action ID	Attribute	Action
		applicable/appropriate land throughout the region. Maintain procurement policies to comply with SB 1383 requirements for jurisdictions to purchase recovered organic waste products.
CS-2b	Structural Change	Regional Climate Committee to facilitate the establishment of a compost broker program primarily in rural jurisdictions central to agricultural industries which provides agricultural communities with incentives such as subsidies or community shared compost application equipment to aid in the procurement and distribution of high-quality compost.
CS-2c	Engagement	The Regional Climate Committee will work with Recology to provide residents, businesses, and developers with promotional material on where compost can be taken and how it can be used (i.e., landscaping).
CS-2d	Equity	The Regional Climate Committee will work with Recology, HWMA, and community-based organizations to provide free compost procurement services to low-income households and small businesses in all jurisdictions.
CS-2e	Feasibility Study	The Regional Climate Committee will facilitate a soil assessment study to identify applicable locations and quantity of compost that can be applied within each jurisdiction to help meet the procurement requirements of SB 1383 and provide household incentives for small-scale implementation. As part of study, evaluate other carbon sequestration opportunities associated with soil amendments such as biochar. <sup>48</sup>
CS-2f	Feasibility Study	Leverage the Regional Climate Committee to identify viable alternative opportunities for achieving SB 1383 compliance based on activities which are already occurring within the region (e.g. diversion of wastewater biosolids from landfill for agricultural application), or activities which provide co-benefits to the community (e.g. sourcing RNG to replace natural gas consumption, diversion of lumber or yard waste from landfill to be used to produce green hydrogen).
CS-2g	Funding	The Regional Climate Committee with dedicate staff time for researching alternative pathways for achieving SB 1383 compliance and obtaining grant funding for procurement and distribution incentive programs across all jurisdictions.
CS-2h	Partnerships	Through the Regional Climate Committee collaborate with local schools, Public Works, and Parks and Recreation to identify opportunities to apply compost to landscaping, potentially in addition to open space land conservation efforts.
CS-2i	Partnerships	In jurisdictions currently subject to SB 1383 requirements, utilize the Regional Climate Committee to work with regional organic waste haulers (Recology) and local small-scale commercial composters (e.g. The Local Worm Guy) to identify opportunities for a regional compost procurement program to help meet and exceed the organics procurement provisions of SB 1383 as well as streamline hauler routes through regional collaboration.
<b>2030 GHG Emissions Reduction:</b>		1,532 MT CO <sub>2</sub> e
<b>2045 GHG Emissions Reduction:</b>		1,681 MT CO <sub>2</sub> e

<sup>48</sup> Note that biochar is not considered SB 1383 recovered waste product; however, biochar is a known soil amendment opportunity with enhanced carbon sequestration which is why it should also be considered as part of the soil amendment study.

Action ID	Attribute	Action
<b>Co-Benefits:</b>		Natural Resource Enhancement, Resource Efficiency, Increase Resilience, Green Jobs
<b>KPI:</b>		Procurement of SB 1383 compliant recovered organic products

*Measure CS-3: Develop a County-wide Natural and Working Lands GHG Inventory baseline by 2027 to better understand the existing and future GHG sequestration and help obtain resources to protect and increase natural carbon sequestration occurring in the region as well as promote biodiverse forests and wetlands resistant to wildfire*

The region is anticipated to contribute significantly to the State’s carbon sequestration efforts and may even serve as a larger sink than contributor, but this cannot be verified without a comprehensive inventory of carbon stocks in the region. Establishing a baseline will aid the county in pursuing State funding to protect the county’s forestland assets and receive credit for aiding in State goals to protect natural working lands. Measure CS-3 directs the County to build off of North Coast Resource Partnership’s 2017 Northern California regional natural working lands study to establish an updated County-wide Natural and Working Lands GHG Inventory baseline by 2027. This initiative seeks to provide a comprehensive understanding of current and future potential GHG sequestration within the county’s natural and working lands. The Natural and Working Lands inventory baseline will be folded into future RCAP updates and used to establish GHG sequestration tracking metrics and monitor resiliency efforts. Developing this Natural and Working Lands inventory will identify key areas where natural carbon sequestration is occurring and highlight opportunities to protect and expand these areas. By promoting biodiverse forests and wetlands that are resilient to wildfire, Measure CS-3 supports the dual goals of enhancing carbon sequestration and mitigating climate risks. This measure will help the region obtain funding and resources necessary for conservation and restoration projects, ultimately contributing to long-term climate resilience, biodiversity, and the health of natural ecosystems. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure CS-3 are included Table 31.

Table 31 Measure CS-3 Actions

Action ID	Attribute	Action
CS-3a	Feasibility Study	The County will partner with the North Coast Resource Partnership and other interested parties to develop an updated, Humboldt specific natural and working lands GHG Inventory which builds off of the 2017 northern California regional study conducted by the North Coast Resource Partnership. Development of the GHG Inventory should include consideration of requirements specified by prospective grant programs the region would like to pursue.
CS-3b	Funding	The Regional Climate Committee will apply for at least one grant (e.g. Sustainable Agricultural Lands Conservation Program) every three years for obtaining grant funding for restoration and preservation activities with a focus on projects that have been unable to be fully completed due to funding constraints.
CS-3c	Equity/ Partnership	The Regional Climate Committee will work with interested parties, local tribes, and agricultural communities to identify opportunities for expanding wetland

Action ID	Attribute	Action
		conservation areas in a manner that equitably addresses tribal and agricultural interests.
CS-3d	Structural	The Regional Climate Committee and County will work with CalFire and Humboldt County Resource Conservation District to increase necessary equipment and infrastructure resources to better maintain public and private forested area with focus on understory clearing to prevent wildfire.
CS-3e	Partnership	The Regional Climate Committee and the County will work with Humboldt County Resource Conservation District and interested parties to identify challenges and barriers for private sector landowners to implement forest best management practices as identified by CalFire and the Humboldt County Resource Conservation District.
CS-3f	Engagement	The Regional Climate Committee will support rural communities with the development of a community-based volunteer program supporting restoration project activity to create a maintained restoration process. This may involve partnering with local community organizations to communicate sequestration opportunities and facilitate volunteer maintenance projects.
CS-3g	Feasibility Study	Through County efforts, facilitate annual reporting as part of the restoration plan mapping the existing restoration projects and open space lands to gauge progress in restoration activities over time as well as identify any gaps in maintenance activities related to ongoing projects. Incorporate GHG calculations into this monitoring plan to report on the region's contribution as a GHG source or sink.
CS-3h	Structural/ Funding	Engage with third-party to audit the Natural and Working Lands inventory and monitoring reports. Update County-wide inventory to include GHG emissions and sinks from Natural and Working lands in the region. Leverage this data to pursue State funding to protect the region's resource as a GHG sink for the State.
<b>2030 GHG Emissions Reduction:</b>		Supportive
<b>2045 GHG Emissions Reduction:</b>		Supportive
<b>Co-Benefits:</b>		Natural Resource Enhancement, Resource Efficiency, Increase Resilience, Green Jobs
<b>KPI:</b>		NWL Baseline Inventory

## 5 Implementation

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Based on substantial evidence and RCAP specific data, the measures and actions detailed in the previous section have been developed to be capable of reducing a specific quantity of GHG emissions within a reasonable period of time, considering economic, environmental, legal, social, and technological factors. Humboldt will continue to engage the community, provide informative progress updates, and create ongoing opportunities to solicit and incorporate community feedback as policies and programs are developed and infrastructure is constructed. See Appendix C for details on the substantial evidence used to quantify the emissions reduction attributable to each measure. The following section establishes an implementation plan that has been developed based on feasibility given budget and staff capacity.

### 5.1 CEQA Streamlining

As discussed at the beginning of this document, the CEQA Guidelines provide an option for new projects to streamline the CEQA analysis of GHG emissions by tiering off of a “qualified” GHG reduction plan. The RCAP is a long-term programmatic plan consistent with CEQA Guidelines (See Table 1) that will be implemented through regular monitoring and updates to meet the State’s SB 32 GHG emission reduction goals and demonstrate substantial progress towards the State’s AB 1279 carbon-neutrality goals. Because the RCAP meets these requirements, if projects and plans within the Humboldt region in jurisdictions that have adopted the RCAP are consistent with the RCAP, CEQA analysis can be streamlined by presuming the project’s GHG emissions are not significant. These projects and plans can utilize a CEQA GHG Emissions Analysis Compliance Checklist to demonstrate consistency in a streamlined process. Projects and plans within the Humboldt region that are not consistent with the RCAP, must complete a different assessment utilizing quantitative thresholds of significance to evaluate GHG emissions impacts.

### 5.2 Tracking, Monitoring, and Reporting

A key to successful implementation is monitoring progress and tracking implementation over time. Therefore, this RCAP should be viewed as a strategic framework that will be reevaluated on a bi-annual basis. As part of the RCAP, Measures will be implemented using a phased approach with progress reports prepared on a bi-annual basis starting in 2026. The bi-annual progress reports will include the preparation of a regional community-wide GHG emissions inventory, as well as status update on implementation of RCAP Measures and Actions. Tracking implementation of the plan in conjunction with the inventory updates will demonstrate the progress the region is making in reducing GHG emissions and achieving its 2030 goal.

Successful implementation of a long-range planning document, like this RCAP, requires detailed tracking that will be completed by the lead responsible party indicated in the Implementation Plan provided in Table 32. This approach relies on individual expertise with collective vigilance instead of placing the onus on one person or department. This approach is essential to successful implementation because it gives everyone a seat at the table and demonstrates that climate action requires collective participation to result in real change. The Regional Climate Committee will oversee the progress monitoring and facilitate progress report preparation with each responsible party indicated. Each responsible party will be responsible for tracking implementation and sharing

data with the Regional Climate Committee. The progress report will include an evaluation of the prepared regional inventory against the regionals 2030 and 2045 targets to assess if the region is on track to achieve the 2030 GHG emissions reduction goal.

## 5.3 Implementation Plan

In order to achieve the 2030 GHG emissions reductions goals discussed in Chapter 4 and make substantial progress to the 2045 goals, Humboldt will begin implementing the measures and actions as soon as possible to make real progress over the next few years. The RCAP takes a phased approach to implementation beginning with Phase 1, which will occur in the short-term over the next two years (2024-2026). Phase 2 would include implementation of mid-term measures that should begin no later than 2026, while Phase 3 would include implementation of longer-term measures that should begin no later than 2028, that are anticipated to occur after feasibility studies are complete and initial measures are implemented. The RCAP identifies the Phase in which to begin implementation of a specific action. Additionally, actions already in progress are denoted as such and actions that will be ongoing, such as an education program, will have a start date and indicate that the action is ongoing.

Some Measures, such as establishment of the Regional Climate Committee to facilitate the implementation of the RCAP is critical to implement first and quickly. Additionally, some actions such as adopting ordinances to decarbonize building stock, preparing educational materials, or conducting the initial feasibility studies can be accomplished on a short timetable; while others, such as implementation of strategies to increase infrastructure for active transportation or ZEVs may require longer timelines to conduct a feasibility assessment, obtain funding, and rollout any required infrastructure change.

If the actions identified in the RCAP to meet the 2030 GHG emissions reduction milestone goal are not implemented or if the bi-annual inventory and progress report indicates that the region is off-track from achieving the 2030 goal, additional actions may need to be developed to meet the 2030 goals. The longer taking action is delayed, the more significant actions need to be taken to achieve the longer-term GHG emissions reduction targets. Table 32 outlines the implementation timeframe of each RCAP action and the responsible party for leading the implementation and monitoring.

### Implementation Team

Humboldt recognizes that to reduce the impacts of climate change and meet the State goals and regional GHG reduction targets, it will take collaboration for successful implementation. The establishment of a Regional Climate Committee will provide significant support in facilitating implementation of the RCAP and in reporting out progress, however it is imperative that there is participation at the jurisdictional and regional partner level. The Implementation Plan shown in Table 32 designates responsible parties for each Action, ensuring that those with relevant expertise are involved in implementation. As the RCAP includes efforts from all jurisdictions within the Humboldt County area, titles and responsibilities of municipal departments by jurisdiction may vary. To provide a common understanding of the types of jurisdictional departments and department responsibilities intended to oversee implementation of a particular action, the following definitions have been established:

- **Municipal Public Works:** city and county departments, as applicable, which oversee infrastructure and utilities management

- **Municipal Community Development:** city and county departments, as applicable, which is responsible for community engagement
- **Municipal Facility Management:** city and county departments, as applicable, which oversees municipal fleets and the operation and management of municipal buildings
- **Municipal Planning/Building:** city and county departments, as applicable, which oversees permitting, permit compliance, and building codes

In addition to governmental staff, there are Joint Powers Agencies (e.g., HWMA, HCAOG), regional partners (e.g., RCEA, HTA), and community-based organizations that also play a role in implementation of RCAP Actions and Measures and will be indicated as a responsible party in the Implementation Plan.

## 5.4 Looking Forward

Humboldt will conduct ongoing implementation and monitoring of the RCAP GHG emissions reduction measures and report on this progress to jurisdictions City Councils, the County Board of Supervisors, and the public on a bi-annual basis beginning in 2026. A comprehensive RCAP update for GHG emissions reduction targets beyond 2030 will be required. In 2029, it is expected that Humboldt will commence the process to review and update the RCAP to augment or develop new measures and actions to meet the 2045 GHG emissions reduction target. As new technologies and State guidelines are made available and State regulations are adopted, Humboldt will need to augment the RCAP to facilitate further GHG emissions reduction and meet the 2045 carbon neutrality goal.

If, prior to 2029, Humboldt is not making satisfactory advancements toward its 2030 GHG emissions reduction targets, it may be necessary to revise the RCAP. This update would set new or stronger goals for emissions reduction, aiming to increase the reduction efforts and maintain its status as a CEQA-qualified GHG emissions reduction plan. Updating the RCAP could require additional implementation of the existing actions and/or additional actions such as shifting incentive and educational programs to mandatory requirements for the latter Phases of Implementation.



Table 32 Implementation Work Plan

Action ID	Action	Responsible Parties	Timeframe
<b><i>Measure C-1: Establish a Regional Climate Committee comprised of elected officials from each jurisdiction, HTA, HCAOG, HWMA, and RCEA to be administered by the County.</i></b>			
C-1a	Pursue and obtain funding to create a Climate Program Manager position to lead the coordination efforts of the Regional Climate Committee. The Regional Climate Committee will be responsible for implementing RCAP measures and actions. The Climate Program Manager will facilitate the work of the Regional Climate Committee made up of responsible parties from each of the region’s jurisdictions and agencies. The Manager will work with the Committee to utilize the RCAP as a strategic plan outlining the goals of the Coalition. The Manager will coordinate with staff of the participating jurisdictions and agencies to undertake the work directed by the Committee. Finally, the Manager will develop an annual progress report on RCAP implementation annually to City Councils and County Supervisors to measure progress and establish accountability in achieving RCAP emissions reduction goals.	Municipal Planning/Building (County)	Phase 1 - ongoing
C-1b	The Regional Climate Committee will develop and provide models, pilot programs, and template policies or ordinances that enable each jurisdiction in the region to implement uniform changes and facilitating local communities in making the necessary structural adjustments to reduce GHG emissions. This will reduce inefficiencies and duplication of effort while ensuring a coordinated regional approach.	Climate Committee	Phase 1 - ongoing
C-1c	Develop and distribute promotional materials and programs across the region to inform the community, gain buy-in, and promote awareness of new and existing programs and opportunities. Leveraging the Regional Climate Committee to prepare such materials will allow for limited resources in the region to be pooled on such efforts thereby reducing strain on jurisdictional staff.	Climate Committee Municipal Community Development	Phase 1 - ongoing

Action ID	Action	Responsible Parties	Timeframe
C-1d	Leverage regional programs to engage and support frontline communities that may experience secondary impacts or not benefit directly from the measures' objectives. Ensure these communities can access regional resources or funding opportunities to mitigate identified impacts and benefit the entire community. The Regional Climate Committee will be charged with engaging with regional programs and identifying appropriate community-based organizations to lead and guide such engagement efforts to ensure voices of vulnerable communities are involved in RCAP implementation and planning.	Climate Committee	Phase 1 - ongoing

Action ID	Action	Responsible Parties	Timeframe
C-1d	Utilize regional resources to conduct efficient regional studies, avoiding redundancy, that provide a clear understanding of the details, obstacles, and feasibility of proposed programs. This includes necessary analyses to identify the best path forward or the feasibility of implementing specific measures. The Regional Climate Committee will aid in identifying the regional expertise and coordinating studies across the region to limit duplication of efforts.	Climate Committee	Phase 1 - ongoing
C-1e	Collaborate regionally to identify and pursue relevant and impactful grants and financial backing to facilitate RCAP implementation across the region. Ensure resources and efforts are directed towards securing funds that can be distributed across the region, such as grants or rebates to support measure implementation and adequate program staffing. Direct the Regional Climate Committee to pursue 3-5 grants for regional efforts to meet RCAP goals per year.	Climate Committee	Phase 1 - ongoing
C-1f	Use the collaborative network of local jurisdictions, agencies, and community-based organizations (CBOs) to attract additional internal and external support and expertise. This includes engaging community organizations that are well-positioned to consistently and sustainably advance specific measures. Leverage the Regional Climate Committee to identify and provide assistance to local jurisdictions' high priority project pursuits which support the RCAP.	Climate Committee	Phase 1 - ongoing

**Measure BE-1: By 2030, source 90% of grid-supplied electricity from renewable and carbon-free sources.**

Action ID	Action	Responsible Parties	Timeframe
BE-1a	<p>Coordinate and support Redwood Coast Energy Authority (RCEA) in developing an effective energy strategy. Strategy should include conducting an assessment to identify the potential obstacles and detail the steps to providing provide renewable and carbon-free power and decarbonization programs outlined in the RePower Humboldt plan such as:</p> <ol style="list-style-type: none"> <li>1. Future Capacity constraints</li> <li>2. Customer solar installations</li> <li>3. Customer electrification support</li> <li>4. EV charging infrastructure buildout</li> <li>5. Building Electrification</li> <li>6. Advanced biofuel infrastructure</li> <li>7. Evaluate enrollment rates in RCEA programs annually to understand why residents and businesses opt out or opt to procure standard grid electricity. Use results to adjust strategy for increasing enrollment accordingly</li> </ol>	Municipal Public Works RCEA	Phase 1
BE-1b	Through the Regional Climate Committee develop a template policy or ordinance for regional jurisdictions to use to require new commercial and industrial developments to acquire electricity from renewable and carbon-free energy sources such as enrolling with RCEA, incorporating on-site renewable generation, or enrolling in PG&E’s 100 percent renewable rate. For each jurisdiction, adapt the templated policy or ordinance as necessary and adopt by 2026.	Climate Committee Municipal Planning/Building Board of Supervisors	Phase 1
BE-1c	Collaborate across the region with interested parties including tribes, labor unions, workforce development boards, State agencies, colleges, universities, industries, and community organizations to increase local energy workforce development. Partner with RCEA, Humboldt State University, and College of the Redwoods to actively develop education and certifications for electrical and construction trades by 2027 to ensure develop a skilled workforce ready to meet the region's energy needs.	Climate Committee Municipal Public Works	Phase 1 – 2
BE-1d	Leverage the Regional Climate Committee to work with RCEA to reduce opt-out rate for new customers to no more than 2 percent. Develop promotional educational materials to inform community members on available incentives and benefits of clean energy and energy efficiency.	Municipal Public Works RCEA Climate Committee	Phase 1 - ongoing

Action ID	Action	Responsible Parties	Timeframe
BE-1e	Engage with the community and partner with community organizations to facilitate increased communication, technical assistance, and access to energy incentives through the California Alternative Rates for Energy (CARE), Family Electric Rate Assistance (FERA), and Low-Income Home Energy Assistance Program (HEAP) programs for low/moderate income households.	Municipal Public Works Municipal Community Development	Phase 1 - ongoing
BE-1f	Work with RCEA to expand and advertise regional energy funding programs as described in the RePower Humboldt plan. Facilitate Humboldt residents and businesses in utilizing energy finance programs such as the Property Assessed Clean Energy (PACE) program. Conduct targeted outreach to public entities, such as public schools, that are eligible for the California Energy Commission Energy Conservation Assistance Act (ECAA) Program loans.	Municipal Public Works RCEA	Phase 1 - ongoing
BE-1g	Coordinate through the Regional Climate Committee to establish and administer a multi-jurisdictional staff position dedicated to identifying and pursuing funding opportunities to support County-wide educational programs, assisting in equitable energy workforce expansion outreach, and providing RCEA with additional funds to expand incentives or subsidies for the community to increase community enrollment. If establishing a dedicated staff position is not feasible, work with the Regional Climate Committee and regional partners to identify resource sharing opportunities for pursuing funding opportunities such as rotating the responsibility across designated agency employees.	Municipal Public Works Climate Committee	Phase 1
<b>Measure BE-2: Increase the development of micro-grids and energy storage across the region to support RCEA's RePower Humboldt goals of enhancing grid capacity and facilitating the electrification of buildings and transportation.</b>			
BE-2a	Develop permit streamlining programs that can be adopted by local jurisdictions to facilitate the streamlined implementation of renewable energy projects as identified in regional energy feasibility study and RCEA RePower Humboldt goals such as energy storage projects, residential and commercial solar installation, and microgrid development.	Climate Committee Municipal Public Works	Phase 1 - ongoing
BE-2b	Direct the Regional Climate Committee to work with RCEA to develop a plan for leveraging CPUC's recently passed Limited Generation Profile option to maximize solar installation developments in alignment with RCEA's RePower Humboldt goals throughout the region.	Climate Committee RCEA	Phase 1 - ongoing

Action ID	Action	Responsible Parties	Timeframe
BE-2c	Engage with the local community, key interested parties, and local-based community organizations representing disadvantaged and vulnerable communities to raise awareness about alternative renewable energy and nano-grid opportunities available through RCEA. Emphasize the increased accessibility to electrification as well as the economic and environmental advantages of electrification while addressing concerns related to emergency response to minimize exceptions. Publicize the connection between RCEA nano-grid efforts and the increased ability to electrify leading to cost savings, funding opportunities, environmental benefits, and flexibility of electrification through jurisdiction websites and permit counters.	Climate Committee Municipal Planning/Building	Phase 2
BE-2d	As part of Regional Climate Committee responsibilities identified in Measure C-1, engage with RCEA to track progress toward targets set in RCEA's RePower Humboldt plan and identify additional opportunities for local jurisdictions to alleviate barriers to goals set in RCEA's RePower Humboldt plan.	Climate Committee Municipal Community Development	Phase 1 - ongoing
BE-2f	As part of Regional Climate Committee responsibilities work with RCEA and the Schatz Energy Research Center to identify locations throughout the county that are priority for utility-scale, nano-grid, and micro-grid solar, hydropower, and/or wind energy generation based on aspects such as land availability and suitability, infrastructure needs, resilience, and energy access equity. Coordinate with PG&E on interconnection needs and identify strategies with PG&E of how to best support capacity building on the grid related to micro-grid projects.	Climate Committee RCEA	Phase 2- ongoing
BE-2g	Conduct an equity assessment across the region that includes the identification of potential cost barriers to residential solar development, particularly for low income and rural communities at the end of PG&E distribution infrastructure, and identify feasible sites for solar and battery installation and potential funding sources.	Climate Committee RCEA	Phase 1
BE-2h	Identify facilities that are suitable to operate as regional resilience hubs to protect people from climate related issues. Create a priority list of these facilities with particular focus on servicing disadvantaged communities and work with RCEA to prioritize implementation of on-site microgrid and energy storage on identified.	Climate Committee Municipal Public Works	Phase 1

Action ID	Action	Responsible Parties	Timeframe
BE-2i	Regional Climate Committee will work with RCEA to pursue regional funding opportunities that can be used to develop resilient microgrids and incentivize new housing developers to install solar and on-site batteries, particularly for affordable housing developments. Aim to pursue 3 grant or funding opportunities annually focused on microgrids and/or energy storage expansion.	Municipal Public Works	Phase 1
<b>Measure BE-3 Urban: Reduce existing residential building natural gas consumption by 4% by 2030 and 74% by 2045.</b>			
BE-3a Urban	Leverage the Regional Climate Committee to lead the development of a decarbonization plan for urban areas that assesses the feasibility and cost for electrification retrofitting for residential buildings as well as identifies potential equity concerns/impacts. The plan should identify strategies and/or specific projects to decarbonize 4 percent of existing residential and multi-family buildings by 2030 and strategies for increasing infrastructure readiness to electrify through 2045. The plan should give consideration for increased electricity capacity needs and RCEA’s RePower Humboldt goals to meet increased capacity need. The plan should also identify a variety of equitable decarbonization solutions and potential projects such as partial electrification and increased energy efficiency options for mixed-fuel residences that face barriers to full electrification. The study should also identify the funding and financing requirements necessary to support the community in this transition.	Climate Committee Municipal Public Works (cities)	Phase 1
BE-3b Urban	As part of Regional Climate Committee responsibilities identified in Measure C-1, petition PG&E to help identify priority areas for electric grid expansion projects to increase regional electric grid capacity and islanding capabilities to allow for increased building electrification capacity.	Climate Committee	Phase 1 - 3
BE-3c Urban	Develop a home energy advisory service administered by the Regional Climate Committee that assists existing homeowners to better understand the cost of building decarbonization options including partial and full home electrification, identifies service providers, and provides support for homeowners to access electrification incentives from the Energy Smart Homes program.	Climate Committee	Phase 2 - ongoing

Action ID	Action	Responsible Parties	Timeframe
BE-3d Urban	<p>Work with the Regional Climate Committee to identify and pursue funds through CARB, the Inflation Reduction Act, and the Infrastructure Investment and Jobs Act including:</p> <ol style="list-style-type: none"> <li>1. DOE block grants</li> <li>2. On Bill financing through PG&amp;E</li> <li>3. Green bonds</li> <li>4. Grant Anticipation Notes or Short-Term Loans</li> <li>5. Tax exempt lease purchases</li> <li>6. Energy as a service</li> <li>7. Energy Performance Contracting from Energy Service Companies (ESCOs)</li> </ol>	Climate Committee Municipal Public Works (cities)	Phase 1 - ongoing
BE-3e Urban	Work with the Regional Climate Committee to develop and manage educational/promotional materials that each jurisdiction can use to educate the community on ways to finance home decarbonization. Materials should include information and links to existing available rebates for Heat Pumps, Weatherization, Smart Thermostats, Appliances, and Pool Pumps as well as other rebates offered through RCEA of the local jurisdiction if applicable.	Climate Committee	Phase 1
BE-3f Urban	Work with the local contractors, realtors, homeowner associations, landlords, and labor unions to develop a comprehensive training program, including hosting workforce development trainings discussing the benefits and technical requirements of electrification as well as addressing interested party concerns regarding electrification.	Municipal Public Works (cities) Municipal Community Development (cities)	Phase 2 - ongoing
BE-3g Urban	Develop a fund for low income and affordable housing electrification pilot projects in collaboration with affordable housing owners, utilities, and the community. Work with RCEA to develop a program to offset cost for occupants using financing and through the sourcing of grant funds to subsidize cost.	Municipal Public Works (cities) RCEA	Phase 2 - ongoing
<b>Measure BE-3 Rural: Reduce existing residential fossil-fuel consumption in households not connected to natural gas infrastructure by 2% by 2030</b>			



Action ID	Action	Responsible Parties	Timeframe
BE-3a Rural	Regional Climate Committee to conduct a feasibility study to establish local low-carbon fuel alternative, such as renewable propane, sourced from local resources such as forest biomass which can be used as direct substitutes for propane or diesel building fuel. The feasibility study should consider procurement and cost considerations with a focus on equity for low-income households, and map communities with significant propane and wood fuel use to identify accessibility strategy for acquiring alternative fuels (e.g. renewable propane, sustainably harvested wood products, renewable diesel) and/or undergoing home electrification.	Climate Committee Municipal Public Works (county)	Phase 1
BE-3b Rural	As part of Regional Climate Committee responsibilities identified in Measure C-1, petition PG&E to help identify priority areas for rural electric grid expansion projects to increase regional electric grid capacity and islanding capabilities to allow for increased building electrification capacity.	Climate Committee	Phase 1- 3
BE-3c Rural	Promote existing available rebates to rural communities for Heat Pumps, Weatherization, Smart Thermostats, Appliances, and Pool Pumps to educate the community on ways to finance electrification or otherwise decarbonize their residences. Provide assistance to rural homeowners in assessing the viability and permitting of installing off-grid solar and battery alternative energy sources on their homes and finance options.	Municipal Public Works (county) RCEA	Phase 1 - ongoing
BE-3d Rural	For viable alternative fuel sources identified in a feasibility study, establish procurement and distribution supply centers within easy access of rural communities.	Municipal Public Works (county) Municipal Planning/Building (county)	Phase 2
BE-3e Rural	The Regional Climate Committee will lead the effort to identify, access, and provide funding assistance for the procurement of alternative fuels, such as biomethane, in alignment with SB 1383 procurement requirements. Advocate to the California Public Utilities Commission (CPUC) for inclusion of alternative low-carbon fuels substitution, such as renewable propane, to be allowed in ratepayer funded programs including energy efficiency programs.	Climate Committee	Phase 2 - 3

**Measure BE-4: Reduce existing nonresidential building natural gas consumption by 5% by 2030 and 79% by 2045.**

Action ID	Action	Responsible Parties	Timeframe
BE-4a	As part of the development of the decarbonization plan led by the Regional Climate Committee referenced in Measure BE-3 Urban, identify nonresidential building electrification barriers and develop a nonresidential building decarbonization strategy with analysis supporting future adoption of a nonresidential building decarbonization ordinance. The plan should give consideration for increased electricity capacity needs and for other decarbonization strategies that would be needed to reduce nonresidential natural gas consumption by at least 5 percent. As part of strategy development, conduct outreach to small businesses to understand potential equity impacts of a decarbonization policy. The plan should also assess ordinance parameters for including large scale renovation as part of the new commercial building ordinance requirements established for each organization (Measure BE-6).	Climate Committee RCEA Municipal Planning/Building	Phase 1
BE-4b	Work with the Regional Climate Committee to develop a template Commercial Energy Performance Assessment and Disclosure Ordinance for commercial and multi-family buildings to be adopted within each jurisdiction by 2027. The ordinance should require energy use disclosure consistent with State law (AB 1103) and the use of the ENERGY STAR Portfolio Manager benchmarking tool. Include regulatory mechanism (e.g., permitting and approval requirements, building codes and standards modification) that limits expansion of natural gas infrastructure and incentivizes appliance replacement.	Municipal Planning/Building Board of Supervisors Climate Committee	Phase 2
BE-4c	Establish streamlined permitting in each jurisdiction for energy efficiency technologies, onsite renewable energy, and battery storage in buildings and critical facilities that require power during emergencies or power outages. Incorporate equity considerations into permitting process for all other building battery storage including prioritization, rebates, and outreach.	Municipal Planning/Building	Phase 2

Action ID	Action	Responsible Parties	Timeframe
BE-4d	<p>As part of Regional Climate Committee responsibilities identified in Measure C-1, develop an outreach campaign to promote building decarbonization and include items in the program such as:</p> <ol style="list-style-type: none"> <li>1. Conduct engagement efforts for the commercial and industrial sector to identify ways jurisdictions and the Regional Climate Committee can support commercial energy storage installations and neighborhood scale microgrid opportunities</li> <li>2. Facilitate funding opportunities for commercial business electrification by identifying and supporting grant opportunities available to the community, prioritizing small and frontline community owned businesses</li> <li>3. Use feedback provided during the community outreach process for small businesses to mitigate potential equity impacts of a future building performance program</li> <li>4. Distribute utility bill inserts to advertise the incentive programs or grants available and the cost benefits of electric appliances</li> <li>5. Target outreach to businesses, builders, developers, local contractors, and property managers with information describing the financial benefits of replacing natural gas appliances with all electric appliance when they apply for permits</li> <li>6. Provide informational webinars and an updated website to advertise and promote All-Electric Building Initiative rebates and incentives</li> <li>7. Promote the use of the Energy Star Portfolio Manager program and energy benchmarking training programs for nonresidential building owners</li> </ol>	Climate Committee	Phase 2 - ongoing

**Measure BE-5: Decarbonize 95% of new residential building construction by 2027**

Action ID	Action	Responsible Parties	Timeframe
BE-5a	<p>Regional Climate Committee to develop an energy performance ordinance, EDR, reach code, or zero NOx threshold for new residential construction that can be modified by each jurisdiction as necessary to conserve staff resources. Adopt the ordinances within each jurisdiction to decarbonize 95 percent of new residential buildings by 2027 and update every 3 years thereafter if not included within State building codes. As part of building decarbonization ordinance development and subsequent updates, consider the following:</p> <ol style="list-style-type: none"> <li>1. Minimize the exemptions associated with the ordinance, while allowing for health and safety exemptions as necessary and exploring potential exemptions for specific use cases determined to have substantial economic development or business impacts</li> <li>2. Require the submittal of an infeasibility waiver to review specific end uses where electrification is technologically infeasible</li> <li>3. Require that any end-use deemed infeasible for electrification exceeds existing Title 24 energy efficiency standards and be electric ready for future electrification</li> <li>4. Specify that affordable housing developments will be all-electric to ensure no stranded assets</li> <li>5. Establish substantial remodel and improvement definitions to be included in the ordinance</li> <li>6. Track and enforce requirement compliance through a permitting compliance program managed by each jurisdiction</li> <li>7. Revise ordinance during update cycle as necessary to meet 95 percent goal.</li> </ol>	Municipal Planning/Building Board of Supervisors Climate Committee	Phase 2
BE-5b	<p>Conduct feasibility study(s) to identify local decarbonization barriers for new residential developments and develop a residential building decarbonization strategy with analysis. The feasibility study should include developing a new residential building decarbonization plan that assesses the grid feasibility and cost for electrification at certain legislative threshold requirements in consideration of leveraging RCEA residential nano-grid and battery storage options. The feasibility study should assess the potential cost impacts to multifamily and affordable housing new developments and identify potential strategies for mitigating negative impacts for equitable electrification.</p>	Climate Committee Municipal Public Works RCEA	Phase 1

Action ID	Action	Responsible Parties	Timeframe
BE-5c	Leverage the Regional Climate Committee to lead engagement efforts with affordable housing developers to leverage incentives for new all-electric and efficient low-income residential buildings through the California Energy Commission Building Initiative for Low-Emissions Development (BUILD) Program, the Affordable Housing and Sustainable Communities (AHSC) Program, and the California Electric Homes Program (CalEHP). Regularly investigate and leverage other incentive programs available for electrification of new buildings.	Climate Committee Municipal Planning/Building	Phase 2 - ongoing
BE-5d	Through the Regional Climate Committee, work with local contractors, realtors, homeowner associations, landlords, and labor unions to develop a comprehensive training program, including hosting workforce development trainings discussing the benefits and technical requirements of local municipality building decarbonization legislation and the most effective pathways to achieving requirements. Include information on load calculations to avoid service upgrade requirements	Climate Committee Municipal Planning/Building Municipal Community Development	Phase 2 - ongoing
BE-5e	Partner with RCEA and PG&E to circumvent or mitigates electric utility infrastructure capacity constraints. Collaborate with RCEA to develop and fund locally implemented programs to help customers in accessing financing options for energy projects and rebates for cleaner, energy efficient technology	Municipal Planning/Building RCEA	Phase 2 - ongoing
<b>Measure BE-6: Decarbonize 95% of new nonresidential building construction by 2027</b>			

Action ID	Action	Responsible Parties	Timeframe
BE-6a	<p>Adopt within each jurisdiction an energy performance ordinance, energy design rating (EDR), reach code, or zero NOx threshold to decarbonize 95 percent of new nonresidential buildings by 2027 and update every 3 years thereafter if not included within State building codes. As part of building decarbonization legislation development and subsequent updates, consider the following:</p> <ol style="list-style-type: none"> <li>1. Direct the Regional Climate Committee to develop a template ordinance that can be modified by each jurisdiction as necessary to conserve staff resources.</li> <li>2. Minimize the exemptions associated with the ordinance, while allowing for health and safety exemptions as necessary and exploring potential exemptions for specific use cases determined to have substantial economic development or business impacts.</li> <li>3. Require the submittal of an infeasibility waiver to review specific end uses where electrification is technologically infeasible.</li> <li>4. Require that any end-use deemed infeasible for electrification exceed existing Title 24 energy efficiency standards and be electric ready for future electrification.</li> <li>5. Establish substantial remodel and improvement definitions to be included in the ordinance.</li> <li>6. Enforce requirement compliance through the same permitting compliance program as for residential building decarbonization.</li> <li>7. Establish EDR requirements for new non-residential buildings that incentivize electrification and in a case where electrification is infeasible, requires higher energy efficient and low emissions equipment to meet the EDR.</li> <li>8. Track effectiveness of ordinance through permitting compliance program and revise ordinance during update cycle as necessary to meet 95 percent goal.</li> </ol>	<p>Municipal Planning/Building Board of Supervisors Climate Committee</p>	<p>Phase 2</p>

Action ID	Action	Responsible Parties	Timeframe
BE-6b	Conduct feasibility study(s) to identify decarbonization barriers for commercial buildings and develop a commercial building decarbonization strategy with analysis supporting future adoption of commercial decarbonization legislation. The feasibility study should include a comprehensive nonresidential building electrification plan that assesses the grid feasibility and cost for electrification and opportunities to mitigate grid and cost barriers by leveraging RCEA microgrid and battery storage options. The feasibility study should assess potential decarbonization legislation exemptions for commercial and industrial operations that are significantly restricted by available technology for electrification.	Climate Committee Municipal Planning/Building RCEA	Phase 1
BE-6c	Connect developers with RCEA to identify applicable incentive programs in line with RCEA RePower goals that could benefit new building developments such as microgrids which can aid businesses in overcoming restrictions to electrification or decarbonization of processes.	Municipal Planning/Building	Phase 1 - ongoing
BE-6d	Through the Regional Climate Committee, work with local contractors, realtors, homeowner associations, landlords, and labor unions to develop a comprehensive training program, including hosting workforce development trainings to discuss the benefits and technical requirements of decarbonization. .	Climate Committee Municipal Planning/Building	Phase 2
BE-6e	Partner with RCEA and PG&E to establish a clear path for electrification of new nonresidential buildings which meet EDR requirements and circumvent or mitigate electric utility infrastructure capacity.	Municipal Planning/Building RCEA	Phase 2
<b>Measure BE-7: Decarbonize 30% municipal buildings and facilities by 2030</b>			
BE-7a	Regional Climate Committee to develop a template resolution for each jurisdiction to decarbonize 30 percent of municipal buildings and facilities by 2030 and 100 percent by 2045 by retrofitting natural gas appliances with electric alternatives and install on-site electricity generation and storage capacity. Include in the resolution an 'electric first' purchasing policy for any equipment or appliances in need of replacement.	Municipal Facility Management Board of Supervisors	Phase 1

Action ID	Action	Responsible Parties	Timeframe
BE-7b	Coordinate with the Regional Climate Committee and RCEA to conduct energy audits of municipal buildings to establish a baselines of current energy consumption and identify the largest energy users or municipal buildings with the greatest natural gas consumption. Utilize audit results to prioritize municipal buildings to decarbonize. Conduct follow-up energy audits every 3 years to track progress. Leverage data from buildings reporting to the Building Energy Benchmarking Program established under AB 802 where possible to reduce labor.	Municipal Facility Management RCEA	Phase 1 - ongoing
BE-7c	Develop a study through the Regional Climate Committee which estimates renewable energy generation on County and local jurisdiction facilities, identifies a priority list of sites which may serve as regional resilience hubs, and a proposed schedule for implementing the prioritized energy projects. The study should also seek to understand barriers to installing additional distributed energy resources such as solar and battery storage, or other renewable energy generation infrastructure, at municipal facilities.	Municipal Facility Management RCEA	Phase 2
BE-7d	Identify and pursue funding sources and partnerships needed for successful implementation as well as plan for directing resources through each jurisdiction for funding.	Municipal Facility Management Climate Committee	Phase 1
<b><i>Measure BE-8: Advocate for Off-shore Wind developers and PG&amp;E to build electrical infrastructure to supply Humboldt with energy produced by the future off-shore wind project which will increase regional supply and resilience</i></b>			
BE-8a	Dedicate Regional Climate Committee staff time to work with local organizations (e.g. 350Humboldt, Redwood Region Climate & Community Resilience Hub, COREHub) to petition the CEC and Humboldt Bay Off-shore Wind developers to include electricity transmission and distribution to the Humboldt region as a legally enforceable community benefit as stipulated in the Community Benefit Program to be completed as part of the Nationally Significant Multimodal Freight & Highway Projects (INFRA) grant program.	Climate Committee Municipal Community Development	Phase 2
BE-8b	Have the Regional Climate Committee advocate to the CEC and State to allow for an equitable rate tiering law to provide affordable rates for LIDAC communities in Humboldt County.	Climate Committee RCEA	Phase 2 - 3



Action ID	Action	Responsible Parties	Timeframe
BE-8c	Leverage the Regional Climate Committee to work with California Independent System Operator (ISO), California Public Utilities Commission (CPUC), the off Humboldt Bay Offshore Wind project and PG&E to identify pathways to establish equitable regional access to electricity produced by the off-shore wind project. This may include supporting permitting and development processes necessary for the proposed new Humboldt 500 kV substation as well as advocating to include distribution capacities at the substation for Humboldt County.	Climate Committee	Phase 2 - 3
BE-8d	Direct the Regional Climate Committee to evaluate and pursue opportunities for the Environmental and Climate Justice Community Change Grant through the Inflation Reduction Act to advance clean energy from the wind-farm projects.	Climate Committee Municipal Public Works	Phase 2
<b><i>Measure TR-1 Urban: Implement programs, such as those identified in HCAOG's RTP, to increase the mode share of active transportation in urbanized areas from 9% to 12% by 2030 thereby achieving a regional active transportation mode share of 8%</i></b>			
T-1a Urban	Regional Climate Committee to aid the urbanized areas of Humboldt by partnering with HCAOG and HTA to identify and pursue grant opportunities such as the Active Transportation Program, AARP Community Challenge, CalEPA's Environmental Justice Action Grants, and Caltrans Sustainable Transportation Planning Grants, etc., to fund active transportation projects identified in the Regional Transportation Plan. Aim to apply for at least 3 grants annually.	Climate Committee HCAOG HTA	Phase 1 - ongoing
T-1b Urban	In urbanized areas with high alternative transit expansion potential work with the Regional Climate Committee to facilitate community outreach on transportation alternatives and promote infrastructure improvements and expansion identified in HCAOG's Regional Transportation Plan. Continually improve methods for engaging the community, gathering input, and utilizing it to prioritize projects.	Climate Committee Municipal Community Development (urban)	Phase 1 - ongoing
T-1c Urban	Leverage the Regional Climate Committee to pursue and access funding to develop and maintain regional webpage and app showing pedestrian and bike trails, bike lanes and bus times and routes. Distribute active transportation maps and promotional materials to hotels and tourism centers to increase visitor use of active transportation. Advertise and promote Humboldt Bikeshare program managed by the City of Arcata, Cal Poly Humboldt, and Tandem Mobility.	Climate Committee Municipal Community Development (urban) HCAOG	Phase 2 - ongoing

Action ID	Action	Responsible Parties	Timeframe
T-1d Urban	Identify equity barriers to safe bike and pedestrian infrastructure through community outreach and use of big data driven analysis w as well as targeted community outreach to better understand nuanced barriers. Include prompts in outreach around ways to improve social and modal equity the active transportation systems and programs. Develop a priority list of active transportation projects from HCAOG’s Regional Transportation Plan based on level of impact, expansion of inter-jurisdictional connectivity, and historically under-invested communities.	Climate Committee Municipal Public Works (urban) HCOAG	Phase 1
T-1e Urban	Increase inter-connectivity across the region working with HCAOG and the Regional Climate Committee representatives to: <ol style="list-style-type: none"> <li>1. Evaluate and prioritize land use projects and active transportation projects for their impact on increased regional connectivity</li> <li>2. Identify hurdles limiting connectivity and use, such as last-mile commute limitations</li> <li>3. Facilitate coordination across jurisdictions and rural and urban areas to plan development in a coordinated and most strategic manner</li> <li>4. Apply for regional funding opportunities focused on increased inter-connection and VMT reduction</li> <li>5. Implement the VMT mitigation measures associated with VMT thresholds</li> </ol>	Climate Committee HCAOG	Phase 2 – Phase 3
<b>Measure TR-1 Rural: Implement programs, such as those identified in HCAOG’s RTP, that increase access to safe active transportation, to increase the mode share of active transportation in rural areas from 5% to 6% by 2030 thereby achieving a regional active transportation mode share of 9%</b>			
T-1a Rural	Regional Climate Committee to conduct a feasibility study evaluating existing bike parking facilities in rural areas and what improvements can be made to increase supply, reduce theft, and increase rider attraction. Include in the study an analysis of current and future land use trends and identify active transportation facility development which would result in high inter- connectivity impact. The study should focus on needs to better connect rural communities to city centers, job centers, and amenities.	Climate Committee	Phase 1
T-1b Rural	Develop a priority list of active transportation projects from HCAOG’s Regional Transportation Plan based on level of impact, expansion of inter-connectivity, and historically under-invested communities where there is currently no or limited pedestrian and bicycle infrastructure as informed by feasibility study.	Municipal Public Works (rural) HCAOG	Phase 1

Action ID	Action	Responsible Parties	Timeframe
T-1c Rural	The Regional Climate Committee will work with the regions jurisdictions, HCAOG, and CalTrans to obtain funding for the construction of bikeway and pedestrian systems to improve interconnection within Humboldt County. Focus areas will be projects that connect rural communities to high employment areas such as City of Eureka, Arcata, and Fortuna as well as nearby counties, State, and federal infrastructure through integration of bicycle facilities as part of other roadway construction projects (e.g. CalTrans mobility hub and highway projects).	Regional Climate Committee HCAOG	Phase 2 - ongoing
T-1d Rural	Partner with California Department of Transportation (CalTrans) District 1 Pedestrian and Bicycle Advisory Committee (PBAC) to track progress on implementation of bicycle and pedestrian projects in the region, ensure that projects being planned are consistent with the District Active Transportation Plan, and to represent the regions rural jurisdictions needs to the PBAC.	Climate Committee Municipal Public Works (rural)	Phase 2 - ongoing
T-1e Rural	Regional Climate Committee to work with jurisdictions in rural regions that have planned land use development to establish standards for when and how new residential subdivisions, multi-family, and mixed-use developments shall provide inter-connected bicycle and pedestrian facilities and amend local codes accordingly.	Climate Committee Municipal Public Works (rural)	Phase 2 - 3
T-1f Rural	Increase community awareness of active transportation infrastructure projects occurring and those completed. Work with HCAOG to continue to fund, develop, and maintain regional webpages and apps showing pedestrian and bike trails, bike lanes, and bus times and routes. Distribute active transportation maps and promotional materials to hotels and tourism centers to increase visitor use of active transportation.	Municipal Public Works (rural) Climate Committee HCOAG	Phase 1 - ongoing
T-1g Rural	Partner with the tourism and business sectors of larger tourism and employment regions of the county to identify pathways to increase active transportation from tourists and employees.	Climate Committee Municipal Community Development (rural)	Phase 2
T-1h Rural	Regional Climate Committee to identify and apply for grant opportunities such as the Active Transportation Program, AARP Community Challenge, CalEPA's Environmental Justice Action Grants, and Caltrans Sustainable Transportation Planning Grants, etc., to fund rural active transportation projects identified in the Regional Transportation Plan.	Municipal Public Works (rural) Climate Committee	Phase 1 - ongoing

Action ID	Action	Responsible Parties	Timeframe
T-1i Rural	Leverage the Regional Climate Committee to fund the development of local subsidy for low-income residents across the region for bicycles, helmets, pumps, and other bicycle equipment. Continue to offer e-bike rebates with increased rebate opportunities for low-income customers. Implement an income-qualified coupon for the e-bike share program, in addition to the available 50 percent discounted e-bike share rate.	Climate Committee Municipal Community Development (rural)	Phase 2
<b>Measure TR-2 Urban: Expand the public transit network in support of HCAOG's Regional Transportation Plan to increase public transit mode share from 2% to 20% public transit mode share in urbanized areas to achieve a regional 13% public transit mode share by 2030</b>			
T-2a Urban	Regional Climate Committee to work with Humboldt Transit Authority (HTA) and HCAOG to support implementation of measures to increase use of public transportation services in the region as specified in HCAOG's Regional Transportation Plan, and work toward a 10-minute headway in urban areas. This should include, but is not limited to: <ol style="list-style-type: none"> <li>1. Improving passenger transfer among local routes and between local and intercity routes (e.g., Greyhound and Amtrak)</li> <li>2. Improving shelters at bus stops</li> <li>3. Electronic signage and/or real-time updates of wait time until next bus</li> </ol>	Climate Committee HTA Municipal Public Works (urban)	Phase 2
T-2b Urban	For areas with significant tourism industry, conduct a feasibility study to inform the development of a tourism-based mobility plan aimed at decreasing tourism-based single passenger vehicle use. In this study: <ol style="list-style-type: none"> <li>1. Identify community boundary locations for tourism designated parking and optimal route connectivity</li> <li>2. Identify opportunities for town shuttle services and park-and-ride locations for residents and tourists</li> <li>3. Gauge potential of partnerships with big tourism destinations and local businesses to implement direct public transit routes between park and ride and the relevant tourist destinations</li> <li>4. Identify opportunities for dogs to be included in a shuttle service to locations that allow dogs</li> </ol>	Municipal Public Works (urban) HCAOG	Phase 1

Action ID	Action	Responsible Parties	Timeframe
T-2c Urban	Leverage the Regional Climate Committee to conduct local transportation surveys to better understand the community’s needs and motivation for traveling by car versus other alternatives such as the bus. Use survey results to inform policy development and outreach campaigns that are transit focused. Develop marketing materials and provide them to the local jurisdictions to publicize public transportation improvements as they are planned and implemented in a variety of methods (social media, newspaper, radio, etc.) and languages to help facilitate use and success of improvement	Climate Committee	Phase 1
T-2d Urban	Work with HTA to plan facility upgrades that include design improvements of seating and weather protection at bus stops and along transportation routes. Implementation should also include consideration of climate change impacts and increasing micro-transit access to the improved public transit network facility. Incorporate design changes throughout infrastructure modifications, including real-time updates of bus arrival.	Municipal Public Works (urban) HTA	Phase 1 – Phase 2
T-2e Urban	Work with HTA to prioritize public transportation access and improvements in low-income areas of the region and at major destinations. This could include surveying existing transportation routes, schedules, and facilities throughout each jurisdiction as part of HCAOG’s Sustainable Transportation Planning Grant Program and improving public transportation facilities and expand access to transit (i.e., first and last-mile access).	Municipal Public Works (urban) HTA	Phase 2
T-2f Urban	Regional Climate Committee to collaborate HTA and HCAOG in obtaining grant funding for service expansion and improvements particularly in underserved and marginalized areas. Also include assistance for working with the appropriate State agencies to petition for updates to the farebox ratio to allow HTA greater access to using funds for self--advertisement.	Municipal Public Works (urban) HTA Climate Committee	Phase 1 - ongoing

**Measure TR-2 Rural:      *Develop a robust public transit network in support of HCAOG’s Regional Transportation Plan to increase public transit mode share from 1% to 10% in rural areas and achieve a regional 13% public transit mode share by 2030***

Action ID	Action	Responsible Parties	Timeframe
T-2a Rural	<p>Regional Climate Committee to work with HTA and HCAOG to support implementation of measures to increase use of public transportation services in the region as specified in HCAOG's Regional Transportation Plan and work toward a 30-minute headway in rural areas. This should include, but is not limited to:</p> <ol style="list-style-type: none"> <li>1. Improving passenger transfer among local routes and between local and intercity routes (e.g., Greyhound and Amtrak)</li> <li>2. Improving shelters at bus stops</li> <li>3. Prioritizing infrastructure improvements in existing communities that enable people better access and use of public transit</li> <li>4. Electronic signage and/or real-time updates of wait time until next bus</li> </ol>	Climate Committee HTA	Phase 1 - ongoing
T-2b Rural	<p>For areas with significant tourism industry, conduct a feasibility study to inform the development of a tourism-based mobility plan aimed at decreasing tourism-based single passenger vehicle use. In this study:</p> <ol style="list-style-type: none"> <li>1. Identify community boundary locations for tourism designated parking and optimal route connectivity.</li> <li>2. Identify opportunities for town shuttle services and park-and-ride locations for residents and tourists.</li> <li>3. Gauge potential of partnerships with big tourism destinations and local businesses to implement direct public transit routes between park and ride and the relevant tourist destinations.</li> </ol>	Municipal Public Works (rural) Climate Committee HCAOG	Phase 1
T-2c Rural	<p>Work with HCAOG and HTA to conduct a feasibility study to explore alternative forms of public transit, such as micro transit including on-demand shuttles, car share programs, bike share programs, and scooter share programs. Micro transit is a type of on-demand, shared transportation service that typically operates with smaller vehicles, such as vans or mini-buses, and offers flexible routes and schedules. The analysis should include identification of potential funding sources (e.g., grants, local taxes, local business sponsorship, discretionary funds, etc.) and identification of barriers and opportunities for how such a micro-mobility program may enhance active transportation or public transit use. Evaluate the effectiveness of the micro transit pilot program in McKinleyville to determine opportunities for implementing a similar program in other rural locations of the county.</p>	Climate Committee HCAOG Municipal Public Works (rural)	Phase 1

Action ID	Action	Responsible Parties	Timeframe
T-2d Rural	Based on the findings of the feasibility study, work with the Regional Climate Committee to develop a template micro-mobility policy that establishes a deployment protocol and permitting process, identifies any restrictions for use for safety reasons, and promotes equitable access through requirements for consistent placement of micro-mobility devices (e-scooters, e-bikes, etc.) in underserved areas or reductions in usage fees for lower-income users.	Climate Committee Municipal Public Works (rural) Board of Supervisors (rural)	Phase 2
T-2e Rural	Require large nonresidential and mixed-use developments to participate in Transportation Demand Management strategies, including providing shuttle services between employment centers and key transit centers, offering telecommuting, and encouraging use of pre-tax commute benefits.	Municipal Planning/Building (rural)	Phase 2
T-2f Rural	Market and publicize public transportation improvements as they are planned and implemented in a variety of methods (social media, newspaper, radio, etc.) and languages to help facilitate use.	Climate Committee Municipal Community Development (rural) HTA	Phase 2 - ongoing
T-2g Rural	Work with HTA in the implementation of facility improvements to rural transportation stops to include design improvements of seating and weather protection. Implementation should also include consideration of increasing access to the improved public transit network facility.	Municipal Public Works (rural) Climate Committee HTA	Phase 1 - ongoing
<b>Measure TR-3: Reduce regional VMT by increasing mixed-use development in infill priority areas in alignment with HCAOG's baseline connectivity score included in the RTP.</b>			
T-3a	Work with the Regional Climate Committee to develop template land use and development policy to enable and encourage infill development and streamline zoning changes that allow for higher density housing development. Work with urban areas to rezone for higher residential density and mixed use, reduced parking requirements, and expedited planning and permitting processes in the downtown core, along transit corridors, and within future planned development areas that is compact, pedestrian friendly, and transit oriented where applicable.	Municipal Planning/Building Board of Supervisors	Phase 1 – Phase 2

Action ID	Action	Responsible Parties	Timeframe
T-3b	Leverage feasibility studies conducted by HCAOG to identify opportunities for mixed-use and infill development, map current and future planned transit networks, and establish a priority list of development that encourages regional growth to be in alignment with HCAOG and HTA transit goals. If not already included in previously conducted HCAOG studies, assess equity considerations with regards to location and distribution of developments, and potential transit access equity impacts.	Climate Committee HCAOG HTA	Phase 1
T-3c	Work with HCAOG, HTA, RCEA and CBO's to plan prospective mixed-use and infill projects so that they include design considerations with regards to alternative energy access/generation, EV charging infrastructure, and local public transit facilities. Promote development that increases walkability and is bikeable in neighborhoods.	Municipal Planning/Building	Phase 2 - 3
T-3d	Direct the Regional Climate Committees to develop promotional materials and manage a central webpage on local jurisdiction's websites for planned projects detailing the benefits of mixed-use and/or infill developments.	Climate Committee Municipal Planning/Building	Phase 1- ongoing
T-3e	Dedicate staff time or create multi-jurisdictional staff position to be administered by the Regional Climate Committee to identify and pursue funding opportunities to support mixed-use and infill developments.	Municipal Planning/Building Climate Committee	Phase 1 - ongoing
<b>Measure TR-4: <i>Develop and implement regional mobility hubs and ZEV car-share programs to support mode shift from single occupancy vehicles</i></b>			
T-4a	Regional Climate Committee to work with HCAOG on the Sustainable Transportation Planning Grant Program efforts to assess regional transportation characteristics and work with regional agencies to identify multimodal land use opportunities throughout the county. As part of this program, conduct a background review of options for purchasing, operating, and maintaining shared mobility assets such as ZEVs, electric bikes, and electric scooters. The program should include identification of potential funding sources (e.g., grants, local taxes, local business sponsorship, discretionary funds, etc.) and identification of barriers and opportunities for how expanding mobility hub facilities beyond state highways access may enhance active transportation or public transit use. Also include in the feasibility study an assessment of alternative powering options in partnership with RCEA (e.g. microgrids) to support ZEV car-share infrastructure with the mobility hubs.	Climate Committee HCAOG	Phase 1



Action ID	Action	Responsible Parties	Timeframe
T-4b	In areas where Caltrans plans to implement mobility hubs along the state highway, local jurisdictions with support from the Regional Climate Committee will work with Caltrans to facilitate successful implementation and use the project to inform decisions on expanding mobility hub options throughout the region that will expand jurisdictional interconnectivity and provide public EV charging to the communities.	Municipal Planning/Building Municipal Public Works	Phase 1 – Phase 2
T-4c	Regional Climate Committee will develop guidance for jurisdictions to implement mobility hub policies that establishes a deployment protocol and permitting process, identifies any restrictions for use for safety reasons, and promotes equitable access through requirements for consistent placement of mobility hub facilities in underserved areas or reductions in usage fees for lower income users. The guidance is to be developed based on the regional feasibility study above.	Climate Committee HCAOG	Phase 1
T-4d	the Regional Climate Committee will coordinate with the City of Arcata in their efforts to bring in commercial autonomous EVs for car-share programs in association with regional mobility hubs.	Climate Committee Municipal Public Works	Phase 1 – Phase 2
T-4e	Dedicate staff time or leverage the Regional Climate Committee to work with work with HCAOG on the Sustainable Transportation Planning Grant Program and Caltrans in identifying and pursuing funding opportunities identified in the feasibility study with focus on linking mobility hub programs with the current Caltrans project to facilitate greater community interconnectivity and adoption of mobility services provided.	Climate Committee Municipal Public Works	Phase 2 - ongoing
<b>Measure TR-5: Require commercial and industrial employers with 25 employees or more to develop a Transportation Demand Management Plan</b>			
T-5a	Across all jurisdictions, and particularly in high employment cities, require employers to develop a Transportation Demand Management (TDM) Plan through a new ordinance and/or as a requirement to obtain a business license. TDM plans should include money-based incentives for employees to bike, walk, carpool, take the bus to work, or remote work where suitable. Require large employers (more than 25 employees) to subsidize biking, walking, or bus travel. The TDM should also include a ride-sharing program and membership within a transportation management association. The ride-sharing program will consist of designated parking spaces for ridesharing vehicles, passenger loading, unloading, and waiting zones; and a website, message board, or app for coordinating ridesharing. The program will include a provision to allow employees to work remotely 2 days per week when feasible and should include consideration for increasing broadband internet access to provide adequate service for those working remote.	Municipal Planning/Building Board of Supervisors Climate Committee	Phase 2

Action ID	Action	Responsible Parties	Timeframe
T-5b	Leverage the Regional Climate Committee and partnership with HCAOG to conduct local transportation surveys within each jurisdiction to better understand the community's needs and motivation for traveling by car versus other alternatives such as the bus. Use survey results to inform policy development and outreach campaigns that are transit focused.	Climate Committee HCAOG Municipal Community Development	Phase 1
T-5c	Have the Regional Climate Committee prepare marketing materials that each jurisdiction may modify and use to market and publicize public and active transportation improvements to local businesses as they are planned and implemented in a variety of methods (social media, newspaper, radio, etc.) and languages to help facilitate use and success of improvement.	Climate Committee Municipal Community Development	Phase 1 - ongoing
T-5e	Work with local businesses to understand employee engagement with alternative transportation methods and barriers to entry and provide workshops to local businesses to address questions or concerns in developing TDM plans.	Municipal Public Works Climate Committee HCAOG	Phase 2
T-5f	Through the Regional Climate Committee, employ a multi-jurisdictional representative to support HTA and local jurisdictions in pursuing grants such as the Sustainable Communities Competitive, Caltrans Sustainable Transportation Planning Grant Program, State Transportation Improvement Program, etc., to expand public and active transit services and infrastructure.	Climate Committee Municipal Planning/Building	Phase 2
<b>Measure TR-6: Decarbonize 15% of passenger vehicle miles traveled by 2030 and 100% by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.</b>			
T-6a	Through the Regional Climate Committee partner with local organizations and community groups throughout the county to distribute outreach and promotional materials to residents and local businesses on the financial, environmental, and health and safety benefits of ZEVs and alternative fueling options. Provide information on available funding opportunities.	Climate Committee Municipal Community Development	Phase 1 - ongoing
T-6b	Regional Climate Committee will identify jurisdictions or land-use zones, such as the Coastal Zone, that may benefit from a streamlined public and private EV infrastructure permitting process or Categorical Exemption and draft an ordinance in accordance with AB 1236. The Regional Climate Committee will develop the program as a template to be distributed to applicable jurisdictions for a coordinated approach and relieve individual jurisdiction workload on program development.	Climate Committee Municipal Planning/Building Board of Supervisors	Phase 2

Action ID	Action	Responsible Parties	Timeframe
T-6c	<p>The Regional Climate Committee will work with local jurisdictions to amend the Municipal Code to promote EV chargers in new development, redevelopment, and existing parking spaces. This may include requiring:</p> <ul style="list-style-type: none"> <li>▪ Multifamily – CalGreen Tier 2 provisions</li> <li>▪ Non-Residential – CalGreen Tier 2 provisions</li> <li>▪ Designate 10 percent of parking spaces in urbanized areas as EV charging spaces</li> <li>▪ Require that employers with over 25 employees designate preferred parking spaces for zero emission vehicles or hybrids only</li> <li>▪ Require that new private parking lots grant ZEVs access to preferred parking spaces.</li> <li>▪ Require larger residential rental building owners (more than 15 tenants) and large commercial building owners (more than 10,000 square feet) to install working electric vehicle chargers in 10 percent of parking spaces for new and existing buildings at time of renovation if projects are valued at \$1,000,000 or greater</li> </ul>	<p>Climate Committee  Municipal Planning/Building  Board of Supervisors</p>	Phase 2
T-6d	<p>Support ZEV car share companies in coming to the region. In jurisdictions with prevalent or planned development of multifamily housing, identify private sector partnerships and develop affordable, zero-emission vehicle car share programs with a priority to target vulnerable communities across all jurisdictions, promoting an accessible ZEV network.</p>	<p>Municipal Planning/Building  Municipal Public Works</p>	Phase 1 - ongoing
T-6e	<p>For high employment areas, work with RCEA to develop new public access charging stations. Work with RCEA to develop partnerships with other charging companies (e.g. Go Station) as needed to accommodate charging station needs. Apply for Federal Charging and Fueling Infrastructure (CFI) grant to install electric vehicle chargers at community centers and in high employment areas.</p>	<p>Municipal Planning/Building  RCEA</p>	Phase 2
T-6f	<p>Partner with RCEA to provide an EV Monthly Bill Discount Program with increased discount opportunities for low-income customers in each jurisdiction. Promote affordable EV charging rates at jurisdiction-owned EV charging stations and adjust rates as necessary to cover program costs. Explore methods for charging different rates for different user groups or other programs to offset charging costs at public stations for low-income residents.</p>	<p>Municipal Public Works  RCEA</p>	Phase 2

Action ID	Action	Responsible Parties	Timeframe
T-6g	Regional Climate Committee will work with interested parties and RCEA to expand home and public fueling/charging station ZEV infrastructure in alignment with RCEA RePower Plan goals and address barriers to ZEV adoption which are not related to electric grid capacity limitations as outlined in the “North Coast and Upstate FCEV Readiness Plan.” Evaluate opportunities for curbside street level II chargers in urbanized residential areas where off-street parking is limited to provide equitable access to at home chargers.	Climate Committee RCEA	Phase 2 - 3
T-6h	Regional Climate Committee, in partnership HCAOG, to lead the development of a Hydrogen Vehicle Infrastructure Implementation Plan for public access hydrogen facilities by 2030 which includes the following: <ol style="list-style-type: none"> <li>1. Evaluate a list of prioritized locations for hydrogen fueling stations across the county</li> <li>2. Consideration of procurement needs and potential sourcing from the Redding Rancheria perspective green hydrogen facility</li> <li>3. Identifies grant funding opportunities (e.g. LCFS)</li> </ol>	Climate Committee HCAOG	Phase 1 - 2
T-6i	Based on the results of the Hydrogen Vehicle Implementation Plan, applicable jurisdictions with opportunities identified as high priority hydrogen fueling station locations will evaluate and promote public access hydrogen fuel station development. Leverage the Regional Climate Committee and other regional partnerships to explore funding opportunities for hydrogen fueling infrastructure through the LCFS or PG&E EV Fast Charge Program as well as develop public-private partnerships to attract private developers to the region to build out ZEV infrastructure.	Municipal Public Works Climate Committee	Phase 2 - 3
T-6j	Identify and promote incentives and financing options for residential EV charger installations such as applying for Inflation Reduction Act (IRA) funding.	Climate Committee RCEA Municipal Planning/Building	Phase 1 - ongoing
<b>Measure TR-7: Increase commercial zero-emission vehicle use and adoption to 10% by 2030 and 100% by 2045 through a regional charging network and development of hydrogen hubs</b>			

Action ID	Action	Responsible Parties	Timeframe
T-7a	<p>Through the Regional Climate Committee work with RCEA and the Schatz Energy Research Center (SERC) to refine and implement the North Coast Medium-Duty/Heavy-Duty Zero Emission Vehicle Readiness Blueprint for Humboldt County. As part of the refinement:</p> <ol style="list-style-type: none"> <li>1. Conduct in depth study of physical siting opportunities and prioritize locations and a schedule to follow</li> <li>2. Identify opportunities for local jurisdiction-supported accelerated fleet ZEV adoption and establish a strategy to promote ZEV/EV adoption within business fleets</li> <li>3. For high priority fleets, establish a strategy and protocol to collaborate with PG&amp;E</li> <li>4. For high priority fleets, conduct a grid planning study to identify necessary infrastructure upgrades to support a fully built-out fleet and coordinate with PG&amp;E regarding needs</li> </ol>	Climate Committee RCEA	Phase 1 – Phase 3
T-7b	<p>Work with the Regional Climate Committee and RCEA to secure funding from state and utility programs (such as the California Air Resources Board's Clean Vehicle Rebate Project, the Truck and Bus Voucher Incentive Program, LCFS, and the PG&amp;E EV Fast Charge Program) and federal sources to increase procurement of EV or ZEV cars, trucks, and other vehicles and installation of EV/ZEV charging/fueling infrastructure. Additionally, provide information to businesses on state and federal programs to help businesses pursue conversion of fleets to ZEVs.</p>	Municipal Public Works RCEA	Phase 1 - ongoing
T-7c	<p>Conduct an inventory of business vehicle fleets in each jurisdiction and identify and engage with employers and businesses subject to the Advanced Clean Fleets rule as well as those to target for accelerating ZEV/EV adoption. As part of the study, identify private trucking company or manufacturer partnership opportunities for piloting new ZEV technology in the region.</p>	Climate Committee Municipal Facility Management	Phase 1 - 2

Action ID	Action	Responsible Parties	Timeframe
T-7d	Direct the Regional Climate Committee to partner with RCEA and SERC to work with local fleet operators, vehicle operators, and fleet maintenance staff to develop a comprehensive training program, including hosting workforce development trainings to discussing the benefits and technical requirements of ZEV fleets and supporting infrastructure. In addition to retraining the existing workforce, advertise and promote opportunities in the area to attract additional workforce support such as ZEV technicians and mechanics, and charging and fueling technicians.	Climate Committee RCEA SERC	Phase 2
<b>Measure TR-8: Electrify or otherwise decarbonize 12% of applicable small off-road engines (SOREs) off-road equipment by 2030 and 100% by 2045 and replace fossil diesel consumption with renewable diesel in 55% of applicable large diesel in alignment with EO N-79-20 by 2030.</b>			
T-8a	Align with AB 1346 and develop and circulate educational materials regarding CARB's Small-Off Road Engines regulations requiring most newly manufactured small off-road engines such as those found in leaf blowers, lawn mowers, and other equipment to be zero emission starting in Model Year 2024. Phase 2 of the regulations will be implemented in Model Year 2028, when the emission standards for generators and large pressure washers will be zero. In addition, work with Humboldt Chamber of Commerce to disseminate information regarding the regulation to impacted businesses (e.g., lawn equipment dealers, commercial landscapers, construction companies) and promote transition of equipment sales and equipment use to electric alternatives.	Municipal Public Works Municipal Facility Management	Phase 1 - ongoing
T-8b	Regional Climate Committee to identify pathways to enforce CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation and the Commercial Harbor Craft Regulation requiring that diesel vehicles over 25 horsepower to procure and only use R99 or R100 renewable diesel. This should include establishing a means to track compliance and developing partnerships with fuel suppliers in the region to promote and support the increased procurement of renewable diesel in the region.	Climate Committee	Phase 1
T-8c	Work with the Regional Climate Committee to develop and implement a plan to replace all jurisdiction owned end-of-life off-road equipment with zero-emission equipment as feasible. Procure renewable diesel for applicable jurisdiction owned diesel equipment that doesn't have available replacement equipment. Plan should include evaluation of current jurisdiction-owned equipment, alternative low or zero-emission options, prioritize equipment to replace first (e.g., largest GHG emission reduction potential), and a timeline for replacements that align with goals and feasibility of replacement.	Municipal Public Works	Phase 2

Action ID	Action	Responsible Parties	Timeframe
T-8d	The Regional Climate Committee will develop and manage an Off-road Equipment Replacement Program and Outreach Campaign that provides information to contractors, residents, and fleet operators in the region regarding alternatives to fossil-fueled off-road equipment, local fuel suppliers with renewable diesel for sale, public health and safety benefits of alternative equipment technology, and funding opportunities available (i.e., Clean Off-Road Equipment Voucher Incentive Program), Zero-Emission Landscaping Equipment Incentive Programs).	Climate Committee	Phase 1 – 2
T-8e	Through the Regional Climate Committee, Partner with North Coast Unified Air Quality Management District to identify funding opportunities to encourage residents to replace gas-powered landscaping equipment and off-road engines with zero emission equipment. This could include a rebate and incentive program for upgrading off-road equipment and switching to renewable diesel, or the development of an off-road zero emission landscaping equipment rental share program for county residents and businesses.	Climate Committee	Phase 1
T-8f	Leverage the Regional Climate Committee to source State funding to decarbonize off-road equipment as a result of Executive Order N-79-20 and State Climate Funding Package.	Climate Committee	Phase 2
<b>Measure TR-9: Establish Humboldt as a pilot program for the decarbonization of the transportation sector to help drive State and philanthropic investment throughout Humboldt.</b>			
T-9a	The Regional Climate Committee will develop and promote a vision and strategy for the regional community foundation to serve as a first-mover/pilot in the State in the decarbonization of America's rural transportation systems.	Climate Committee HCOAG HTA	Phase 2
T-9b	As a first-mover in rural America, the Regional Climate Committee will pursue investment on behalf of the jurisdictions from philanthropy, the State, private businesses, etc. to fund the development of a Humboldt decarbonized rural transportation system.	Climate Committee HCOAG	Phase 2 - 3
T-9c	With the support of the Regional Climate Committee, jurisdictions will directly engage members of disadvantaged and vulnerable communities in the development of the vision and strategy that aims to benefit all members of rural communities.	Municipal Community Development Climate Committee	Phase 2
<b>Measure TR-10: Work with the State and renewable fuel industry to establish a renewable fuel network within Humboldt thereby funding new green industry and job growth to support the decarbonization of the transportation sector</b>			

Action ID	Action	Responsible Parties	Timeframe
T-10a	The Regional Climate Committee will lead establishing a memorandum of understanding with RCEA, PG&E, CARB, CAL FIRE, the California Department of Agriculture, forest owners, and waste management companies to establish a plan to manage biomass and organic waste through the development of biofuel infrastructure in the region to position Humboldt as a first mover in active forest management to support a carbon-free future for California.	Municipal Public Works (county) RCEA	Phase 1
T-10b	The Regional Climate Committee will work jurisdiction to identify and help zone and entitle opportunity locations and specific areas throughout the region for streamlined development of renewable generation facilities where applicable. As part of effort, develop guidelines for evaluating renewable opportunities that meet sustainability criteria such as those set in the Natural Resources Defense Council's "Biofuel Sustainability Performance Guidelines" to limit environmental impacts related to renewable production.	Municipal Public Works	Phase 1
T-10c	The Regional Climate Committee will work with RCEA, PG&E, and State agencies to explore funding opportunities including grants and green bonds to help fund the development of renewable fuel infrastructure in the region and explore revenue options through the Low Carbon Fuel Standard.	Municipal Public Works (county) RCEA	Phase 1
T-10d	Establish Humboldt as a hydrogen hub by: <ol style="list-style-type: none"> <li>1. Promoting the pending The U.S. Department of Energy funded HTA hydrogen fueling station to attract additional hydrogen fueling station developers to the region</li> <li>2. Partner with RCEA, SERC, and CalTrans, where applicable, to identify sites for hydrogen fueling stations that build off the North Coast and Upstate Regional Hydrogen Infrastructure Plan</li> <li>3. Pursue partnerships with private developers to develop additional hydrogen fueling stations in the region</li> <li>4. Pursue funding opportunities for hydrogen fueling infrastructure, such as through LCSF, AB 8 program, and the CEC Clean Transportation Program</li> </ol>	Municipal Public Works (county) RCEA	Phase 2 - 3
T-10e	The Regional Climate Committee, in partnership with applicable incorporated cities will work with local utilities and State agencies to pursue grants earmarked for biofuel infrastructure from the Inflation Reduction Act.	Municipal Public Works	Phase 2



Action ID	Action	Responsible Parties	Timeframe
T-10f	The Regional Climate Committee will establish partnerships with organic waste haulers to establish a consistent feedstock of biomass from forests and biowaste from residential and agricultural sources and forest service businesses/property owners.	Climate Committee Fire Department	Phase 2 - 3
T-10g	Partner with the forestry services and waste haulers to host an Outreach Campaign informing the community on the economic and wildfire risk benefits of active forest management for bioenergy. Establish a working group/committee to involve local community members and businesses in the planning processes related to biomass and biowaste management locally.	Climate Committee Fire Department (county) Forestry Service (county)	Phase 1
T-10h	Leverage the Regional Climate Committee to create a region-wide workforce development programs to train the local workforce for biofuel jobs. Specifically target training towards members of disadvantaged communities and establish criteria in the planning process that prioritizes/requires the employment of local residents and businesses in the industry.	Climate Committee	Phase 2 - 3
<b>Measure TR-11: Lead by example and electrify or otherwise decarbonize 50% municipal fleets by 2030 in alignment with the State's Advanced Clean Fleet Rule.</b>			
T-11a	Regional Climate Committee will develop a Zero-emission Fleet Conversion and Purchase Policy to be adopted by each jurisdiction that requires new, and replacement of, municipal fleet vehicle purchases to be EVs or ZEVs. The policy will also include a schedule for replacement of fleet vehicles to comply with the State's Advanced Clean Fleet rule requiring 50 percent of medium and heavy-duty vehicle purchases be zero-emissions beginning in 2024 and 100 percent beginning in 2027. Report annually to CARB on fleet status as required per the Advanced Clean Fleets Regulation.	Municipal Facility Management Climate Committee	Phase 1
T-11b	Leverage the Regional Climate Committee conduct a feasibility and cost assessment to determine the number of EV/ZEV chargers and funds needed to support the fleet transition to 50 percent EV/ZEV by 2030.	Municipal Facility Management Climate Committee	Phase 1

Action ID	Action	Responsible Parties	Timeframe
T-11c	The Regional Climate Committee will secure funding from programs such as the California Air Resources Board's Clean Vehicle Rebate Project and the Clean Truck and Bus Voucher Incentive Program to increase procurement of EV or ZEV cars, trucks, and other vehicles and installation of EV/ZEV charging/fueling infrastructure at municipal facilities. Evaluate credit generation opportunities within the LCFS program for ZEV/EV fueling and charging stations for the municipal fleet to offset cost of infrastructure development needed to support transition.	Municipal Facility Management Climate Committee	Phase 1 - ongoing
T-11d	Install additional ZEV chargers/fueling stations in municipal parking lots for fleet, employees, and public use to meet projected demand in alignment with feasibility study.	Municipal Facility Management Municipal Public Works	Phase 1 - 2
T-11e	Leverage the Regional Climate Committee to develop a resolution in alignment with Measure T-8a, to replace jurisdiction-owned end-of-life small off-road equipment with electric equipment (e.g., lawn equipment and leaf blowers) at time of replacement and to procure renewable diesel for all applicable jurisdiction owned equipment. Each jurisdiction will need to adopt the resolution while the Regional Climate Committee will support implementation.	Municipal Facility Management	Phase 1
<b>Measure SW-1: Establish a local waste separation facility and organics management to be able to reduce waste sent to landfills by 75% by 2030. Reduce GHG emissions by limiting truck trips required to ship waste out of the county and import compost from out of the county</b>			
SW-1a	Regional Climate Committee to work with Humboldt Waste Management Authority (HWMA) and Recology to develop a SB 1383 waste management plan which assesses county-wide waste diversion needs, current capacity, and land-use opportunities for developing organic waste processing facilities within Humboldt County that will meet regional requirements. The assessment should also include an analysis of green bond funding opportunities, applicable green bond programs, and a strategic plan for pursuing funding through green bond programs.	Climate Committee HWMA Recology	Phase 1
SW-1b	The Regional Climate Committee will work with HWMA and an underwriter at a desired green bond program identified in the feasibility study to develop a green bond focused on providing funding for HWMA to construct a regional organics processing facility that will be used to meet SB 1383 diversion and procurement requirements.	Climate Committee HWMA	Phase 1 - 2

Action ID	Action	Responsible Parties	Timeframe
SW-1c	Through the Regional Climate Committee, partner with Recology and/or HWMA to pursue funding, such as the Organics Grant Program from CalRecycle or for projects through California Climate Investment, to reduce generated organic waste from multi-family homes and expand waste diversions programs within the county.	Climate Committee HWMA Recology	Phase 1
SW-1d	<p>Meet the requirements of SB 1383 to reduce organics in the waste stream by 75 percent below 2014 levels by 2030 and work towards 90 percent solid waste diversion by 2040 in applicable jurisdictions by leveraging the Regional Climate Committee to provide implementation support. Include activities such as:</p> <ol style="list-style-type: none"> <li>1. Implement enforcement and fee for incorrectly sorted materials with sensitivity to shared collection. Utilize funding to implement programs and efforts to increase communitywide organic waste diversion</li> <li>2. Assure adequate bin signage across commercial and residential areas of acceptable landfill, recyclable, and compostable materials</li> <li>3. Identify public areas for adding organics collection and recycling bins where needed</li> <li>4. Work with Recology and HWMA to conduct free food scrap collection pail giveaways and promote curbside organics collection service offered in applicable communities</li> <li>5. Evaluate opportunities to have community compost hubs throughout the county that is easily accessible for community members. Partner with regional community gardens to increase community wide access to local compost bins</li> <li>6. Identify long-term and alternate solutions for the community’s wastewater bio-solids to avoid long hauling distances and develop local, beneficial reuse.</li> </ol>	Municipal Public Works HWMA	Phase 1 - ongoing

Action ID	Action	Responsible Parties	Timeframe
SW-1e	<p>Leverage Regional Climate Committee to draft a templated edible food recovery ordinance for individual jurisdictions to modify and adopt as needed. Alternatively utilize the County’s adopted ordinance, HCC 521-13 as a template or guide for drafting ordinances in individual jurisdictions that do not currently have such an ordinance. The ordinance will target edible food generators, food recovery services, or organizations that are required to comply with SB 1383. Ordinance requires all residential and commercial customers to subscribe to an organic waste collection program and/or report self-hauling or backhauling of organics. To support implementation of the ordinance, include the following activities:</p> <ol style="list-style-type: none"> <li>1. Work with community food pantries, food suppliers, HWMA, and Recology to identify infrastructure needs to ensure edible food reuse infrastructure in Humboldt is sufficient to accept capacity needed to recover 20 percent of edible food disposed of within Humboldt</li> <li>2. Regional Climate Committee to work with jurisdictions to establish an edible food recovery program where they are not currently present to minimize food waste</li> <li>3. Leverage CalRecycle funding opportunities to support projects that prevent food waste or rescue edible food</li> <li>4. Partner with existing food pantries that are locally appropriate for each jurisdiction to identify and advertise locations for surplus food to be taken in the community</li> </ol>	<p>Climate Committee Municipal Public Works Board of Supervisors</p>	<p>Phase 2</p>
SW-1f	<p>The Regional Climate Committee will work with HWMA, Recology and individual jurisdictions to implement structural changes listed above and increase service to jurisdictions without organics collection. This is applicable to both jurisdictions subject to SB 1383 and SB 1383 exempt jurisdictions to prepare for future needs to comply with SB 1383.</p>	<p>Municipal Public Works HWMA Recology</p>	<p>Phase 2</p>

Action ID	Action	Responsible Parties	Timeframe
SW-1g	Regional Climate Committee will coordinate between HWMA and regional wastewater treatment facilities to evaluate the opportunities to process/ co-digest food waste at the wastewater treatment plants. Study should include evaluating existing infrastructure and ability to process food waste, an evaluation of necessary infrastructure upgrades needed to process food waste that would comply with SB 1383 standards for recovered organic products, and a return-on-investment evaluation. Study should also include recommendations of viable opportunities and identification of funding opportunities to support implementation and facility upgrades as necessary.	Municipal Public Works HWMA	Phase 2 - 3
SW-1h	The Regional Climate Committee in partnership with Recology and HWMA, will develop and conduct a Bring Your Own (BYO) education and outreach training for each jurisdiction community on reusables and implementing more sustainable packaging into daily use. The Regional Climate Committee will develop and provide information resources on HWMA and jurisdiction’s websites. Partner with libraries and other existing facilities to market campaigns about waste reductions, reuse and repair.	Municipal Public Works HWMA Recology	Phase 1
SW-1i	Leverage the Regional Climate Committee to provide technical and outreach support to jurisdictions with organics and/or recycling services, by establishing relationships with multi-family property owners/managers to develop signage for their properties and to go door-to-door at each multi-family unit yearly to provide supplies and promote proper sorting.	Municipal Public Works HWMA	Phase 1 - 3
SW-1j	HWMA to add extra bulky-item pick up service in all jurisdictions to low- and medium-income residents at a subsidized cost to help minimize illegal dumping.	Municipal Public Works HWMA	Phase 2
SW-1k	The Regional Climate Committee will facilitate conducting waste characterization studies every 3 years to inform programs and policies. Leverage study to understand the waste stream and create a plan to increase diversion and reduce contamination. Work with contracted waste haulers and HWMA to develop and implement a comprehensive monitoring and quality control program with a focus on consumer behavior change. This should include tracking of weight or volume of waste produced; consider including information on billing to inform customer of their waste production and including incentives for reduction. Explore reducing frequency of service for residential and commercial waste to least often possible pick up to reduce truck miles/trips.	Municipal Public Works HWMA	Phase 1 - 3

Action ID	Action	Responsible Parties	Timeframe
SW-1l	Through the Regional Climate Committee create a multi-lingual training/outreach program that can be used in all jurisdictions that is free and accessible to all residents and employees to learn about circular economy practices and diversion strategies and effects of overconsumption. Conduct targeted, multi-lingual, culturally appropriate, and geographically diverse circular economy educational and technical assistance campaigns based on outcomes of waste characterization studies and comprehensive monitoring and quality control program. Topics could include reuse, prolonging the life of common materials and items, and sustainable purchasing. Focus outreach campaign on food waste not going to landfill.	Climate Committee	Phase 1
SW-1m	Utilize the Regional Climate Committee to partner with schools, retirement communities, and other large institutions throughout the county to create waste diversion and prevention program/procedure/plan.	Climate Committee HWMA	Phase 2 - 3
<b>Measure WW-1: Expand regional opportunities for implementation of wastewater decarbonization technologies such as anaerobic digesters to reduce GHG and produce renewable fuel sources</b>			
WW-1a	Regional Climate Committee to conduct a feasibility study(s) in jurisdictions with wastewater processing facilities or community primary reliance on septic systems identifying improved wastewater technologies which could be used to mitigate wastewater processing emissions and generate renewable fuel such as RNG or offset on-site process energy use via electricity generated with an anaerobic digester, particularly in relation to septic system improvements. The study should include an in-depth analysis of the current wastewater treatment methods utilized throughout the region, identification of upgrade opportunities and potential co-benefits to the community, and technological restrictions based on regional water quality and discharge requirements. The study should also specifically consider expanding wastewater treatment capabilities to process food waste that would otherwise go to landfill.	Municipal Public Works Climate Committee	Phase 2
WW-1b	The Regional Climate Committee will partner with regional wastewater service providers to understand current methods, areas for improvement, and whether there is interest in upgrading their wastewater treatment processes.	Municipal Public Works Climate Committee	Phase 2

Action ID	Action	Responsible Parties	Timeframe
WW-1c	The Regional Climate Committee, with input from the wastewater treatment providers, will research and pursue grants to wastewater facility upgrades or home septic system improvements (where applicable), such as applying to the California State Water Board for Clean Water State Revolving Fund grants, or the Community Development Block Grant Program.	Municipal Public Works Climate Committee	Phase 3
<b>Measure WW-2 Reduce per capita potable water consumption by 15% by 2030.</b>			
WW-2a	<p>The Regional Climate Committee will work with regional water providers to update their Urban Water Management Plan every 5 years, as required by the State, and implement the identified demand reduction actions to ensure compliance with the State’s Making Water Conservation a Way of Life regulations. Include new actions in the UWMPs as needed to achieve State regulations, which may include:</p> <ol style="list-style-type: none"> <li>1. Develop or amend Water Shortage Contingency Plans in the region to develop water waste restrictions for households, businesses, industries, and public infrastructure</li> <li>2. Work with large water users, and other stakeholders to develop an On-Site Water Reuse Plan to maximize utilization of local water supplies decreasing energy intensity of distribution</li> <li>3. Revisit and update the Model Water Efficient Landscape Ordinance as needed. Engage, through regional partnerships, with builders and developers to provide information on the requirements for development projects</li> <li>4. Develop an ordinance for installation of dual-plumbing water systems that utilize greywater or recycled water for irrigation at new residential and commercial construction</li> <li>5. Increase engagement with the community, specifically low-to-moderate income residents, to understand available incentives or rebates, options, and programs to reduce per capita water use. Leverage regional programs and partnerships with local organizations to expand water conservation outreach</li> <li>6. Revise water and wastewater rates as necessary to ensure cost of service is covered</li> </ol>	Municipal Public Works Climate Committee	Phase 1 - 2

Action ID	Action	Responsible Parties	Timeframe
WW-2b	Through the Regional Climate Committee work with the Humboldt County Resource Conservation District (HCRCD) to develop water conservation promotional materials, programs and outreach efforts are in multiple languages and accessible for low-income or disadvantaged and vulnerable communities. Continue to offer and expand water conservation programs to the community including educational programs like water education program for schools and water wise landscape classes as well as incentives like free water conserving devices, and rebates for rain water collection systems and turf replacement.	Climate Committee	Phase 1
WW-2c	The Regional Climate Committee will work with the local water and wastewater providers in the region to develop a Recycled Water Master Plan to assess the feasibility of expanding the recycled water system in the region and establish a roadmap for a recycled water expansion program. The plan will identify locations available for recycled water use and establish a schedule for potable water replacement with recycled water in appropriate applications residentially, commercially, and municipally, and determine recycled water user fees.	Municipal Public Works Climate Committee	Phase 2 - 3
<b>Measure CS-1: Research and implement feasible carbon sequestration technology opportunities to support growth and expansion of green jobs industry within the region</b>			
CS-1a	Conduct a carbon sequestration feasibility study facilitated by the Regional Climate Committee to identify emergent technology for carbon sequestration and regional viability of implementation, including consideration of identified carbon sequestration technology facilities (e.g. ocean carbon capture, agriculture methane capture, forest biomass to biochar soil amendment, biochar wastewater filtration, forest biomass as green hydrogen fuel, etc).	Climate Committee	Phase 2
CS-1b	As part of Regional Climate Committee responsibilities established in Measure C-1, work with RCEA, HWMA, wastewater facilities, local tribes, businesses, and other applicable interested parties as appropriate to address potential carbon sequestration technologies available to the region, understand limitations and barriers, and develop solution pathways to implementation.	Climate Committee RCEA HWMA	Phase 2
CS-1c	Based on feasibility study, leverage the Regional Climate Committee to explore partnerships with technology providers and regional research laboratories (e.g. Cal Poly) for viable carbon sequestration technologies to deploy carbon sequestration pilot projects in the region.	Climate Committee	Phase 3



Action ID	Action	Responsible Parties	Timeframe
CS-1d	The Regional Climate Committee shall dedicate staff time or a representative for researching emergent carbon sequestration technologies.	Climate Committee	Phase 2
<b><i>Measure CS-2: Offset fossil-based emissions and increase carbon sequestration in the community by achieving SB 1383 procurement requirements (0.08 tons recovered organic waste per person) by 2030.</i></b>			
CS-2a	Leverage the Regional Climate Committee to support jurisdictions in enforcing compliance with SB 1383 and aim to exceed the baseline requirement by establishing a minimum level of compost application per year on applicable/appropriate land throughout the region. Maintain procurement policies to comply with SB 1383 requirements for jurisdictions to purchase recovered organic waste products.	Municipal Public Works	Phase 1 - ongoing
CS-2b	Regional Climate Committee to facilitate the establishment of a compost broker program primarily in rural jurisdictions central to agricultural industries which provides agricultural communities with incentives such as subsidies or community shared compost application equipment to aid in the procurement and distribution of high-quality compost.	Municipal Public Works Climate Committee	Phase 1
CS-2c	The Regional Climate Committee will work with Recology to provide residents, businesses, and developers with promotional material on where compost can be taken and how it can be used (i.e., landscaping).	Climate Committee Recology	Phase 1
CS-2d	The Regional Climate Committee will work with Recology, HWMA, and community-based organizations to provide free compost procurement services to low-income households and small businesses in all jurisdictions.	Municipal Public Works	Phase 2
CS-2e	The Regional Climate Committee will facilitate a soil assessment study to identify applicable locations and quantity of compost that can be applied within each jurisdiction to help meet the procurement requirements of SB 1383 and provide household incentives for small-scale implementation. As part of study, evaluate other carbon sequestration opportunities associated with soil amendments such as biochar.	Climate Committee	Phase 1- 2
CS-2f	Leverage the Regional Climate Committee to identify viable alternative opportunities for achieving SB 1383 compliance based on activities which are already occurring within the region (e.g. diversion of wastewater biosolids from landfill for agricultural application), or activities which provide co-benefits to the community (e.g. sourcing RNG to replace natural gas consumption, diversion of lumber or yard waste from landfill to be used to produce green hydrogen).	Climate Committee	Phase 2

Action ID	Action	Responsible Parties	Timeframe
CS-2g	The Regional Climate Committee with dedicate staff time for researching alternative pathways for achieving SB 1383 compliance and obtaining grant funding for procurement and distribution incentive programs across all jurisdictions.	Climate Committee	Phase 2
CS-2h	Through the Regional Climate Committee collaborate with local schools, Public Works, and Parks and Recreation to identify opportunities to apply compost to landscaping, potentially in addition to open space land conservation efforts.	Municipal Public Works Climate Committee	Phase 2
CS-2i	In jurisdictions currently subject to SB 1383 requirements, utilize the Regional Climate Committee to work with regional organic waste haulers (Recology) and local small-scale commercial composters (e.g. The Local Worm Guy) to identify opportunities for a regional compost procurement program to help meet and exceed the organics procurement provisions of SB 1383 as well as streamline hauler routes through regional collaboration.	Municipal Public Works Recology	Phase 1 - 2
<b><i>Measure CS-3: Develop a County-wide Natural and Working Lands GHG Inventory baseline by 2027 to better understand the existing and future GHG sequestration and help obtain resources to protect and increase natural carbon sequestration occurring in the region as well as promote biodiverse forests and wetlands resistant to wildfire</i></b>			
CS-3a	The County will partner with the North Coast Resource Partnership and other interested parties to develop an updated, Humboldt specific natural and working lands GHG Inventory which builds off of the 2017 northern California regional study conducted by the North Coast Resource Partnership. Development of the GHG Inventory should include consideration of requirements specified by prospective grant programs the region would like to pursue.	Municipal Public Works (county)	Phase 1
CS-3b	The Regional Climate Committee will apply for at least one grant (e.g. Sustainable Agricultural Lands Conservation Program) every three years for obtaining grant funding for restoration and preservation activities with a focus on projects that have been unable to be fully completed due to funding constraints.	Climate Committee	Phase 1 - 3
CS-3c	The Regional Climate Committee will work with interested parties, local tribes, and agricultural communities to identify opportunities for expanding wetland conservation areas in a manner that equitably addresses tribal and agricultural interests.	Climate Committee	Phase 2

Action ID	Action	Responsible Parties	Timeframe
CS-3d	The Regional Climate Committee and County will work with CalFire and Humboldt County Resource Conservation District to increase necessary equipment and infrastructure resources to better maintain public and private forested area with focus on understory clearing to prevent wildfire.	Climate Committee Municipal Public Works (county) Fire Department	Phase 2
CS-3e	The Regional Climate Committee and the County will work with Humboldt County Resource Conservation District and interested parties to identify challenges and barriers for private sector landowners to implement forest best management practices as identified by CalFire and the Humboldt County Resource Conservation District.	Climate Committee Municipal Public Works (county)	Phase 1 - 2
CS-3f	The Regional Climate Committee will support rural communities with the development of a community-based volunteer program supporting restoration project activity to create a maintained restoration process. This may involve partnering with local community organizations to communicate sequestration opportunities and facilitate volunteer maintenance projects.	Climate Committee	Phase 2 - 3
CS-3g	Through County efforts, facilitate annual reporting as part of the restoration plan mapping the existing restoration projects and open space lands to gauge progress in restoration activities over time as well as identify any gaps in maintenance activities related to ongoing projects. Incorporate GHG calculations into this monitoring plan to report on the region’s contribution as a GHG source or sink.	Municipal Public Works (county)	Phase 2 - 3
CS-3h	Engage with third-party to audit the Natural and Working Lands inventory and monitoring reports. Update County-wide inventory to include GHG emissions and sinks from Natural and Working lands in the region. Leverage this data to pursue State funding to protect the regions resource as a GHG sink for the State.	Municipal Public Works (county)	Phase 2

# Appendix A

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Climate Regulatory Context

# Climate Regulatory Context

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As the impacts of climate change are being recognized, many strategies that address climate change have emerged at several different levels of government. This appendix provides an overview of the regulatory context at the international, State, and local levels relative to Humboldt's actions toward reducing its communitywide greenhouse gas (GHG) emissions.

## International Climate Action Guidance

### 1992 United Nations Framework Convention on Climate Change

The primary international regulatory framework for GHG reduction is the United Nations Framework Convention on Climate Change Paris Agreement (UNFCCC). The UNFCCC is an international treaty adopted in 1992 with the objective of stabilizing atmospheric GHG concentrations to prevent disruptive anthropogenic climate change. The framework established non-binding limits on global GHG emissions and specified a process for negotiating future international climate-related agreements.<sup>1</sup>

### 1997 Kyoto Protocol

The Kyoto Protocol is an international treaty that was adopted in 1997 to extend and operationalize the UNFCCC. The protocol commits industrialized nations to reduce GHG emissions per country-specific targets, recognizing that they hold responsibility for existing atmospheric GHG levels. The Kyoto Protocol involves two commitment periods during which emissions reductions are to occur, the first of which took place between 2008-2012 and the second of which has not entered into force.<sup>2</sup>

### 2015 The Paris Agreement

The Paris Agreement is the first-ever universal, legally binding global climate agreement that was adopted in 2015 and has been ratified by 189 countries worldwide.<sup>3</sup> The Paris Agreement establishes a roadmap to keep the world under 2° C of warming with a goal of limiting an increase of temperature to 1.5° C. The agreement does not dictate one specific reduction target, instead relying on individual countries to set nationally determined contributions (NDCs) or reductions based on GDP and other factors. According to the International Panel on Climate Change (IPCC) limiting global warming to 1.5° C will require global emissions to reduce through 2030 and hit carbon neutrality by mid-century.<sup>4</sup>

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1 United Nations Framework Convention on Climate Change (UNFCCC). United Nations Framework Convention on Climate Change. [https://unfccc.int/files/essential\\_background/background\\_publications\\_htmlpdf/application/pdf/conveng.pdf](https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf)

2 UNFCCC. What is the Kyoto Protocol? [https://unfccc.int/kyoto\\_protocol](https://unfccc.int/kyoto_protocol)

3 UNFCCC. Paris Agreement - Status of Ratification. <https://unfccc.int/process/the-paris-agreement/status-of-ratification>

4 IPCC. Global Warming of 1.5 C. <https://www.ipcc.ch/sr15/>

## California Regulations and State GHG Targets

California remains a global leader in the effort to reduce GHG emissions and combat climate change through mitigation and adaptation strategies. With the passage of Assembly Bill (AB) 32 in 2006, California became the first state in the United States to mandate GHG emission reductions across its entire economy. To support AB 32, California has enacted legislation, regulations, and executive orders (EOs) that put it on course to achieve robust emission reductions and address climate change impacts. Following is a summary of executive and legislative actions relevant to this CAP Update.

### 2002 Senate Bill 1078

In 2002, SB 1078, established the California Renewables Portfolio Standards (RPS) Program and was accelerated in 2006 by SB 107, requiring that 20 percent of retail electricity sales be composed of renewable energy sources by 2010. EO S-14-08 was signed in 2008 to further streamline California's renewable energy project approval process and increase the State's RPS to the most aggressive in the nation at 33 percent renewable power by 2020.

### 2002 Assembly Bill 1493

In 2002, AB 1493, also known as Pavley Regulations, directed the California Air Resources Board (CARB) to establish regulations to reduce GHG emissions from passenger vehicles to the maximum and most cost-effective extent feasible. CARB approved the first set of regulations to reduce GHG emissions from passenger vehicles in 2004, initially taking effect with the 2009 model year.

### 2005 Executive Order S-3-05

EO S-3-05 was signed in 2005, establishing Statewide GHG emissions reduction targets for the years 2020 and 2050. The EO calls for the reduction of GHG emissions in California to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. The 2050 emission reductions target would put the State's emissions in line with the worldwide reductions needed to reach long-term climate stabilization as concluded by the IPCC *2007 Fourth Assessment Report*.

### 2006 Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in AB 32, the "California Global Warming Solutions Act of 2006," that was signed into law in 2006. AB 32 codifies the Statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHG emissions to meet the 2020 deadline. AB 32 also requires CARB to adopt regulations requiring reporting and verification of Statewide GHG emissions. Based on this guidance, CARB approved a 1990 Statewide GHG baseline and 2020 emissions limit of 427 million metric tons of CO<sub>2</sub> equivalent (MMT CO<sub>2</sub>e). The Scoping Plan was approved by CARB on December 11, 2008, and included measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan. In May 2014, CARB approved an updated Scoping Plan that defined CARB's climate change priorities for the next five years and set the groundwork to reach post-2020 Statewide goals. The update highlighted State progress toward meeting the 2020 GHG emission reduction goals defined in the original Scoping Plan. It evaluated how to align State longer-term GHG reduction strategies with other State policies for water, waste, natural resources, clean energy, transportation, and land use.

## 2007 Executive Order S-1-07

Also known as the Low Carbon Fuel Standard, EO S-1-07, issued in 2007, established a Statewide goal that requires transportation fuel providers to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. EO S-1-07 was readopted and amended in 2015 to require a 20 percent reduction in carbon intensity by 2030, the most stringent requirement in the nation. The new requirement aligns with California's overall 2030 target of reducing climate changing emissions 40 percent below 1990 levels by 2030, which was set by Senate Bill 32 and signed by the governor in 2016.

## 2007 Senate Bill 97

Signed in August 2007, SB 97 acknowledges that climate change is an environmental issue that requires analysis in California Environmental Quality Act (CEQA) documents. In March 2010, the California Natural Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

## 2008 Senate Bill 375

SB 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the State's 18 major Metropolitan Planning Organizations (MPOs), including the Metropolitan Transportation Commission (MTC), to prepare a "sustainable communities' strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the MPO's Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035.

## 2009 California Green Building Code

The California Green Building Standards Code (CALGreen) is Part 11 of the California Building Standards Code or Title 24 and is the first Statewide "green" building code in the nation. The purpose of CALGreen is to improve public health, safety, and general welfare by enhancing the design and construction of buildings. Enhancements include reduced negative impact designs, positive environmental impact designs, and encouragement of sustainable construction practices. The first CALGreen Code was adopted in 2009 and has been updated in 2013, 2016, 2019, and 2022. The CALGreen Code will have subsequent, and continually more stringent, updates every three years.

## 2009 Senate Bill X7-7

In 2009, SB X7-7, also known as the Water Conservation Act, was signed, requiring all water suppliers to increase water use efficiency. This legislation sets an overall goal of reducing per capita urban water use by 20 percent by 2020.

## 2011 Senate Bill 2X

In 2011, SB 2X was signed, requiring California energy providers to buy (or generate) 33 percent of their electricity from renewable energy sources by 2020.

## 2012 Assembly Bill 341

AB 341 directed the California Department of Resources Recycling and Recovery (CalRecycle) to develop and adopt regulations for mandatory commercial recycling. As of July 2012, businesses are required to recycle, and jurisdictions must implement a program that includes education, outreach, and monitoring. AB 341 also set a Statewide goal of 75 percent waste diversion by the year 2020.

## 2014 Assembly Bill 32 Scoping Plan Update

In 2014, CARB approved the first update to the Scoping Plan. This update defines CARB's climate change priorities and sets the groundwork to reach the post-2020 targets set forth in EO S-3-05. The update highlights California's progress toward meeting the near-term 2020 GHG emissions reduction target, defined in the original Scoping Plan. It also evaluates how to align California's longer-term GHG reduction strategies with other Statewide policy priorities, such as water, waste, natural resources, clean energy, transportation, and land use.

## 2014 Assembly Bill 1826

AB 1826 was signed in 2014 to increase the recycling of organic material. GHG emissions produced by the decomposition of these materials in landfills were identified as a significant source of emissions contributing to climate change. Therefore, reducing organic waste and increasing composting and mulching are goals set out by the AB 32 Scoping Plan. AB 1826 specifically requires jurisdictions to establish organic waste recycling programs by 2016, and phases in mandatory commercial organic waste recycling over time.

## 2015 Senate Bill 350

SB 350, the Clean Energy and Pollution Reduction Act of 2015, has two objectives: to increase the procurement of electricity from renewable sources from 33 percent to 50 percent by 2030 and to double the energy efficiency of electricity and natural gas end users through energy efficiency and conservation.

## 2015 Executive Order B-30-15

In 2015, EO B-30-15 was signed, establishing an interim GHG emissions reduction target to reduce emissions to 40 percent below 1990 levels by 2030. The EO also calls for another update to the CARB Scoping Plan.

## 2016 Senate Bill 32

On September 8, 2016, the governor signed SB 32 into law, extending AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). The bill charges CARB to adopt the regulation so that the maximum technologically feasible emissions reductions are achieved in the most cost-effective way.

## 2016 Senate Bill 1383

Adopted in September 2016, SB 1383 requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels



- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

SB 1383 also requires CalRecycle, in consultation with CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills. The bill further requires 20% of edible food disposed of at the time to be recovered by 2025.

### 2017 Scoping Plan Update

On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 goal set by SB 32. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies, such as SB 350 and SB 1383. The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2014 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with Statewide per capita goals of six metric tons (MT) CO<sub>2</sub>e by 2030 and two MT CO<sub>2</sub>e by 2050. As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the State.

### 2018 Senate Bill 100

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the State's Renewables Portfolio Standard Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

### 2018 Executive Order B-55-18

Also, on September 10, 2018, the governor issued Executive Order B-55-18, which established a new Statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing Statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

### 2020 Advanced Clean Trucks Regulation

The Advanced Clean Trucks Regulation was approved on June 25, 2020. The regulation establishes a zero-emissions vehicle sales requirement for trucks or on-road vehicles over 8,500 lbs gross vehicle weight and set a one-time reporting requirement for large entities and fleets. Under the regulation, manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines are required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales. Additionally, the regulation established a one-time reporting requirement for large entities and fleets where fleet owners, with 50 or more trucks, are required to report about their existing fleet operations by March 15, 2021.

## 2022 Scoping Plan Update

In November 2022, CARB adopted the 2022 Scoping Plan, which provides a framework for achieving the 2045 carbon neutrality goal set forth by AB 1279. The 2022 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently approved legislation, such as AB 1279. The 2022 Scoping Plan includes discussion of the Natural and Working Lands sector as both an emissions source and carbon sink. The Plan centers equity in terms of State climate investments and climate mitigation strategies.

## 2022 Senate Bill 1020

Adopted in September 2022, SB 1020 advances the State's trajectory to 100 percent clean energy procurement by 2045 by creating clean energy targets of 90 percent by 2035 and 95 percent by 2040. SB 1020 builds upon SB 100, which accelerated the State's RPS and requires electricity providers to increase procurement from eligible renewable energy resources to 60 percent by 2030 and 100 percent by 2045.

## 2022 Assembly Bill 1279

Adopted in September 2022, AB 1279, codifies the Statewide carbon neutrality goal into a legally binding requirement for California to achieve carbon neutrality no later than 2045 and ensure 85 percent GHG emissions reduction under that goal. AB 1279 builds upon EO B-55-18 that originally established California's 2045 goal of carbon neutrality.

## 2022 Advanced Clean Cars II

The Advanced Clean Cars II regulation was adopted in August 2022. The regulation amends the Zero-emission Vehicle Regulation to require an increasing number of zero-emission vehicles, and relies on advanced vehicle technologies, including battery electric, hydrogen fuel cell electric and plug-in hybrid electric-vehicles, to meet air quality, climate change emissions standards, and Executive Order N-79-20, which requires that all new passenger vehicles sold in California be zero emissions by 2035. The regulation also amends standards for gasoline cars and heavier passenger trucks to continue to reduce smog-forming emissions.

## 2023 Advanced Clean Fleet

Approved by CARB on April 28, 2023, the Advanced Clean Fleets Regulation requires fleets, businesses, and public entities that own or direct the operation of medium- and heavy-duty vehicles in California to transition to 100 percent zero-emission capable utility fleets by 2045. Under the regulation, fleet operators may choose to purchase only ZEVs beginning in 2024 and remove internal combustion engine vehicles at the end of their useful life or fleet operators may elect to meet the State's ZEV milestone targets as a percentage of the total fleet starting with vehicle types that are most suitable for electrification.

# Appendix B

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GHG Inventory, Forecast, and Targets Report



# Humboldt Regional Climate Action Plan

## Greenhouse Gas Inventory, Forecast, and Targets Report

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# 1 Introduction

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To guide the development of the Humboldt County Regional Climate Action Plan, the County of Humboldt (Humboldt) developed a 2022 greenhouse gas (GHG) emissions inventory from regional community-wide activities within the incorporated and unincorporated jurisdictions within the County (Humboldt County Regional GHG Inventory). The Humboldt County Regional GHG Inventory estimates GHG emissions from residents and businesses within the region, including GHG emissions from municipal buildings and operations.

This document presents the data, methods, and results for the 2022 GHG emissions inventory, forecast, and targets for the County of Humboldt. The county, situated in the northern part of California, is a diverse and geographically varied region that offers a blend of natural landscapes including coastal areas, mountainous terrain, forests, rangeland, and agricultural crops. Humboldt is predominantly rural, characterized by a dispersed population. The incorporated city areas within Humboldt exhibit a considerable range, hosting populations varying from approximately 450 to 26,000 residents. The 2022 Humboldt County Regional GHG Inventory comprehensively covers the entire county, incorporating emissions data from both the incorporated cities and the unincorporated regions of Humboldt.

California (the State) has established statewide GHG emissions reduction goals to mitigate negative climate change impacts and transition the State to a low-carbon economy. In particular, the State has established goals to reduce statewide GHG emissions 40 percent below 1990 levels by 2030, as established by Senate Bill (SB) 32 and achieve net zero GHG emissions as soon as possible, but no later than 2045, as established by Assembly Bill (AB) 1279.<sup>1</sup> The California Air Resources Board (CARB) is the agency responsible for addressing these goals and developing strategies to achieve them. Many local jurisdictions are completing their own GHG inventories, forecasts, and CAPs to align with SB 32 and AB 1279.

Local governments play a fundamental role in reducing local GHG emissions and preparing for a more resilient future. Local government policies can influence high-emissions behavior and mitigate climate change effects.<sup>2</sup> To this end, Humboldt is developing a regional CAP for its incorporated and unincorporated communities to align with SB 32 and AB 1279 goals, increase resilience and climate change preparedness, maintain healthy air and water resources, and improve community health and the local economy across the county.

To support the development of regionally specific GHG reduction targets, the County has developed a back-cast of Humboldt's GHG emissions to 1990 to set emissions targets in alignment with the State's goals as well as a forecasted emission levels in 2030, 2035, 2040, and 2045. The emissions forecast provides an up-to-date projection of how GHG emissions are expected to change within the region in the future based on changes in population and employment, as well as existing State and federal legislation aimed at reducing GHG emissions through 2045. This document also presents provisional GHG targets and a gap analysis, which identifies the level of GHG emissions reduction

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<sup>1</sup> AB 1279 defines net zero GHG emissions as reducing GHG emissions at least 85 percent below 1990 levels. California also set a goal to reach 1990 levels by 2020, as established by AB 32. The 2020 goal set by AB 32 was achieved by the State in 2016. CARB. Frequently Asked Questions – California's 2022 Climate Scoping Plan. Accessed November 14, 2022 at: [https://ww2.arb.ca.gov/sites/default/files/2022-06/2022\\_Scoping\\_Plan\\_FAQ\\_6.21.22.pdf](https://ww2.arb.ca.gov/sites/default/files/2022-06/2022_Scoping_Plan_FAQ_6.21.22.pdf)

<sup>2</sup> CARB. California's 2017 Climate Change Scoping Plan. Accessed November 14, 2022 at: [https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf)

that will need to be achieved through local action to meet the GHG emissions reduction targets. The analysis in this document relies on the best available data and calculation methodologies currently available.

## 2 Background

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### 2.1 Legislative Context

The State has developed statewide legislative goals and programs to reduce GHG emissions. CARB has issued guidance concerning the establishment of GHG emissions reduction targets for local CAPs so communities can contribute their fair share towards the State's achievement of the GHG emissions reduction goals. In the first Climate Change Scoping Plan (referred to as the 2008 Scoping Plan), CARB encouraged local governments to adopt a reduction target for their own community emissions that parallels the State commitment to reduce GHG emissions.<sup>3</sup> In 2017, CARB published the 2017 Climate Change Scoping Plan (referred to as the 2017 Scoping Plan Update) outlining the strategies the State will employ to reach the additional State targets set by SB 32.<sup>4</sup>

On December 15, 2022, the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan Update) was published and includes recommendations for achieving the goal of carbon neutrality by 2045, which was codified by AB 1279.<sup>5</sup>

The most relevant climate-related legislation is summarized below.

- **Executive Order S-3-05**, signed in 2005, establishes statewide GHG emissions reduction goals to achieve long-term climate stabilization as follows: by 2020, reduce GHG emissions to 1990 levels and by 2050, reduce GHG emissions to 80 percent below 1990 levels. The 2050 goal was accelerated by the 2045 carbon neutral goal established by EO B-55-18 and AB 1279, as discussed below.
- **Assembly Bill 32**, known as the Global Warming Solutions Act of 2006, requires California's GHG emissions be reduced to 1990 levels by the year 2020 (approximately a 15 percent reduction from 2005 to 2008 levels). The 2008 Scoping Plan identifies mandatory and voluntary measures to achieve the statewide 2020 GHG emissions limit.
- **Senate Bill 32**, signed in 2016, establishes a statewide mid-term GHG emissions reduction goal of 40 percent below 1990 levels by 2030. CARB formally adopted the 2017 Scoping Plan Update in December 2017, laying the roadmap to achieve 2030 goals and giving guidance to achieve substantial progress toward the 2050 State goals. The 2022 Scoping Plan Update provides further guidance for reaching the State's SB 32 goal.
- **Executive Order B-55-18**, signed in 2018, expanded upon EO S-3-05 by creating a statewide GHG emissions goal of carbon neutrality by 2045. EO S-55-18 identifies CARB as the lead agency to develop a framework for implementation and progress tracking toward this goal in the 2022 Scoping Plan Update.
- **Assembly Bill 1279**, known as the California Climate Crisis Act, signed by the governor in 2022, codifies the GHG emissions reduction goals of achieving carbon neutrality by 2045 and expands upon this goal to define carbon neutrality as reducing direct emissions 85 percent below 1990

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<sup>3</sup> CARB. 2008. Climate Change Scoping Plan: A Framework for Change. Available at: [ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/document/adopted\\_scoping\\_plan.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/document/adopted_scoping_plan.pdf)

<sup>4</sup> CARB. 2017. California's 2017 Climate Change Scoping Plan. Available at: [https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf)

<sup>5</sup> CARB. 2022. 2022 Scoping Plan Documents. Available at: <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>

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levels and removing the remaining 15 percent of emissions via other technologies and practices, like carbon sequestration. The 2022 Scoping Plan Update adopted in December 2022 provides the pathway for reaching the State’s AB 1279 goal.

## 2.2 Climate Science Context

### Greenhouse Gases

GHGs are chemical compounds found in the earth’s atmosphere which affect climate conditions by trapping infrared radiation from sunlight which can serve to raise global temperatures. Emissions can occur from natural processes as well as human activities which release excess GHGs into the atmosphere. Table 1 presents the six internationally recognized GHGs commonly quantified in GHG inventories. The 2022 Humboldt County Regional GHG Inventory focuses on the three GHGs most relevant to Humboldt’s community: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). The other gases (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluorides) are emitted primarily in private sector manufacturing and electricity transmission and are therefore omitted from the inventory. This approach is consistent with typical community inventory approaches, as industrial emissions are typically outside of the communities’ control and influence. Table 1 also includes the global warming potentials (GWP) for each gas. The 2022 Humboldt County Regional GHG Inventory used 100-year GWPs for each gas that are consistent with the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report,<sup>6</sup> which were also used by the State in the latest State-wide GHG emissions inventory. The GWP refers to the ability of each gas to trap heat in the atmosphere. For example, one pound of methane gas has 25 times more heat capturing potential than one pound of carbon dioxide gas. GHG emissions are reported in metric tons of CO<sub>2</sub> equivalent (MT CO<sub>2</sub>e).

Table 1 2022 Inventory GHGs and GWPs

Greenhouse Gas	Primary Source	100-year GWP
Carbon dioxide (CO <sub>2</sub> )	Combustion	1
Methane (CH <sub>4</sub> )	Combustion, anaerobic decomposition of organic waste (e.g., in landfills, wastewater treatment plants)	25
Nitrous Oxide (N <sub>2</sub> O)	Leaking refrigerants and fire suppressants	298
Hydrofluorocarbons	Leaking refrigerants and fire suppressants	4 - 12,400
Perfluorocarbons	Aluminum production, semiconductor manufacturing, HVAC equipment manufacturing	6,630 - 11,100
Sulfur Hexafluoride (SH6)	Transmission and distribution of power	23,500

Source: Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Synthesis Report: Climate Change 2007. Available at: <https://www.ipcc.ch/assessment-report/ar4/>

<sup>6</sup> Intergovernmental Panel on Climate Change (IPCC). 2014. AR5 Synthesis Report: Climate Change 2014. Accessed January 5, 2023, at: <https://www.ipcc.ch/report/ar5/syr/>

## 2.3 Regional Context

Humboldt's landscape is predominantly rural, contributing to a unique demographic distribution. A significant portion of the population (53 percent) resides in unincorporated areas, emphasizing the county's expansive and varied geography. Incorporated city areas within Humboldt include Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad. At roughly 26,500 residents, Eureka is the largest urban area in Humboldt County followed by Arcata and Fortuna. Due to their smaller population size, the incorporated cities of Ferndale, Blue Lake, Rio Dell, and Trinidad are considered rural and share more characteristics with the unincorporated county.

Incorporated Humboldt cities occupy approximately 1 percent of the total land area of the county. The primary land uses in the Humboldt region include public ownership (e.g. national parks), tribal land, timberland, and agriculture, with timberland and agriculture accounting for the majority of rural land use.<sup>7</sup> The region has witnessed a significant downturn in industries like logging resulting in a shrinking job market, population sizes, and reduced economic capacity. With the decline of the once-dominant industrial sector, the major sources of employment shifted to commercial urban centers such as Eureka, Arcata, and Fortuna. However, the region is anticipated to experience an economic shift on the horizon with the shift in focus to building out green job industries, and other major developments such as the California Polytechnic State University student housing expansion in Arcata,<sup>8</sup> the Nordic Aquafarms project,<sup>9</sup> and the Humboldt Bay Offshore Wind Heavy Lift Multipurpose Marine Terminal project,<sup>10</sup> scheduled to occur in the foreseeable future.

The 2022 Humboldt County Regional GHG inventory serves as a reflection of emissions from land uses and activities which occur across the incorporated and unincorporated regions of the county. The region is characterized by a population that is largely dispersed with a few city centers, which is reflected in the emission trends observed in the transportation, waste, and energy sectors. Due to the dispersed nature of the communities, there are limited options for public and active transportation to accommodate the travel needs of the community, resulting in a high rate of single occupancy vehicle miles traveled regionally. With no open landfills in Humboldt County, all solid waste generated by the community must be transported far outside the region, further contributing to transportation related emissions. Additionally, Humboldt County is at the end of the utilities energy distribution line resulting in limited electricity capacity and resulting in many areas having no access to natural gas lines. Communities without access to natural gas rely on other non-utility fuels such as propane or wood to supply energy to their homes and businesses. Such characteristics of the region are reflected in the trends observed in the GHG inventory.

Sectors such as natural and working land uses pose significant opportunities for Humboldt County communities. The region boasts significant forests with great sequestration potential, contributing to the county's ability to offset carbon emissions. The dairy industry is also prominent, presenting both economic opportunities and environmental considerations. However, because the County and local jurisdictional governments have limited control of agricultural emissions and the state has not yet issued guidance on methodology for quantifying mitigation of emissions from natural working

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<sup>7</sup> <https://humboldt.gov/DocumentCenter/View/1351/Chapter-4-Building-Communities-PDF>

<sup>8</sup> [https://facilitymgmt.humboldt.edu/sites/default/files/web\\_cal\\_poly\\_humboldt\\_feir\\_student\\_housing\\_project\\_0.pdf](https://facilitymgmt.humboldt.edu/sites/default/files/web_cal_poly_humboldt_feir_student_housing_project_0.pdf)

<sup>9</sup> <https://humboldt.gov/3218/Nordic-Aquafarms-Project>

<sup>10</sup> Humboldt Bay Harbor, Recreation & Conservation District. 2024. Humboldt Bay Offshore Wind Heavy Lift Marine Terminal Project. Available at: <https://humboltdbay.org/humboldt-bay-offshore-wind-heavy-lift-marine-terminal-project-3>

lands or agricultural lands, agricultural emissions and carbon sequestration of natural working lands are not included in the 2022 Humboldt County Regional GHG inventory.

The 2022 Humboldt County Regional GHG inventory framework aligns with the broader CAP and supporting measures being developed by the County, emphasizing the importance of regional collaboration for collective action to achieve GHG emissions reductions. Addressing the identified challenges in transportation, energy distribution, and waste management as well as leveraging the regions natural lands potential to mitigate carbon emissions will likely play a crucial role in achieving the community's sustainability goals.

## 3 Regional GHG Emissions Inventory

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Conducting a GHG emissions inventory provides a comprehensive understanding of a communities' GHG emissions, and may be developed to serve the following purposes:

- Establishes perspective of GHG emissions conditions in the applicable inventory year.
- Provide an understanding of where the highest sources of GHG emissions in the community originate and where the greatest opportunities for emissions reduction exist.
- Create a GHG emissions baseline from which the community can establish a forecast, reduction targets, and track progress over time.

GHG inventories are developed by identifying the sources and sinks (sectors) for GHGs within the geographic or system boundary of interest (e.g., county), collecting activity data for each sector, and applying an emissions factor to determine the carbon dioxide equivalence (CO<sub>2</sub>e). There are often many potential sectors contributing to the communities' GHG emissions. However, only a select few sectors are typically considered the major contributors to a community GHG inventory. The GHG emissions sectors used for the 2022 Humboldt County Regional GHG Inventory are identified in Section 3.1 below.

### 3.1 Methodology

#### Protocol

The 2022 Humboldt County Regional GHG Inventory was developed in alignment with accounting protocols provided by the Local Governments for Sustainability International Council for Local Environmental Initiatives (ICLEI) as recommended by the Association of Environmental Professionals (AEP) and the California Office of Planning and Research (OPR).<sup>11</sup> ICLEI protocols are designed for local-scale accounting of GHG emissions that contribute to climate change and provide authoritative guidance to account for GHG emissions accurately and consistently. The ICLEI U.S. Community Protocol for Accounting and Reporting Greenhouse Gas Emissions Version 1.2 (Community Protocol) serves to guide the measurement and reporting of GHG emissions in a standardized way and is used by other jurisdictions to support their own inventory, forecast, and climate action planning efforts. The Community Protocol also includes steps to evaluate the relevance, completeness, consistency, transparency, and accuracy of data used in the GHG inventory.

GHG emissions were calculated by multiplying the activity data in each GHG emissions sector (e.g., transportation, energy, waste, water, and wastewater) by an associated emission factor. Activity data refer to the relevant measured or estimated level of GHG-generating activity (e.g., energy consumption, miles traveled). Emission factors are observation-based conversion factors used to equate activity data to generated GHG emissions. The 2022 Humboldt County Regional GHG Inventory leverages the latest available models and best available data in accordance with the Community Protocol. The inventory serves to provide a comprehensive understanding of the

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<sup>11</sup> Association of Environmental Professionals (AEP). 2013. AEP Climate Change Committee's "The California Supplement to the United States Community-Wide Greenhouse Gas (GHG) Emissions Protocol". Available at: [https://califaep.org/docs/California\\_Supplement\\_to\\_the\\_National\\_Protocol.pdf](https://califaep.org/docs/California_Supplement_to_the_National_Protocol.pdf)

community's current GHG emissions. The following sections contain further information on the inventory approach, calculation methodologies, data used, and results.

## Emissions Boundary

The 2022 Humboldt County Regional GHG Inventory covers the relevant emissions sources within the boundary of Humboldt County, including all incorporated and unincorporated areas. The inventory thereby reflects emissions sectors resulting from Humboldt community activities over which the local governments (i.e., County and partnering jurisdictions) have jurisdictional control and influence. Sectors where the local government has limited influence are generally excluded from the 2022 GHG Community Inventory as the local government does not have the power to develop measures to impact associated emissions. The emissions boundary set forth in the analysis herein aligns with general GHG inventory accounting principles as well as methods set forth by the Community Protocol.

## Scope

The Community Protocol recommends reporting GHG emissions from five basic reporting activities in a community inventory, which include:

- Use of electricity by the community
- Use of fuel in residential and commercial buildings
- On-road passenger and freight motor vehicle travel
- Use of energy in potable water and wastewater treatment and distribution
- Generation of solid waste by the community

The Community Protocol also provides recommendations for additional GHG emissions source reporting for activities that can be influenced by the accounting agency.<sup>12</sup> Based on reporting practices in California, it is recommended that GHG emissions from off-road equipment fuel combustion and wastewater treatment processes are also included in community GHG emissions inventories. GHG emissions sources can be categorized more generally into the following five activity sectors:

- Electricity
- Natural Gas
- Transportation
- Water and Wastewater
- Solid Waste

The 2022 Humboldt County Regional GHG Inventory assesses regional community generated GHG emissions in these five sectors, forming the foundation for emissions forecasts and targets. This includes electricity and natural gas consumption from industrial operations as most industrial facilities in the area are not subject to regulations under the State's Cap and Trade program which typically governs industrial emissions. While there are some industrial facilities which are subject to Cap and Trade, disaggregated data was not available to remove State regulated industrial facilities energy use from activity data. Furthermore, local jurisdictions are considered to have some influence over the energy use at industrial land uses through zoning and building codes and

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<sup>12</sup> i.e. local governments



therefore are included in the inventory. Emissions from industrial point source discharge have been excluded due to lack of local jurisdictional control over this emissions source.

Notably, water sector emissions, arising from electricity use in water delivery and treatment, are accounted for under electricity sector emissions as the entirety of water supplied to Humboldt community members occurs within Humboldt geographic and jurisdictional boundaries.<sup>13</sup> Given that all community water is supplied from within the Humboldt community, these emissions are accounted under electricity sector emissions to prevent double counting (see Section 3.2.1).

There are opportunities to analyze the GHG emissions impacts of other sectors such as natural and working lands. However, the state has not yet issued guidance on methodology for quantifying GHG emission impacts associated with natural working lands or agricultural lands and the available methodology for accounting of emissions activities in this sector can be difficult and resource intensive to quantify. Due to the lack of specific state guidance and methodology for inclusion of natural working lands GHG emission impact in a communitywide inventory, this sector has been excluded from the 2022 Humboldt County Regional GHG Inventory. More information regarding inclusions or exclusions particular to the five mandatory sectors is provided in Section 3.2 below.

## 3.2 2022 Community GHG Emissions Inventory

### 3.2.1 Energy

Energy: Residential and Nonresidential Electricity

Emissions from residential and nonresidential electricity were calculated using Community Protocol Equation BE.2.1. Nonresidential electricity includes consumption from commercial, industrial, and agricultural sources. Commercial electricity use is expected to comprise the majority of nonresidential consumption due to the decline in regional industrial operations.

To account for only electricity consumed in the built environment, equation 3.1 subtracts electricity consumed by electric vehicles (EVs) from total purchased electricity by removing passenger car EV electricity use from residential electricity consumption and commercial and bus EV electricity consumption from nonresidential consumption. Electricity use from passenger, commercial, and bus EVs are instead accounted for under the transportation sector of the inventory to provide a more thorough differentiation between building and transportation sector emissions. More information regarding EV energy use can be found in Section 3.2.2. Equation 3.1 and Table 2 provide the equation, associated parameters, and data sources used to quantify GHG emissions associated with community electricity consumption.

#### EQUATION 3.1

##### BE.2.1 RESIDENTIAL/NONRESIDENTIAL ELECTRICITY SECTOR EMISSIONS

$$CO_2e_{electricity,j} = \sum_i (Elec_{i,j} - EV_{i,j}) \times EF_{elec,i,j} \quad 3.1$$

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<sup>13</sup> Water sector operation information is based on feedback provided by the County and water districts which supply water to the Humboldt community.

Table 2 Emissions Parameters and Data Sources – Community Electricity Use

Definition	Parameter	Value	Unit	Data Source
Annual GHG emissions from electricity consumption per building type	$CO_2e_{electricity,j}$	See Table 5	MT CO <sub>2</sub> e/year	Calculated
Electricity consumption per building type per energy provider	$Elec_{i,j}$	See Table 4	kWh/year	i. PG&E Community Inventory Reports <sup>1</sup> ii. RCEA <sup>2</sup> iii. CEC <sup>3</sup>
Attributed electric vehicle electricity consumption	$EV_{i,j}$	See Table 4	kWh/year	EMFAC2021 <sup>4</sup>
Electricity emission factor based on energy provider	$EF_{elec,i,j}$	See Table 5	MT CO <sub>2</sub> e/kWh	i. PG&E Community Inventory Reports ii. EPA eGRID <sup>5</sup> iii. RCEA Power Content Label <sup>6</sup>
Energy Providers	$i$	PG&E RCEA	Categorical	–
Building type	$j$	Residential Nonresidential <sup>7</sup>	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; kWh = kilowatt hour

1. Pacific Gas and Electricity (PG&E) Community Inventory Reports provided by each jurisdiction in Humboldt County via SharePoint on December 21, 2023. Information regarding PG&E Community Inventory Reports is available at: <https://pge-energydatarequest.com/>
2. Redwood Coast Energy Authority (RCEA) county-wide electricity consumption data provided by RCEA via email on March 21, 2024.
3. California Energy Commission (CEC). 2023. California Energy Consumption Database. Available at: <https://ecdms.energy.ca.gov/Default.aspx>
4. California Air and Resources Board (CARB). 2023. Emission FACTor (EMFAC2021 v1.0.1) Model. Available at: <https://arb.ca.gov/emfac/emissions-inventory/5e0cb7d6006cc10661f4b3ffb9c120a486d46ea6>
5. Environmental Protection Agency (EPA). 2024. Frequently Asked Questions about eGRID. Available at: <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid-questions-and-answers>
6. Redwood Coast Energy Authority (RCEA). 2024. Power Resources, 2022 Power Content Label. Available at: <https://redwoodenergy.org/power-resources/>
7. Nonresidential includes kWh consumption includes commercial, industrial, and agricultural sources.

Electricity consumed by residents and businesses in Humboldt County is supplied by Pacific Gas and Electric (PG&E), Redwood Coast Energy Authority (RCEA), and direct access (e.g., primarily rooftop solar panels). According to RCEA, in 2022 there was 19.4 MW of customer rooftop solar in the region, supplying an estimated 31,150 MWh of electricity generation onsite. RCEA provided county-wide electricity sales data broken out by residential and nonresidential uses. RCEA provided data excluded direct access on-site solar generation. PG&E electricity consumption data was received from each jurisdiction within Humboldt County boundaries via the PG&E Community Inventory Reports which differentiates between residential, commercial, industrial, agricultural, and direct access use categories. To determine the quantity of county-wide electricity received from PG&E, the consumption data by use category was summed across all jurisdictions within Humboldt County boundaries. The direct access category reported by PG&E includes electricity provided by community choice aggregations, such as RCEA, and does not differentiate by customer type (i.e., residential or nonresidential).

Utility data reported by PG&E is subject to 15/15 Rule<sup>14</sup> reporting restrictions which can result in utility data being either fail-dropped from the report (i.e. excluded) or aggregated into another sector (e.g. combining commercial and industrial consumption). Agricultural and industrial electricity use did not pass the California Public Utilities Commission (CPUC) 15/15 Rule reporting restrictions and were excluded from the PG&E Community Inventory Report. PG&E provided commercial electricity 2022 data for Rio Dell, as well as 2022 residential and commercial electricity consumption data for Blue Lake, Ferndale, and Trinidad, all failed 15/15 Rule reporting restrictions and were also excluded. Due to 15/15 rule failures for PG&E data, the RCEA supplied electricity data appears to exceed the kWh of direct access reported by PG&E that encompasses RCEA supplied electricity. The significant number of fail-dropped sectors within the PG&E Community Inventory Report results in an under reporting of regional utility consumption data from PG&E

To establish a more accurate estimate of county-wide electricity use, PG&E provided electricity to these communities was estimated using California Energy Commission (CEC) county-wide data as the basis for total Humboldt electricity usage. CEC county-wide data is reported based on residential and nonresidential consumption, and includes all electricity end-uses which includes PG&E supplied electricity, RCEA supplied electricity, and direct access. To estimate PG&E total provided electricity, known RCEA residential and nonresidential electricity was deducted from CEC electricity data. This approach assumes that all remaining residential and nonresidential kWh consumption is sourced from PG&E. Though RCEA is expanding direct access solar options in the area, direct access was not disaggregated from the remaining residential and nonresidential data due to data limitations. This method provides a replicable, conservative estimation of GHG emissions associated with electricity use county-wide as well as a more complete accounting of regional electricity consumption, though is limited in reporting sector-based emissions as it cannot establish differentiation between commercial, industrial, and agricultural utility consumption in the nonresidential sector. Table 3 provides a summary of calculation methods and results of this estimation.

Table 3 15/15 Rule Failure Electricity Use Adjustment

Sector	CEC [kWh]	RCEA [kWh]	PG&E 15/15 Adjustment <sup>1</sup> [kWh]
Residential	355,284,200	300,405,000	54,879,200
Nonresidential	419,005,700	297,940,000	121,065,700

Notes: kWh = kilowatt hour;

1. PG&E residential kWh is estimated by deducting RCEA residential kWh from CEC residential electricity data. PG&E nonresidential electricity use is determined by deducting RCEA nonresidential kWh from CEC nonresidential data.

Table 4 below provides resulting electricity activity data by utility provider, allocated EV electricity use data, and subsequent building activity data used to determine GHG emissions for the community's electricity consumption in the built environment.

<sup>14</sup> The 15/15 Rule is a policy put in place by the California Public Utilities Commission which protects the privacy of energy users. Aggregated energy information must have more than 15 customers, with no one customer representing 15 percent of the aggregated energy consumption.

Table 4 Community Residential and Nonresidential Electricity Activity Data Adjustment

Sector	Provider	Provided Activity Data [kWh]	Attributed EV <sup>1</sup> [kWh]	Building Activity Data [kWh]
Residential	PG&E	54,879,200	2,579,824	52,299,376
	RCEA	300,405,000	14,121,779	286,283,221
Nonresidential <sup>2</sup>	PG&E	121,065,700	2,649	121,063,051
	RCEA	297,940,000	6,519	297,933,481

Notes: kWh = kilowatt hour; MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; EV = electric vehicles

1. Attributed EV allocates electric vehicle kWh consumption to each provider based on the vehicle type, electricity sector, and proportion of electricity provided by each provider per sector. EV kWh usage from passenger vehicles is removed from residential electricity, while commercial and bus EV kWh usage is removed from nonresidential electricity.
2. Nonresidential includes kWh consumption from commercial, industrial, and agricultural sources.

Resulting activity data, emissions factors, and GHG emissions per building type and provider is summarized in Table 5.

Table 5 Community Residential and Nonresidential Electricity GHG Emissions Calculations

Sector	Provider	Building Activity Data [kWh]	Emission Factor [MT CO <sub>2</sub> e/kWh]	GHG Emissions [MT CO <sub>2</sub> e]
Residential	PG&E <sup>1</sup>	52,299,376	0.0000263	1,376
	RCEA	286,283,221	0.0000220	6,293
Nonresidential	PG&E <sup>1</sup>	121,063,051	0.0000263	3,186
	RCEA	297,933,481	0.0000220	6,549

Notes: kWh = kilowatt hour; MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

1. PG&E emissions factor only reports carbon dioxide emissions associated with production. To estimate CO<sub>2</sub>e emissions, average CAMX grid CH<sub>4</sub> and N<sub>2</sub>O emissions reported by eGRID were incorporated into the PG&E CO<sub>2</sub> emissions factor (See Table 2).

## Energy: Electricity Transmission and Distribution Losses

Electricity Transmission and Distribution (T&D) losses arise from electricity lost during delivery to the buildings and associated end-uses in the community. Electricity T&D losses occur in the electricity transmission and distribution system and are therefore upstream of the delivery endpoints located within the communities' geographical boundary. This means this electricity is lost before it is counted. However, T&D losses are estimated and included in the 2022 Humboldt County Regional GHG Inventory as they are associated with energy usage by communities in Humboldt County and thereby directly impacted by the community's electricity consumption. Additionally, emissions from T&D losses are recommended for inclusions in community GHG inventories by the Community Protocol. Equation 3.2 and Table 6 provide the calculation method, associated parameters, and data sources used to quantify GHG emissions associated with community T&D losses from electricity consumption. T&D losses associated with EV electricity use are considered negligible and therefore are included in the quantification of residential and nonresidential building electricity T&D.

EQUATION 3.2

BE.4 ELECTRICITY T&D LOSS SECTOR EMISSIONS

$$CO_2e_{T\&D,j} = \sum_i Elec_{i,j} \times L_{T\&D} \times EF_{elec,i,j} \quad 3.2$$

Table 6 Emissions Parameters and Data Sources – Community Electricity T&D Loss

Definition	Parameter	Value	Unit	Data Source
Annual GHG emissions from transmission and distribution losses per building type	$CO_2e_{T\&D,i}$	See Table 7	MT CO <sub>2</sub> e/year	Calculated
Electricity consumption per energy provider and building type	$Elec_{i,j}$	See Table 7	kWh/year	i. PG&E Community Inventory Reports <sup>1</sup> ii. RCEA <sup>2</sup> iii. CEC <sup>3</sup>
Electricity emissions factor per energy provider and building type	$EF_{elec,i,j}$	See Table 7	MT CO <sub>2</sub> e/kWh	i. PG&E Community Inventory Reports ii. EPA eGRID <sup>4</sup> iii. RCEA Power Content Label <sup>5</sup>
Electricity loss factor	$L_{T\&D}$	5.10%	Percent	EPA eGRID
Energy Providers	$i$	PG&E RCEA	Categorical	–
Building type	$j$	Residential Nonresidential <sup>6</sup>	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; kWh = kilowatt hour

1. Pacific Gas and Electricity (PG&E) Community Inventory Reports provided by the County via SharePoint on December 21, 2023. Information regarding PG&E Community Inventory Reports is available at: <https://PG&E-energydatarequest.com/>
2. Redwood Coast Energy Authority (RCEA) county-wide electricity consumption data provided by the County via SharePoint on January 3, 2024.
3. California Energy Commission (CEC). 2023. California Energy Consumption Database. Available at: <https://ecdms.energy.ca.gov/Default.aspx>
4. Environmental Protection Agency (EPA). 2022. Emissions & Generation Resource Integrated Database (eGRID) Data Explorer. Available at: <https://www.epa.gov/egrid/data-explorer>
5. Redwood Coast Energy Authority (RCEA). 2024. Power Resources, 2022 Power Content Label. Available at: <https://redwoodenergy.org/power-resources/>
6. Nonresidential includes kWh consumption from commercial, industrial, and agricultural sources.

The activity data, emissions factors, and GHG emissions associated with electricity T&D losses is summarized in Table 5 per building type and provider.

Table 7 Community Electricity T&D Loss GHG Emissions Calculations

Sector	Provider	Activity Data [kWh]	T&D Losses [kWh] <sup>1</sup>	Emission Factor [MT CO <sub>2</sub> e/kWh]	GHG Emissions [MT CO <sub>2</sub> e]
Residential	PG&E	54,879,200	2,798,839	0.0000263	74
	RCEA	300,405,000	15,320,655	0.0000220	337
Nonresidential	PG&E	121,065,700	6,174,351	0.0000263	162

Sector	Provider	Activity Data [kWh]	T&D Losses [kWh] <sup>1</sup>	Emission Factor [MT CO <sub>2</sub> e/kWh]	GHG Emissions [MT CO <sub>2</sub> e]
	RCEA	297,940,000	15,194,940	0.0000220	334

Notes: kWh = kilowatt hour; MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

1. T&D losses include the kWh consumption associated with EV charging.

## Energy: Residential and Nonresidential Natural Gas

GHG emissions from natural gas result from the stationary combustion of natural gas in both the residential and nonresidential building sectors. In alignment with building electricity emissions, nonresidential natural gas includes commercial, industrial, and agricultural sources of consumption, though the majority of consumption is attributable to commercial operations due to limited industrial presence in the Humboldt community. PG&E reported natural gas consumption for the community’s industrial and agricultural sources were excluded due to 15/15 rule reporting restrictions. Therefore, CEC reported county-wide natural gas data was utilized to adequately account for regional natural gas emissions from the Humboldt community. This methodology does not allow for differentiation between commercial, agricultural, and industrial utility consumption as CEC regional utility data only reports aggregated residential and nonresidential sources.

Emissions from residential and nonresidential natural gas use were calculated using Community Protocol Equation BE.1.1. Though the majority of GHG emissions result from the combustion of natural gas, not all the natural gas purchased is combusted. Natural gas that leaks from pipes and processing plants has a larger GHG impact compared to combusted natural gas due to the higher global warming potential of methane. Some natural gas also leaks from fittings and appliances within a building, after the natural gas meter which is used to quantify total gas usage. Therefore, Community Protocol has been adjusted to remove this small percentage of metered natural gas from the combustion calculation, and instead count it as leakage. More information regarding emissions associated with natural gas leaks can be found under “Energy: Natural Gas Methane Leaks” subsection below. Equation 3.3 and Table 8 provide the equation used, associated parameters, and data sources used to quantify GHG emissions associated with community natural gas consumption in residential and nonresidential buildings.

### EQUATION 3.3

#### BE.1.1 RESIDENTIAL/NONRESIDENTIAL NATURAL GAS SECTOR EMISSIONS

$$CO_2e_{NatGas,i} = (Fuel_{NG,i} - [1 - L_{enduse}]) \times [(EF_{NG,CO_2} \times GWP_{CO_2}) + (EF_{NG,CH_4} \times GWP_{CH_4}) + (EF_{NG,N_2O} \times GWP_{N_2O})] \times 10^{-1} \times 10^{-3} \quad 3.3$$

Table 8 Emissions Parameters and Data Sources – Community Natural Gas Use

Definition	Parameter	Value	Unit	Data Source
Annual GHG emissions from stationary combustion of natural gas per building type	$CO_2e_{NatGas,i}$	See Table 9	MT CO <sub>2</sub> e/year	Calculated
Natural gas consumed per building type	$Fuel_{NG,i}$	See Table 9	therms/year	CEC <sup>1</sup>

Definition	Parameter	Value	Unit	Data Source
Percent natural gas lost during consumer end-use	$L_{enduse}$	0.50%	Percent	Environmental Defense Fund <sup>2</sup>
Carbon dioxide emission factor for natural gas combustion	$EF_{NG,CO_2}$	53.06	kg CO <sub>2</sub> /mmBTU natural gas	EPA Emission Factors Hub <sup>3</sup>
Methane emission factor for natural gas combustion	$EF_{NG,CH_4}$	0.001	kg CH <sub>4</sub> /mmBTU natural gas	EPA Emission Factors Hub
Nitrous oxide emission factor for natural gas combustion	$EF_{NG,N_2O}$	0.0001	kg N <sub>2</sub> O/mmBTU natural gas	EPA Emission Factors Hub
Global warming potential of carbon dioxide	$GWP_{CO_2}$	See Table 1	–	IPCC Fourth Assessment Report <sup>4</sup>
Global warming potential of methane	$GWP_{CH_4}$	See Table 1	–	IPCC Fourth Assessment Report
Global warming potential of nitrous oxide	$GWP_{N_2O}$	See Table 1	–	IPCC Fourth Assessment Report
Conversion factor	$10^{-1}$	0.1	mmBTU/therm	–
Conversion factor	$10^{-3}$	0.001	MT/kg	–
Building type (i.e. residential or nonresidential)	$i$	Residential Nonresidential <sup>5</sup>	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; therms = thermal unit; mmBTU = metric million British thermal unit; kg = kilograms

1. California Energy Commission (CEC). 2023. California Energy Consumption Database. Available at: <https://ecdms.energy.ca.gov/Default.aspx>
2. Environmental Defense Fund USER GUIDE FOR NATURAL GAS LEAKAGE RATE MODELING TOOL. Available at: <https://www.edf.org/sites/default/files/US-Natural-Gas-Leakage-Model-User-Guide.pdf>
3. Environmental Protection Agency (EPA). 2022. GHG Emission Factors Hub (April, 2022). Available at: <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>
4. Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Synthesis Report: Climate Change 2007. Available at: <https://www.ipcc.ch/assessment-report/ar4/>
5. Nonresidential includes natural gas use from commercial, industrial, and agricultural sources.

The total natural gas consumption, combusted natural gas activity data, emissions factors, and GHG emissions associated with community natural gas use is summarized in Table 9 per building type and provider.

Table 9 Community Residential and Nonresidential Natural Gas GHG Emissions Calculations

Sector	Provided Activity Data [therms]	End-use Leakage [therms]	Combustion Activity Data [therms]	Emissions Factor [MT CO <sub>2</sub> e/therm]	GHG Emissions [MT CO <sub>2</sub> e]
Residential	19,402,770	97,014	19,305,756	0.005311	102,542
Nonresidential	11,017,950	55,090	10,962,860	0.005311	58,229

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

## Energy: Natural Gas Methane Leaks

Natural gas methane leaks occur during delivery to the buildings and during associated end-uses in the community. Gas methane leaks from delivery occur in the pipeline distribution system and are therefore upstream of the delivery endpoints located in Humboldt and not reflected in the reported total natural gas purchased. While natural gas pipeline distribution leakage is technically outside of a local government’s jurisdictional boundaries, the leakage is directly impacted by natural gas consumption in the community. As such, it is more holistic to include leakage as an emissions sector and is therefore included in the 2022 Humboldt County Regional GHG Inventory.

The Community Protocol does not provide a specific calculation methodology for determining GHG emissions from natural gas leakage. Therefore, emissions from natural gas leaks were calculated using Equation 3.4 which estimates emissions in alignment with energy calculation principles set forth by the Community Protocol and the guidance provided under Community Protocol Section BE.5 Upstream Emissions from Energy Use. Table 10 shows the parameters and data sources associated with Equation 3.4 which were used to quantify GHG emissions from natural gas distribution and end-use leakage.

### EQUATION 3.4

#### NATURAL GAS LEAKAGE SECTOR EMISSIONS

$$CO_2e_{leak,i} = Fuel_{NG,i} \times EF_{NG\ leak} \times (L_{enduse} + L_{dist}) \quad 3.4$$

Table 10 Emissions Parameters and Data Sources – Community Natural Gas Leaks

Definition	Parameter	Value	Unit	Data Source
Annual GHG emissions from natural gas distribution leakage per building type	$CO_2e_{leak,i}$	See Table 11	MT CO <sub>2</sub> e/year	Calculated
Natural gas consumed per building type	$Fuel_{NG,i}$	See Table 11	therms/year	CEC <sup>1</sup>
Emission factor for natural gas leakage	$EF_{NG\ leak}$	0.047381	MT CO <sub>2</sub> e/therm	Calculated <sup>2</sup>
Percent natural gas lost during distribution	$L_{dist}$	2.3%	Percent	Alvarez, Ramón et al. (2018) <sup>3</sup>
Percent natural gas lost during consumer end-use	$L_{enduse}$	0.5%	Percent	Environmental Defense Fund <sup>4</sup>
Building type (i.e. residential or nonresidential)	$i$	Residential Nonresidential <sup>5</sup>	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; therms = thermal unit

1. California Energy Commission (CEC). 2023. California Energy Consumption Database. Available at: <https://ecdms.energy.ca.gov/Default.aspx>

2. Emission factor is calculated using the following equation:

$$2.85 \frac{\text{cubic meters}}{\text{therm}} * 95\% \text{ methane content} * 0.7 \frac{\text{kg}}{\text{cubic meter}} * 25 \frac{\text{CO}_2\text{e}}{\text{CH}_4} * 0.001 \frac{\text{MT}}{\text{kg}}$$

3. Alvarez, Ramón et al. (2018). Assessment of methane emissions from the U.S. oil and gas supply chain. Science. 361. Accessed January 12, 2023 at: <https://www.science.org/doi/abs/10.1126/science.aar7204>

4. Environmental Defense Fund USER GUIDE FOR NATURAL GAS LEAKAGE RATE MODELING TOOL. Accessed January 12, 2023 at: <https://www.edf.org/sites/default/files/US-Natural-Gas-Leakage-Model-User-Guide.pdf>

5. Nonresidential includes natural gas use from commercial, industrial, and agricultural sources.



The total natural gas use and resulting leakage activity data, emissions factors, and GHG emissions per building type is summarized in Table 11.

Table 11 Community Natural Gas Methane Leaks GHG Emissions Calculations

Natural Gas Sector	Provided Activity Data [therms]	Leakage Source	Methane Leakage [therms]	Emissions Factor [MT CO <sub>2</sub> e/therm]	GHG Emissions [MT CO <sub>2</sub> e]
Residential	19,402,770	Distribution	446,264	0.047381	25,741
		End-use	97,014	0.047381	
Nonresidential	11,017,950	Distribution	253,413	0.047381	14,617
		End-use	55,090	0.047381	

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

### Energy: Building Fuel Use

Though PG&E provides natural gas utility to the majority of Humboldt, capacity and infrastructure limitations prevent PG&E from supplying natural gas to the entirety of the community. Due to this limitation, many communities in Humboldt County, particularly the rural regions at the edge of PG&E service territory, rely on stationary fuel sources (e.g. propane, diesel, kerosene, wood, heating oil) instead of a central utility distribution system to supply or supplement building energy consumption. GHG emissions from these fuels result primarily from the stationary combustion in the residential building sector in Humboldt. Based on census data, a majority of homes relying on an alternative fuel source rather than natural gas, relied on propane and wood. Therefore, GHG emission calculations are based on propane and wood used in residential buildings. Emissions from residential fuel use were calculated using Community Protocol Equation BE.1.2. which uses estimated annual state-level fuel consumption and counts of household fuel use obtained from the U.S. Census to determine an average rate of fuel consumption per household in the given inventory year. The established rate is then applied to the number of households in the community which utilize a given fuel type (i.e. propane or wood) to determine regional consumption activity data. Equation 3.3 and Table 8 provide the equation used, associated parameters, and data sources used to quantify GHG emissions associated with residential building fuel consumption.

#### EQUATION 3.5

##### BE.1.1 RESIDENTIAL BUILDING FUEL USE EMISSIONS

$$CO_{2e_{fuel,i}} = \frac{Fuel_{state,i}}{Res_{state,i}} \times EF_i \times Res_{jurisdiction,i} \quad 3.5$$

Table 12 Emissions Parameters and Data Sources – Community Fuel Use

Definition	Parameter	Value	Unit	Data Source
Annual GHG emissions from stationary combustion of building fuel	$CO_{2e_{fuel,i}}$	See Table 13	MT CO <sub>2</sub> e/year	Calculated
Fuel consumed per fuel type in the State	$Fuel_{state,i}$	See Table 13	mmBtu/year	EIA SEDS <sup>1</sup>

Definition	Parameter	Value	Unit	Data Source
Number of residences in the State which use a given fuel type	$Res_{state,i}$	See Table 13	households	EIA RECS Survey <sup>2</sup>
Emissions factor per fuel type	$EF_i$	See Table 13	MT CO <sub>2</sub> e/mmBtu	EPA Emission Factors Hub <sup>3</sup>
Number of residences in the jurisdiction which use a given fuel type	$Res_{jurisdiction,i}$	See Table 13	households	U.S. Census Bureau <sup>4</sup>
Fuel type	$i$	Propane Wood	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; mmbTU = metric million British thermal unit;

1. U.S. Energy Information Administration (EIA). 2023. State Energy Data System (SEDS), State Energy Consumption Estimates Table C5 Residential Sector Energy Consumption Estimates, 2021. Available at: <https://www.eia.gov/state/seds/archive/seds2021.pdf>
2. U.S. Energy Information Administration (EIA). 2023. 2020 RECS Survey Data, Highlights for fuels used in U.S. homes by state, 2020. Available at: <https://www.eia.gov/consumption/residential/data/2020/index.php?view=state>
3. Environmental Protection Agency (EPA). 2022. GHG Emission Factors Hub (April, 2022). Available at: <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>
4. U.S. Census Bureau. 2022. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04 Selected Housing Characteristics. Available at: [https://data.census.gov/table/ACSDP5Y2022.DP04?q=DP04:SELECTED HOUSING CHARACTERISTICS&g=050XX00US06023\\_160XX00US0602476,0607162,0623042,0623910,0625296,0660900,0680448](https://data.census.gov/table/ACSDP5Y2022.DP04?q=DP04:SELECTED%20HOUSING%20CHARACTERISTICS&g=050XX00US06023_160XX00US0602476,0607162,0623042,0623910,0625296,0660900,0680448)

The data used to quantify residential building stationary fuel emissions from non-utility sources primarily utilized in Humboldt are summarized in Table 13 below.

Table 13 Community Building Fuel Use GHG Emissions Calculations

Fuel Type	State Consumption [mmBtu]	State Households [households]	Fuel Rate [mmBtu/household]	Emissions Factor [MT CO <sub>2</sub> e/mmBtu]	Jurisdiction Households [households]	GHG Emissions [MT CO <sub>2</sub> e]
Propane	24,200,000	630,000	38	0.0951	4,370	15,956
Wood	22,800,000	1,030,000	22	0.0631	9,104	12,721
<b>Total</b>						<b>28,677</b>

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; mmbTU = metric million British thermal unit

### 3.2.2 Transportation

Transportation: On-road

On-road vehicles in the community produce GHG emissions from the mobile combustion of fossil fuels (i.e., internal combustion engines) and up-stream from the production of electricity (i.e., electric vehicles). The Community Protocol recommends estimating GHG emissions from the on-road transportation sector using a regional travel demand model to acquire vehicle miles travelled (VMT) activity data for the community based on an origin-destination methodology, differentiated between passenger, commercial, and bus vehicle classes. However, the growth of big data<sup>15</sup> sources related to VMT activities presents an opportunity for more precise and reliable data collection on

<sup>15</sup> Big data refers to large and/or complex data sets which grow at increasing rates, and which cannot be handled by traditional data-processing software. These data sets typically provide greater statistical power in data processing.

VMT behaviors in the region. This inventory relies on county-wide 2022 VMT data provided by the traffic consultants Fehr & Peers. During Fehr & Peers review of the existing Humboldt County Travel Demand Model, it was deemed that the regional travel demand model was outdated and was not appropriate for establishing baseline VMT data for the region. Instead, Fehr & Peers developed 2022 baseline VMT data county-wide by leveraging data from StreetLight Data<sup>16</sup>. The VMT estimates were validated by Fehr & Peers using California Statewide Travel Demand Model data, and California Household Travel Survey data. StreetLight Data is a notable big data provider specializing in transportation information. StreetLight Data's Insight cloud-based software utilizes navigation-GPS and other location-based data derived from vehicles and location apps to provide a variety of traffic metrics such as annual average daily traffic (AADT) counts, average travel distances, and top origin-destination locations.<sup>17</sup> Therefore, the 2022 Humboldt County Regional GHG Inventory uses 2022 VMT baseline data sourced from Streetlight Data processed by Fehr & Peers to estimate transportation emissions. Equation 3.6 and Table 14 define the equations, parameters, and data sources used to estimate GHG emissions based on StreetLight Data passenger VMT activity data analyzed and validated by traffic consultant Fehr & Peers.<sup>18</sup>

EQUATION 3.6

PASSENGER ON-ROAD TRANSPORTATION COMBUSTION EMISSIONS

$$CO_2e_{onroad,pass} = \sum_i (R_{H,i} + V_{OH,i} + V_{HO,i} + V_{OW,i} + V_{WO,i}) \times N_{pass,i} \times 301 \times EF_{auto} \quad 3.6$$

Table 14 Emissions Parameters and Data Sources – Passenger On-road Transportation

Definition	Parameter	Value	Unit	Data Source
Total annual community passenger on-road GHG emissions per jurisdiction	$CO_2e_{Onroad,pass}$	See Table 20	MT CO <sub>2</sub> e/year	Calculated
Resident-based average daily trip VMT	$T_{H,i}$	See Table 15	miles/person/weekday	StreetLight Data <sup>1</sup>
Visitor average daily trip VMT from other location within regional boundaries to home	$V_{OH,i}$	See Table 15	miles/person/weekday	StreetLight Data
Visitor average daily trip VMT from home to other location within regional boundaries	$V_{HO,i}$	See Table 15	miles/person/weekday	StreetLight Data
Visitor average daily trip VMT from other location to work, either of which	$V_{OW,i}$	See Table 15	miles/person/weekday	StreetLight Data

<sup>16</sup> <https://www.streetlightdata.com/how-it-works/>

<sup>17</sup> <https://www.streetlightdata.com/streetlight-data-privacy-principles/>

<sup>18</sup> <https://www.fehrandpeers.com/>

Definition	Parameter	Value	Unit	Data Source
may occur within regional boundaries				
Visitor average daily trip VMT from work to other location, either of which may occur within regional boundaries	$V_{Wo,i}$	See Table 15	miles/person/weekday	StreetLight Data
Number of passenger vehicles registered to each jurisdiction	$N_{pass}$	See Table 15	vehicles	CEC <sup>2,3</sup>
Annualization factor	301	301	Annual VMT/weekday VMT	Caltrans PeMS <sup>4</sup>
Emissions factor for on-road vehicles per vehicle class	$EF_{auto,i}$	See Table 20	MT CO <sub>2</sub> e/mile	EMFAC2021 v1.0.1 <sup>5</sup>
Jurisdiction	$i$	Arcata Blue Lake Eureka Ferndale Fortuna Rio Dell Trinidad Uninc. Humboldt	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; VMT = vehicle miles travelled

1. StreetLight Data VMT activity data provided by Fehr & Peers via email on December 11, 2023.
2. California Energy Commission (CEC). 2024. Light-Duty Vehicle Population in California, 2022, Humboldt County. Available at: <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/light-duty-vehicle>
3. Number of vehicles rather than the number of residents in each jurisdiction was used to scale average daily VMT per person as a more realistic and conservative estimate of GHG emissions.
4. Caltrans PeMS provides online traffic volume measurements by which average weekday daily volume and total annual volume can be measured to determine annualization factors for scaling average weekday VMT. Fehr & Peers provided a range of Caltrans PeMS annualization factors ranging from 242-344 from which StreetLight Data could be scaled. The designated value (301) was chosen as a moderately conservative estimation of annual VMT in each jurisdiction.
5. California Air Resources Board (CARB). 2023. EMISSION FACTOR (EMFAC2021 v1.0.1) Model. Available at: <https://arb.ca.gov/emfac/emissions-inventory/5e0cb7d6006cc10661f4b3ffb9c120a486d46ea6>

A summary of total average daily VMT per person per day and the methodology to scale StreetLight Data passenger VMT provided by Fehr & Peers is provided in Table 15.

Table 15 Passenger VMT Annualization Calculations

Jurisdiction	AADT [miles/person/weekday]	Population PCT <sup>1</sup>	Vehicles <sup>2</sup>	Annual Passenger VMT <sup>3</sup> [miles]
Arcata	52	13.62%	14,843	232,279,893
Blue Lake	75	0.62%	673	15,255,444
Eureka	41	19.48%	21,235	261,431,302
Ferndale	80	1.15%	1,256	30,317,925
Fortuna	51	9.20%	10,031	154,212,684
Rio Dell	70	2.49%	2,711	57,491,252

Jurisdiction	AADT [miles/person/weekday]	Population PCT <sup>1</sup>	Vehicles <sup>2</sup>	Annual Passenger VMT <sup>3</sup> [miles]
Trinidad	98	0.33%	360	10,556,945
Uninc Humboldt Co	82	53.11%	57,898	1,427,445,820
<b>County Total</b>			<b>109,008</b>	<b>2,188,991,265</b>

Notes: AADT = annual average daily traffic; VMT = vehicle miles travelled

1. United States Census Bureau. 2022. ACS Demographic and Housing Estimates, American Community Survey, ACS 5-year Estimates Data Profiles, Table DP05. Available at: [https://data.census.gov/table/ACSDP5Y2022.DP05?q=population&g=050XX00US06023\\_160XX00US0602476,0607162,0623042,0623910,0625296,0660900,0680448](https://data.census.gov/table/ACSDP5Y2022.DP05?q=population&g=050XX00US06023_160XX00US0602476,0607162,0623042,0623910,0625296,0660900,0680448)
2. CEC reports light-duty vehicles registered on a county-wide basis and does not distinguish between jurisdictions. Total county-wide registered vehicles (109,008) are apportioned to each jurisdiction based on jurisdictional percent of total County population as determined based on U.S. Census Bureau data. For example, 109,008 county vehicles multiplied by 53.11 population percent results in 57,898 vehicles attributable to unincorporated Humboldt County.
3. Annual passenger VMT is quantified based on AADT, population proportion, number of registered vehicles in each jurisdiction, and an annualization factor of 301 as provided by Fehr & Peers. The annualization factor was derived from California's Caltrans PeMS online traffic volume database.

The Humboldt VMT assessment provided by Fehr & Peers did not include commercial or bus related activity data, therefore commercial and bus related data was estimated from Caltrans and National Transit Database data, respectively. Equation 3.7 and Table 16 define the equation, parameters, and data sources used to estimate GHG emissions in alignment with the Community Protocol and best available data which will allow the County to track regional progress over time.

### EQUATION 3.7

#### OTHER ON-ROAD TRANSPORTATION COMBUSTION EMISSIONS

$$CO_2e_{onroad,i} = T_{annual,i} \times EF_{auto,i} \quad 3.7$$

Table 16 Emissions Parameters and Data Sources – Other On-road Transportation

Definition	Parameter	Value	Unit	Data Source
Total annual community on-road GHG emissions per jurisdiction and vehicle class	$CO_2e_{onroad,i}$	See Table 20	MT CO <sub>2</sub> e/year	Calculated
Annual VMT per jurisdiction and vehicle class	$T_{annual,i}$	See Table 15	miles	i. Caltrans <sup>1</sup> ii. NTD <sup>2</sup>
Emissions factor for on-road vehicles per vehicle class	$EF_{auto,i}$	See Table 20	MT CO <sub>2</sub> e/mile	EMFAC2021 v1.0.1 <sup>5</sup>
Vehicle Class	$i$	Commercial Bus	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; VMT = vehicle miles travelled

1. California Department of Transportation (Caltrans). 2024. Traffic Census Program, Truck Traffic: Annual Average Daily Truck Traffic, 2021 AADT Truck. Available at: <https://dot.ca.gov/programs/traffic-operations/census>
2. National Transit Database (NTD). 2022. 2022 Annual Agency Profile – Humboldt Transit Authority (NTD ID 91036). Available at: <https://www.transit.dot.gov/ntd/transit-agency-profiles>
3. California Air Resources Board (CARB). 2023. EMISSION FACTOR (EMFAC2021 v1.0.1) Model. Available at: <https://arb.ca.gov/emfac/emissions-inventory/5e0cb7d6006cc10661f4b3ffb9c120a486d46eaf>

Bus VMT was determined based on data provided by the National Transit Database which reports activity data on a county-wide basis, while commercial VMT was estimated based on StreetLight Data passenger annual VMT results and the percent of commercial VMT activity as reported by the Caltrans Traffic Census Program. The quantification methodology and resulting annual VMT for commercial and bus activity data is summarized in Table 17 below.

Table 17 Commercial and Bus Activity Data Calculations

Jurisdiction	Annual Passenger VMT [miles]	Commercial PCT <sup>1</sup>	Annual Commercial VMT <sup>2</sup> [miles]	Annual Bus VMT <sup>3,4</sup> [miles]
Arcata	232,279,893	11.42%	29,946,222	–
Blue Lake	15,255,444	11.42%	1,966,778	–
Eureka	261,431,302	11.42%	33,704,510	–
Ferndale	30,317,925	11.42%	3,908,678	–
Fortuna	154,212,684	11.42%	19,881,563	–
Rio Dell	57,491,252	11.42%	7,411,945	–
Trinidad	10,556,945	11.42%	1,361,033	–
Uninc. Humboldt Co	1,427,445,820	11.42%	184,030,608	–
<b>County Total</b>	<b>2,188,991,265</b>	<b>11.42%</b>	<b>282,211,337</b>	<b>1,028,481</b>

Notes: AADT = annual average daily traffic; VMT = vehicle miles travelled; PCT = percentage

1. California Department of Transportation (Caltrans). 2024. Traffic Census Program, Truck Traffic: Annual Average Daily Truck Traffic, 2021 AADT Truck. Available at: <https://dot.ca.gov/programs/traffic-operations/census>
2. Annual commercial VMT is derived through a backward calculation process, utilizing the annual passenger VMT and the percentage of commercial VMT represented on Humboldt County roads as reported by Caltrans.
3. National Transit Database (NTD). 2022. 2022 Annual Agency Profile – Humboldt Transit Authority (NTD ID 91036). Available at: <https://www.transit.dot.gov/ntd/transit-agency-profiles>
4. Includes vehicle revenue miles data from public transit entities over which local governments within Humboldt County have control, including Humboldt Transit Authority, City of Eureka, and City of Arcata

In addition to mobile combustion emissions accounted under Community Protocol Equations TR.1.A and TR.2.B, GHG emissions from electric vehicles were included in the 2022 Humboldt County Regional GHG Inventory for more accurate accounting of on-road transportation trends. This was achieved through modifying Equation 3.6 to account for EV modeshare estimates obtained from EMFAC2021 based on total VMT. The equation, parameters, and data sources used to estimate GHG emissions attributable to on-road EV activity is provided in Equation 3.8 and Table 18 below.

### EQUATION 3.8

#### ON-ROAD TRANSPORTATION ELECTRIC VEHICLE EMISSIONS

$$CO_{2e_{onroad,EV,i}} = T_{annual,i} \times EV_{share,i} \times EPM_i \times EF_{elec,j} \quad 3.8$$

Table 18 Emissions Parameters and Data Sources – Community On-road Transportation EV

Definition	Parameter	Value	Unit	Data Source
Total annual community on-road EV GHG emissions per vehicle class	$CO_{2e_{Onroad,EV,i}}$	See Table 20	MT CO <sub>2</sub> e/year	Calculated

Definition	Parameter	Value	Unit	Data Source
Annual VMT per jurisdiction and vehicle class	$T_{annual,i}$	See Table 15 See Table 17	miles	i. StreetLight Data <sup>1</sup> ii. Caltrans <sup>2</sup> iii. NTD <sup>3</sup>
Percent share of VMT attributable to EVs	$EV_{share,i}$	See Table 19	%	EMFAC2021 v1.0.1 <sup>4</sup>
Average rate of electricity consumption per EV-mile per vehicle class	$EPM_i$	See Table 19	kWh/mile	EMFAC2021 v1.0.1
Weighted average electricity emissions factor per building type	$EF_{elec,j}$	See Table 19	MT CO <sub>2</sub> e/kWh	i. PG&E Community Inventory Reports <sup>5</sup> ii. EPA eGRID <sup>6</sup> iii. RCEA Power Content Label <sup>7</sup>
Vehicle class	$i$	Passenger Commercial Bus	Categorical	
Building type	$j$	Residential Nonresidential	Categorical	

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; EV = electric vehicles; VMT = vehicle miles travelled; kWh = kilowatt hour

1. StreetLight Data VMT activity data provided by Fehr & Peers via email on December 11, 2023.

2. California Department of Transportation (Caltrans). 2024. Traffic Census Program, Truck Traffic: Annual Average Daily Truck Traffic, 2021 AADT Truck. Available at: <https://dot.ca.gov/programs/traffic-operations/census>

3. National Transit Database (NTD). 2022. 2022 Annual Agency Profile. Available at: <https://www.transit.dot.gov/ntd/transit-agency-profiles>

4. California Air Resources Board (CARB). 2023. Emission Factor (EMFAC2021 v1.0.1) Model. Available at: <https://arb.ca.gov/emfac/emissions-inventory/5e0cb7d6006cc10661f4b3ffb9c120a486d46ea6>. Percent of EV share validated with CEC data for County.

5. Pacific Gas and Electricity (PG&E) Community Inventory Reports provided by the County via SharePoint on December 21, 2023. Information regarding PG&E Community Inventory Reports is available at: <https://pge-energydatarequest.com/>

6. Environmental Protection Agency (EPA). 2024. Frequently Asked Questions about eGRID. Available at: <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid-questions-and-answers>

7. Redwood Coast Energy Authority (RCEA). 2024. Power Resources, 2022 Power Content Label. Available at: <https://redwoodenergy.org/power-resources/>

Table 19 shows the VMT activity data for community vehicles per vehicle class as well as the EV share of VMT and EVMT used to determine EV activity data expressed as electricity consumption.

Table 19 Community On-road EV Activity Data Calculations

Vehicle Class	VMT Activity Data [miles]	EV Share [%]	EVMT [miles]	EPM [kWh/mile]	EV Activity Data [kWh]
Passenger	2,188,991,265	2.09%	45,749,917	0.37	16,701,602
Commercial	282,211,337	0.00%	0	0.00	0
Bus	1,028,481	0.51%	5,245	1.75	9,168

Notes: VMT = vehicle miles travelled; EV = electric vehicle; EPM = electricity per mile; EVMT = electric vehicle miles traveled; kWh = kilowatt hour

The activity data, emissions factors, and resulting GHG emissions from on-road transportation quantified in accordance with Equation 3.6 and Equation 3.8 is summarized in Table 20 below. It is important to highlight that the VMT emissions factors provided by EMFAC2021 encompass all

vehicle types, including EV VMT. However, the GHG emissions for EV activity are considered zero in this emissions factor and does not take into account regional electricity grid emissions. Consequently, applying the emission factor to total VMT data does not result in duplication of emissions associated with EVs.

Table 20 Community On-road Transportation GHG Emissions Calculations

Sector	Activity Data <sup>1</sup>		Emission Factor		GHG Emissions [MT CO <sub>2</sub> e]
Passenger VMT	2,188,991,265	VMT	0.0003610	MT CO <sub>2</sub> e/mile	790,226
Commercial VMT	282,211,337	VMT	0.0011290	MT CO <sub>2</sub> e/mile	318,617
Bus VMT	1,028,481	VMT	0.0014930	MT CO <sub>2</sub> e/mile	1,536
Passenger EVMT <sup>2</sup>	16,701,602	kWh	0.0000226	MT CO <sub>2</sub> e/kWh	378
Commercial EVMT <sup>3</sup>	0	kWh	0.0000226	MT CO <sub>2</sub> e/kWh	0
Bus EVMT <sup>3</sup>	9,168	kWh	0.0000237	MT CO <sub>2</sub> e/kWh	<1
<b>Total</b>					<b>1,110,756</b>

Notes: VMT = vehicle miles traveled; EVMT = electric vehicle miles traveled; kWh = kilowatt hour; MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

1. EV activity data does not include kWh associated with T&D losses as these emissions are considered negligible and are included under energy sector emissions.
2. Emissions factor for on-road passenger EV electricity use is weighted according to the portion of electricity supplied per provider in the residential electricity sector (see Table 5)
3. Emissions factor for on-road commercial and bus EV electricity use is weighted according to the portion of electricity supplied per provider in the commercial electricity sector (see Table 5)

### Transportation: Off-road

Off-road equipment and vehicles in the community generate GHG emissions from the mobile combustion of fossil fuels. Off-road fuel usage results from equipment operation for sectors such as agricultural, construction, lawn and garden, or recreational equipment. Community Protocol Equation TR.8 was used to quantify GHG emissions from off-road equipment fuel consumption and is shown under Equation 3.9 below. Table 21 lists the parameters, values, and data sources used to quantify emissions in accordance with the Community Protocol.

#### EQUATION 3.9

##### TR.8 OFF-ROAD EQUIPMENT SECTOR EMISSIONS

$$CO_{2e\ offroad,j} = EF_j \times \sum_i Fuel_{offroad,i,j} \times AF_i \quad 3.9$$



Table 21 Emissions Parameters and Data Sources – Community Off-Road Equipment

Definition	Parameter	Value	Unit	Data Source
Annual GHG emissions from offroad equipment	$CO_2e_{offroad,j}$	See Table 23	MT CO <sub>2</sub> e/year	Calculated
Annual fuel consumption in the jurisdiction per sector per fuel type	$Fuel_{offroad,i,j}$	See Table 23	Gallons/year	OFFROAD2021 <sup>1</sup>
Fuel attribution factor per equipment type	$AF_i$	See Table 22	Percent	–
Emission factor per fuel type	$EF_j$	See Table 23	MT CO <sub>2</sub> e/gallon	EPA Emission Factors Hub <sup>2</sup>
Equipment Type	$i$	See Table 22	Categorical	OFFROAD2021
Fuel type	$j$	Gasoline Diesel Natural Gas	Categorical	OFFROAD2021

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

1. California Air Resource Board (CARB). 2023. Mobile Source Emissions Inventory Off-road (OFFROAD2021). Available at: <https://arb.ca.gov/emfac/emissions-inventory/5e0cb7d6006cc10661f4b3ffb9c120a486d46ea6>
2. Environmental Protection Agency (EPA). 2022. GHG Emission Factors Hub. Available at: <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>

The OFFROAD2021 model used to determine off-road sector activity data reports gallons of fuel consumption per off-road vehicle sector on a county-wide basis. However, fuel consumption from certain off-road vehicle sectors may be considered outside of the local governments jurisdictional control and therefore should not be included in the 2022 Humboldt County Regional GHG Inventory. Identification of off-road vehicle sectors over which Humboldt’s incorporated and unincorporated jurisdictions have influence is identified in Table 22 below.

Table 22 Community Off-road Equipment Sector Attributions

Equipment Type	Attribution
Agricultural	Complete Regional Control
Airport Ground Support	Complete Regional Control
Cargo Handling Equipment	Excluded – Not Under Jurisdictional Control
Commercial Harbor Craft	Complete Regional Control
Construction and Mining	Complete Regional Control
Industrial	Complete Regional Control
Lawn and Garden	Complete Regional Control
Light Commercial	Complete Regional Control
Locomotive	Excluded – Other <sup>1</sup>
Ocean Going Vessel	Excluded – Not Under Regional Control
Oil Drilling	Excluded – Other <sup>1</sup>
Outboard Marine Tanks	Excluded – Other <sup>1</sup>
Pleasure Craft	Complete Regional Control
Portable Equipment	Complete Regional Control
Transport Refrigeration Unit	Complete Regional Control
Recreational	Complete Regional Control

Equipment Type	Attribution
Military Tactical Support	Excluded – Not Under Regional Control
Forestry	Complete Regional Control

Notes:

1. Outboard marine, oil drilling, and locomotive activities do not occur in Humboldt County according to OFFROAD2021 model

The attributed and aggregated activity data by fuel type, emission factors, and emissions results for the inventory’s off-road equipment sector are provided in Table 23.

Table 23 Community Off-road GHG Emissions Calculations

Fuel Type	Activity Data (gallons)	Emission Factor (MT CO <sub>2</sub> e/gallon) <sup>1</sup>	GHG Emissions (MT CO <sub>2</sub> e)
Diesel	9,101,978	0.0105021	95,590
Gasoline	2,975,135	0.0091151	27,119
Natural Gas	410,588	0.0058821	2,415
<b>TOTAL</b>			<b>125,124</b>

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; Values may not add due to rounding

1. Emission factors per fuel type represent a weighted average based on the emissions factor and fuel consumption per offroad equipment type as determined according to EPA’s Emissions Factor Hub available at: <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>

### 3.2.3 Solid Waste

GHG emissions associated with the waste sector result from the decomposition of waste at a landfill as well as landfill operation processes. Emissions arising from the decomposition of solid waste can occur at both operational and closed landfills within the community as the waste material naturally degrades over time. However, the Community Protocol indicates to exclude closed landfill emissions as the methodology accounts for current and future decomposition emissions resulting from community generated solid waste. Therefore, the closed Cummings Road Landfill<sup>19</sup> within the community’s boundaries is excluded from the 2022 Humboldt County Regional GHG Inventory to avoid double counting of emissions in alignment with the Community Protocol.

GHG emissions from community generated waste decomposition were calculated using Community Protocol Method SW.4. Equation 3.10 and Table 24 provide the calculation method, associated parameters, and data sources used to quantify GHG emissions in accordance with Community Protocol SW.4.

#### EQUATION 3.10

##### SW.4.1 SOLID WASTE FUGITIVE EMISSIONS

$$CO_2e_{waste,fugitive} = GWP_{CH_4} \times (1 - CE) \times (1 - OX) \times M \times \sum_i P_i \times EF_i \quad 3.10$$

<sup>19</sup> <https://www.hwma.net/cummings-road-landfill>

Table 24 Emissions Parameters and Data Sources – Community Solid Waste Fugitive Emissions

Definition	Parameter	Value	Unit	Data Source
Annual community generated waste GHG emissions	$CO_2e_{Waste,fugitive}$	36,353	MT CO <sub>2</sub> e/year	Calculated
Methane global warming potential	$GWP_{CH_4}$	See Table 1		IPCC Fourth Assessment Report <sup>1</sup>
Default LFG collection efficiency	$CE$	0.75	Fraction	ICLEI Community Protocol
Oxidation rate	$OX$	0.10	Fraction	ICLEI Community Protocol
Total mass of waste entering landfill	$M$	107,713	Wet short tons	CalRecycle <sup>2,3</sup>
Proportion of total waste material per material type	$P_i$	1	Fraction	–
Emission factor per material type <sup>4</sup>	$EF_i$	0.060	MT CH <sub>4</sub> /wet short ton	ICLEI Community Protocol
Material type	$i$	Multiple	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

1. Intergovernmental Panel on Climate Change (IPCC). 2007. AR4 Synthesis Report: Climate Change 2007. Available at: <https://www.ipcc.ch/assessment-report/ar4/>
2. California Department of Resources Recycling and Recovery (CalRecycle). 2022. RDRS Report 1: Overall Jurisdiction Tons for Disposal and Disposal Related Uses. Available at: <https://www2.calrecycle.ca.gov/RecyclingDisposalReporting/Reports/OverallJurisdictionTonsForDisposal>
3. Data pulled from CalRecycle includes waste ton information for the incorporated cities and unincorporated areas of Humboldt County.
4. For mixed municipal waste streams where the proportion of material type is unknown, ICLEI specifies a default value of 0.060 MT CH<sub>4</sub> per wet short ton may be used.

Landfill process emissions were quantified according to Equation SW.5 of the Community Protocol. Equation 3.11 and Table 25 provide the calculation method, associated parameters, and data sources used to quantify GHG emissions from landfill operations.

### EQUATION 3.11

#### SW.5 SOLID WASTE PROCESS EMISSIONS

$$CO_2e_{Waste,process} = M \times EF_p \quad 3.11$$

Table 25 Emissions Parameters and Data Sources – Community Solid Waste Process Emissions

Definition	Parameter	Value	Unit	Data Source
Annual landfill process GHG emissions	$CO_2e_{Waste,process}$	1,185	MT CO <sub>2</sub> e/year	Calculated
Total mass of solid waste that enters the landfill in the inventory year	$M$	107,713	Wet short tons/year	CalRecycle <sup>1,2</sup>
Emissions factor for landfill process emissions	$EF_p$	0.011	MT CO <sub>2</sub> e/wet short ton	ICLEI Community Protocol

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

Definition	Parameter	Value	Unit	Data Source
1. California Department of Resources Recycling and Recovery (CalRecycle). 2022. RDRS Report 1: Overall Jurisdiction Tons for Disposal and Disposal Related Uses. Available at: <a href="https://www2.calrecycle.ca.gov/RecyclingDisposalReporting/Reports/OverallJurisdictionTonsForDisposal">https://www2.calrecycle.ca.gov/RecyclingDisposalReporting/Reports/OverallJurisdictionTonsForDisposal</a>				
2. Data pulled from CalRecycle includes waste ton information for the incorporated cities and unincorporated areas of Humboldt County.				

### 3.2.4 Wastewater

Management of wastewater produces emissions through every stage of the process from collection to final use or discharge. Humboldt is serviced by several wastewater facilities which utilize a variety of processing methods to manage the community’s wastewater. Additionally, a large portion of the unincorporated County’s wastewater is processed using residential on-site septic tanks. Information regarding the population served by each wastewater facility was used to estimate GHG emissions in alignment with Community Protocol methodologies. Table 26 provides a summary of the wastewater facilities within Humboldt, the populations served by each wastewater facility, and the Community Protocol equations applied to estimate GHG emissions.

Table 26 Wastewater Facility Processes and Population Served

Jurisdiction	Wastewater Treatment Plant (WWTP)	Population Served <sup>1</sup>	Community Protocol EQ’s <sup>2</sup>
Arcata	Arcata WWTP	18,555	WW.1.(alt) - stationary combust WW.2.(alt) - stationary combust WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Blue Lake	City of Blue Lake Public Works Department	1,100	WW.6.(alt) - Lagoon WW.12.(alt) - Effluent (anaerobic, river)
Eureka	Elk River WWTP	44,000	WW.1.(alt) - stationary combust WW.2.(alt) - stationary combust WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, ocean)
Ferndale	City of Ferndale Public Works Department	638	WW.1.(alt) - stationary combust WW.2.(alt) - stationary combust WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Fortuna	City of Fortuna WWTP	12,500	WW.1.(alt) - stationary combust WW.2.(alt) - stationary combust WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Rio Dell	City of Rio Dell WWTP	3,300	WW.7 - Process N2O (w/ nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Trinidad	Residential	449	WW.11.(alt) - septic system
Uninc. Humboldt County	Fieldbrook Glendale CSD	1,204	WW.1.(alt) - stationary combust WW.2.(alt) - stationary combust WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)

Jurisdiction	Wastewater Treatment Plant (WWTP)	Population Served <sup>1</sup>	Community Protocol EQ's <sup>2</sup>
Uninc. Humboldt County	Humboldt CSD	19,500	WW.1.(alt) - stationary combust WW.2.(alt) - stationary combust WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Uninc. Humboldt County	Loleta CSD	828	WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Uninc. Humboldt County	Manila CSD	750	WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Uninc. Humboldt County	Miranda CSD	360	WW.11.(alt) - septic system
Uninc. Humboldt County	Redway CSD	1,400	WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Uninc. Humboldt County	RID	800	WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, ocean)
Uninc. Humboldt County	Palmer Creek CSD	320	WW.1.(alt) - stationary combust WW.2.(alt) - stationary combust WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Uninc. Humboldt County	Scotia CSD	875	WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Uninc. Humboldt County	McKinleyville CSD	14,000	WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Uninc. Humboldt County	Garberville CSD	1,400	WW.8 - Process N2O (w/o nit/denit) WW.12.(alt) - Effluent (aerobic, river)
Uninc. Humboldt County	Weott CSD	364	WW.11.(alt) - septic system
Uninc. Humboldt County	Residential <sup>3</sup>	14,238	WW.11.(alt) - septic system

Notes: EQ = equations; Uninc. = unincorporated

1. Population Served = the combined total number of employees and residents in Humboldt County
2. Population served and community protocol equations determined based on WWTP system descriptions provided to the County by each WWTP. The County provided the information via SharePoint between December 21, 2023 and January 29, 2024.
3. The population served by residential on-site septic tanks in the unincorporated county is estimated based on the differential of total population in Humboldt County and the total population served by an identified wastewater treatment process, including septic (e.g. Trinidad). This estimate assumes that the remaining population not included under a verified wastewater treatment process lies within the unincorporated County and is serviced by a septic system.

The set of methods used to quantify stationary combustion emissions is outlined in Equation 3.12 and Table 27 as well as Equation 3.13 and Table 28 below.

### EQUATION 3.12

WW.1.(ALT) WASTEWATER DIGESTER GAS STATIONARY COMBUSTION EMISSIONS (CH<sub>4</sub>)

$$CO_2e_{WW,Stat,CH_4,i} = (P_i \times \text{Digester Gas} \times f_{CH_4} \times BTU_{CH_4} \times 10^{-6} \times EF_{CH_4} \times 365.25 \times 10^{-3}) \times GWP_{CH_4} \quad 3.12$$

Table 27 Emissions Parameters and Data Sources – Community Wastewater Stationary Combustion (CH<sub>4</sub>)

Definition	Parameter	Value	Unit	Data Source
Total annual GHG emitted by devices designed to combust digester gas	$CO_2e_{WW,Stat,CH_4}$	See Table 35	MT CO <sub>2</sub> e/year	Calculated
Population served by WWTP with stationary combustion	$P_i$	78,598	People	See Table 26
Rate of digester gas volume production	<i>Digester Gas</i>	1.00	std ft <sup>3</sup> /person/day	ICLEI Community Protocol
Fraction of methane in digester gas	$f_{CH_4}$	0.65	Fraction	ICLEI Community Protocol
Default higher heating value of methane	$BTU_{CH_4}$	1,028	BTU/ft <sup>3</sup>	ICLEI Community Protocol
Conversion factor	$10^{-6}$	0.000001	mmBTU/BTU	ICLEI Community Protocol
Methane emissions factor	$EF_{CH_4}$	0.0032	kg CH <sub>4</sub> /mmBTU	ICLEI Community Protocol
Conversion factor	365.25	365.25	Days/year	ICLEI Community Protocol
Conversion factor	$10^{-3}$	0.001	MT/kg	ICLEI Community Protocol
Global warming potential of methane	$GWP_{CH_4}$	See Table 1	–	IPCC Fourth Assessment Report
Wastewater treatment plant (WWTP)	$i$	See Table 26	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; std ft<sup>3</sup> = standard cubic feet; BTU = British thermal unit; mmBTU = one million British thermal units; kg = kilograms

EQUATION 3.13

WW.2.(ALT) WASTEWATER DIGESTER GAS STATIONARY COMBUSTION EMISSIONS (N<sub>2</sub>O)

$$CO_2e_{WW,Stat,N_2O,i} = (P_i \times \text{Digester Gas} \times f_{CH_4} \times BTU_{CH_4} \times 10^{-6} \times EF_{N_2O} \times 365.25 \times 10^{-3}) \times GWP_{N_2O} \quad 3.13$$

Table 28 Emissions Parameters and Data Sources – Community Wastewater Stationary Combustion (N<sub>2</sub>O)

Definition	Parameter	Value	Unit	Data Source
Total annual GHG emitted by devices designed to combust digester gas	$CO_2e_{WW,Stat,N_2O}$	See Table 35	MT CO <sub>2</sub> e/year	Calculated
Population served by WWTP with stationary combustion	$P_i$	78,598	People	See Table 26
Rate of digester gas volume production	<i>Digester Gas</i>	1.00	std ft <sup>3</sup> /person/day	ICLEI Community Protocol
Fraction of methane in digester gas	$f_{CH_4}$	0.65	Fraction	ICLEI Community Protocol
Default higher heating value of methane	$BTU_{CH_4}$	1,028	BTU/ft <sup>3</sup>	ICLEI Community Protocol

Definition	Parameter	Value	Unit	Data Source
Conversion factor	$10^{-6}$	0.000001	mmBTU/BTU	
Nitrous Oxide emissions factor	$EF_{N2O}$	0.0006	kg N <sub>2</sub> O/mmBTU	ICLEI Community Protocol
Conversion factor	365.25	365.25	Days/year	ICLEI Community Protocol
Conversion factor	$10^{-3}$	0.001	MT/kg	ICLEI Community Protocol
Global warming potential of nitrous oxide	$GWP_{N2O}$	See Table 1	–	IPCC Fourth Assessment Report
Wastewater treatment plant (WWTP)	$i$	See Table 26	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; std ft<sup>3</sup> = standard cubic feet; BTU = British thermal unit; MMBtu = one million British thermal units; kg = kilograms;

Equation 3.14 shows the calculation method use to quantify emissions from wastewater treatment plants which utilize lagoon processing systems in accordance with Community Protocol WW.6.(alt). Table 29 show the parameter definitions, default factors, and data sources used.

#### EQUATION 3.14

#### WW.6.(ALT) METHANE EMISSIONS FROM LAGOONS

$$CO_2e_{WW,lagoon,i} = P_i \times F_{ind-com} \times BOD_5 \text{ load} \times (1 - F_p) \times B_0 \times MCF_a \times 365.25 \times 10^{-3} \times GWP_{CH_4} \quad 3.14$$

Table 29 Emissions Parameters and Data Sources – Community Wastewater Lagoons

Definition	Parameter	Value	Unit	Data Source
Total annual GHG emitted by lagoon system	$CO_2e_{WW,lagoon,i}$	See Table 35	MT CO <sub>2</sub> e/year	Calculated
Population served by lagoon system	$P_i$	1,100	People	See Table 26
Factor for insignificant industrial or commercial discharge	$F_{ind-com}$	1.00	–	ICLEI Community Protocol
Amount of BOD <sub>5</sub> treated per day	$BOD_5 \text{ load}$	0.09	kg BOD <sub>5</sub> /person/day	ICLEI Community Protocol
Fraction of BOD <sub>5</sub> removed in primary treatment	$F_p$	0.325	–	ICLEI Community Protocol
Maximum CH <sub>4</sub> producing capacity for domestic wastewater	$B_0$	0.60	kg CH <sub>4</sub> /kg BOD <sub>5</sub>	ICLEI Community Protocol
CH <sub>4</sub> correction factor for anaerobic systems	$MCF_a$	0.80	–	ICLEI Community Protocol
Conversion factor	365.25	365.25	Days/year	ICLEI Community Protocol
Conversion factor	$10^{-3}$	0.001	MT/kg	ICLEI Community Protocol
Global warming potential of CH <sub>4</sub>	$GWP_{CH_4}$	See Table 1	–	IPCC Fourth Assessment Report

Definition	Parameter	Value	Unit	Data Source
Wastewater treatment plant (WWTP)	<i>i</i>	See Table 26	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; BOD<sub>5</sub> = five-day biochemical oxygen demand; kg = kilograms;

Equation 3.15 shows the calculation method use to quantify process emissions with nitrification/denitrification in accordance with Community Protocol WW.7. Table 30 show the parameter definitions, default factors, and data sources used.

#### EQUATION 3.15

##### WW.7 CENTRALIZED WWTP W/ NITRIFICATION/DENITRIFICATION

$$CO_2e_{WW,nit/denit,i} = P_i \times F_{ind-com} \times EF_{nit/denit} \times 10^{-6} \times GWP_{N2O} \quad 3.15$$

Table 30 Emissions Parameters and Data Sources – Community Wastewater With Nit/Denit

Definition	Parameter	Value	Unit	Data Source
Total annual GHG emitted by WWTP processes	$CO_2e_{WW,nit/denit,i}$	See Table 35	MT CO <sub>2</sub> e/year	Calculated
Population served by the wastewater treatment process	$P_i$	3,300	People	See Table 26
Factor for insignificant industrial or commercial discharge	$F_{ind-com}$	1.00	–	ICLEI Community Protocol
Emissions factor for a WWTP without nitrification or denitrification	$EF_{nit/denit}$	7.00	g N <sub>2</sub> O/person/year	ICLEI Community Protocol
Conversion factor	$10^{-6}$	0.000001	mmBTU/BTU	ICLEI Community Protocol
Global warming potential of nitrous oxide	$GWP_{N2O}$	See Table 1	–	IPCC Fourth Assessment Report
Wastewater treatment plant (WWTP)	<i>i</i>	See Table 26	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; std ft<sup>3</sup> = standard cubic feet; BTU = British thermal unit; mmBTU = one million British thermal units; kg = kilograms

Equation 3.16 shows the calculation method use to quantify process emissions without nitrification/denitrification in accordance with Community Protocol WW.8. Table 31 show the parameter definitions, default factors, and data sources used.

#### EQUATION 3.16

##### WW.8 CENTRALIZED WWTP W/O NITRIFICATION/DENITRIFICATION

$$CO_2e_{WW,w/onit/denit,i} = P_i \times F_{ind-com} \times EF_{w/onit/denit} \times 10^{-6} \times GWP_{N2O} \quad 3.16$$



Table 31 Emissions Parameters and Data Sources – Community Wastewater Without Nit/Denit

Definition	Parameter	Value	Unit	Data Source
Total annual GHG emitted by WWTP processes	$CO_2e_{WW,w/o\ nit/denit,i}$	See Table 35	MT CO <sub>2</sub> e/year	Calculated
Population served by the wastewater treatment process	$P_i$	100,163	People	See Table 26
Factor for insignificant industrial or commercial discharge	$F_{ind-com}$	1.00	–	ICLEI Community Protocol
Emissions factor for a WWTP without nitrification or denitrification	$EF_{w/o\ nit/denit}$	3.20	g N <sub>2</sub> O/person/year	ICLEI Community Protocol
Conversion factor	$10^{-6}$	0.000001	MMBtu/BTU	ICLEI Community Protocol
Global warming potential of nitrous oxide	$GWP_{N2O}$	See Table 1	–	IPCC Fourth Assessment Report
Wastewater treatment plant (WWTP)	$i$	See Table 26	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; std ft<sup>3</sup> = standard cubic feet; BTU = British thermal unit; MMBtu = one million British thermal units; kg = kilograms;

Equation 3.17 shows the calculation method use to quantify emissions from septic tanks wastewater processing in accordance with Community Protocol WW.7. Table 32 show the parameter definitions, default factors, and data sources used.

EQUATION 3.17

WW.11.(ALT) FUGITIVE METHANE EMISSIONS FROM SEPTIC SYSTEMS

$$CO_2e_{WW,septic,i} = P_i \times BOD_5\ load \times B_0 \times MCF_5 \times 365.25 \times 10^{-3} \times GWP_{CH_4} \quad 3.17$$

Table 32 Emissions Parameters and Data Sources – Community Wastewater Septic

Definition	Parameter	Value	Unit	Data Source
Total annual GHG emitted by septic systems	$CO_2e_{WW,septic,i}$	See Table 35	MT CO <sub>2</sub> e/year	Calculated
Population served by the septic system	$P_i$	15,411	People	See Table 26
Amount of BOD <sub>5</sub> treated per day	$BOD_5\ load$	0.09	kg BOD <sub>5</sub> /person/day	ICLEI Community Protocol
Maximum CH <sub>4</sub> producing capacity for domestic wastewater	$B_0$	0.60	kg CH <sub>4</sub> /kg BOD <sub>5</sub>	ICLEI Community Protocol
CH <sub>4</sub> correction factor for septic tanks	$MCF_5$	0.22	–	ICLEI Community Protocol
Conversion factor	365.25	365.25	Days/year	ICLEI Community Protocol
Conversion factor	$10^{-3}$	0.001	MT/kg	ICLEI Community Protocol

Definition	Parameter	Value	Unit	Data Source
Global warming potential of nitrous oxide	$GWP_{CH_4}$	See Table 1	–	IPCC Fourth Assessment Report
Septic type	$i$	WWTP Residential	Categorical	See Table 26

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; BOD<sub>5</sub> = five-day biochemical oxygen demand ; kg = kilograms; MT = metric ton

Community Protocol Equation WW.12.(alt) was used to quantify GHG emissions associated with treated wastewater effluent discharge into natural water bodies. Equation 3.18 shows the calculation method used to quantify effluent emissions in accordance with the Community Protocol while Table 33 shows the parameter definitions, default factors, and data sources used.

### EQUATION 3.18

#### WW.12.(ALT) NITROUS OXIDE EMISSIONS FROM EFFLUENT DISCHARGE

$$\begin{aligned}
 CO_2e_{WW,effluent,i} &= P_i \times F_{ind-com} \\
 &\times (Total\ N\ Load - N\ Uptake_i \times BOD_5\ load) \times EF_{effluent,i} \\
 &\times \frac{44}{28} \times (1 - F_{plant,i}) \times 365.25 \times 10^{-3} \times GWP_{N_2O}
 \end{aligned}
 \tag{3.18}$$

Table 33 Emissions Parameters and Data Sources – Community Wastewater Effluent

Definition	Parameter	Value	Unit	Data Source
Total annual GHG emitted by WWTP processes	$CO_2e_{WW,effluent,i}$	See Table 34	MT CO <sub>2</sub> e/year	Calculated
Population	$P_i$	See Table 34	People	See Table 26
Factor for industrial or commercial discharge	$F_{ind-com}$	1.00	–	ICLEI Community Protocol
Average total nitrogen per day	$Total\ N\ Load$	0.026	kg N/person/day	ICLEI Community Protocol
Nitrogen uptake for cell growth per system type (aerobic vs anaerobic)	$N\ Uptake_i$	See Table 34	kg N/kg BOD <sub>5</sub>	ICLEI Community Protocol
Rate of BOD <sub>5</sub> produced	$BOD_5\ load$	0.09	kg BOD <sub>5</sub> /person/day	ICLEI Community Protocol
Emissions factor of discharge to water body type (river or ocean)	$EF_{effluent,i}$	See Table 34	kg N <sub>2</sub> O-N/kg sewage-N discharged	ICLEI Community Protocol
Molecular weight ratio of N <sub>2</sub> O to N <sub>2</sub>	$\frac{44}{28}$	1.57	Fraction	ICLEI Community Protocol
Fraction of nitrogen removed from the WWTP per system type (w/ or w/o nit/denit)	$F_{plant,i}$	See Table 34	Fraction	ICLEI Community Protocol
Conversion factor	365.25	365.25	Days/year	ICLEI Community Protocol

Definition	Parameter	Value	Unit	Data Source
Conversion factor	$10^{-3}$	0.001	MT/kg	ICLEI Community Protocol
Global warming potential of nitrous oxide	$GWP_{N2O}$	See Table 1	–	IPCC Fourth Assessment Report
Wastewater treatment plant (WWTP)	$i$	See Table 26	Categorical	–

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; std ft<sup>3</sup> = standard cubic feet; kg = kilograms; BOD<sub>5</sub> = five-day biochemical oxygen demand

The different effluent discharge conditions exhibited within Humboldt and associated Community default factors are listed in Table 34 along with resulting GHG emissions.

Table 34 Wastewater Effluent GHG Emissions

Effluent Conditions	WWTP N <sub>2</sub> O Processing	Population Served	Nitrogen Uptake	Discharge	Nitrogen Removal	MT N <sub>2</sub> O	MT CO <sub>2</sub> e
Aerobic/river	WW.8	72,844	0.0500	0.0050	0.0000	4.4946	1,339
Aerobic/ocean	WW.8	27,319	0.0500	0.0025	0.0000	0.8428	251
Aerobic/river	WW.7	3,300	0.0500	0.0050	0.7000	0.0611	18
Anaerobic/river	WW.6	1,100	0.0050	0.0050	0.0000	0.0807	24
<b>Total</b>							<b>1,631</b>

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; values may not sum due to rounding  
1. Population served (or service population) is the sum of population and employment

The resulting GHG emissions from the various wastewater treatment processes present within Humboldt is summarized in Table 35 below.

Table 35 Humboldt Wastewater Management GHG Emissions by Process

Process	Equation	Population Served	MT CO <sub>2</sub> e
Stationary Combustion	WW.1.(alt)	78,598	1.53
Stationary Combustion	WW.2.(alt)	78,598	3.60
Process N <sub>2</sub> O Emissions	WW.7	3,300	6.88
Process N <sub>2</sub> O Emissions	WW.8	100,163	95.52
Effluent Discharge Fugitive N <sub>2</sub> O	WW.12.(alt)	104,563	1,631.29
Lagoon System	WW.11.(alt)	1,100	292.89
Septic System	WW.6.(alt)	15,411	7,598.97
<b>Total</b>			<b>9,630.69</b>

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; values may not sum due to rounding  
1. Population served (or service population) is the sum of population and employment

### 3.3 2022 Community GHG Emissions Inventory Results

The inventory provides Humboldt with current GHG emissions estimates that follow the Community Protocol and current best practices for GHG accounting. The results of the 2022 Humboldt County

Regional GHG inventory encompassed incorporated and unincorporated regional emissions resulting from community activities in the energy, transportation, solid waste, and wastewater sectors, including residential, commercial, agricultural, and industrial subsectors. Of the total **1,531,167 MT CO<sub>2</sub>e** emitted county-wide, on-road transportation contributed the vast majority of emissions (73 percent) followed by building natural gas consumption (13 percent). Off-road equipment contributed 8 percent of total regional emissions, while solid waste, building electricity, and building fuel use contributed a relatively equal 2 percent. At less than 1 percent, wastewater process emissions resulted in the least contribution to the 2022 Humboldt County Regional GHG inventory total emissions. A summary of the 2022 Humboldt County Regional GHG inventory results are shown in Figure 2 and Figure 2 summarized in detail in Table 36.

Figure 1 Updated 2022 Humboldt County Regional GHG Inventory by Sector

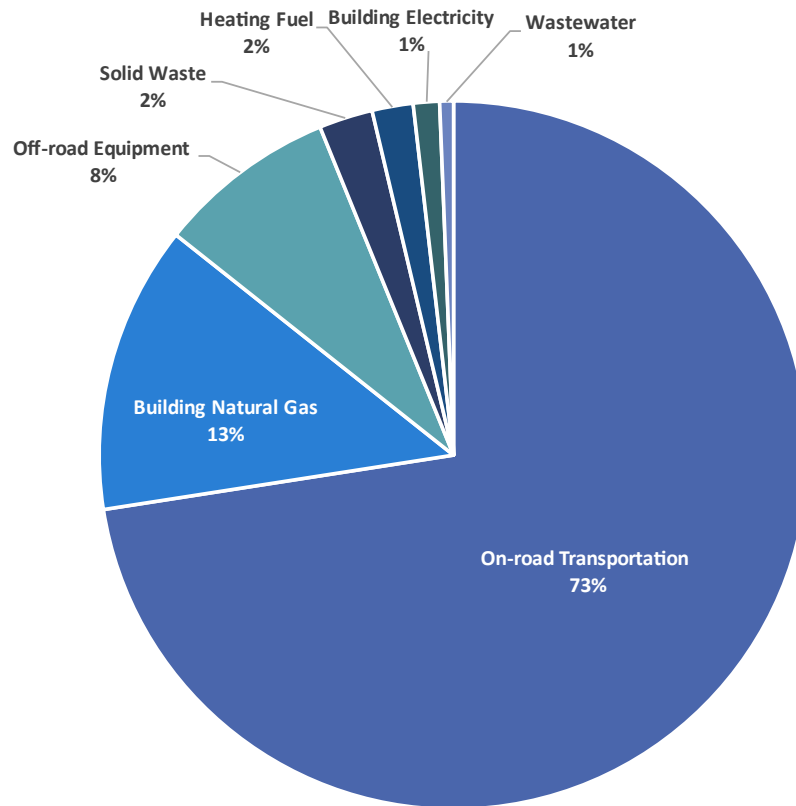


Figure 2 Updated 2022 Humboldt County Regional GHG Inventory by Sub-Sector

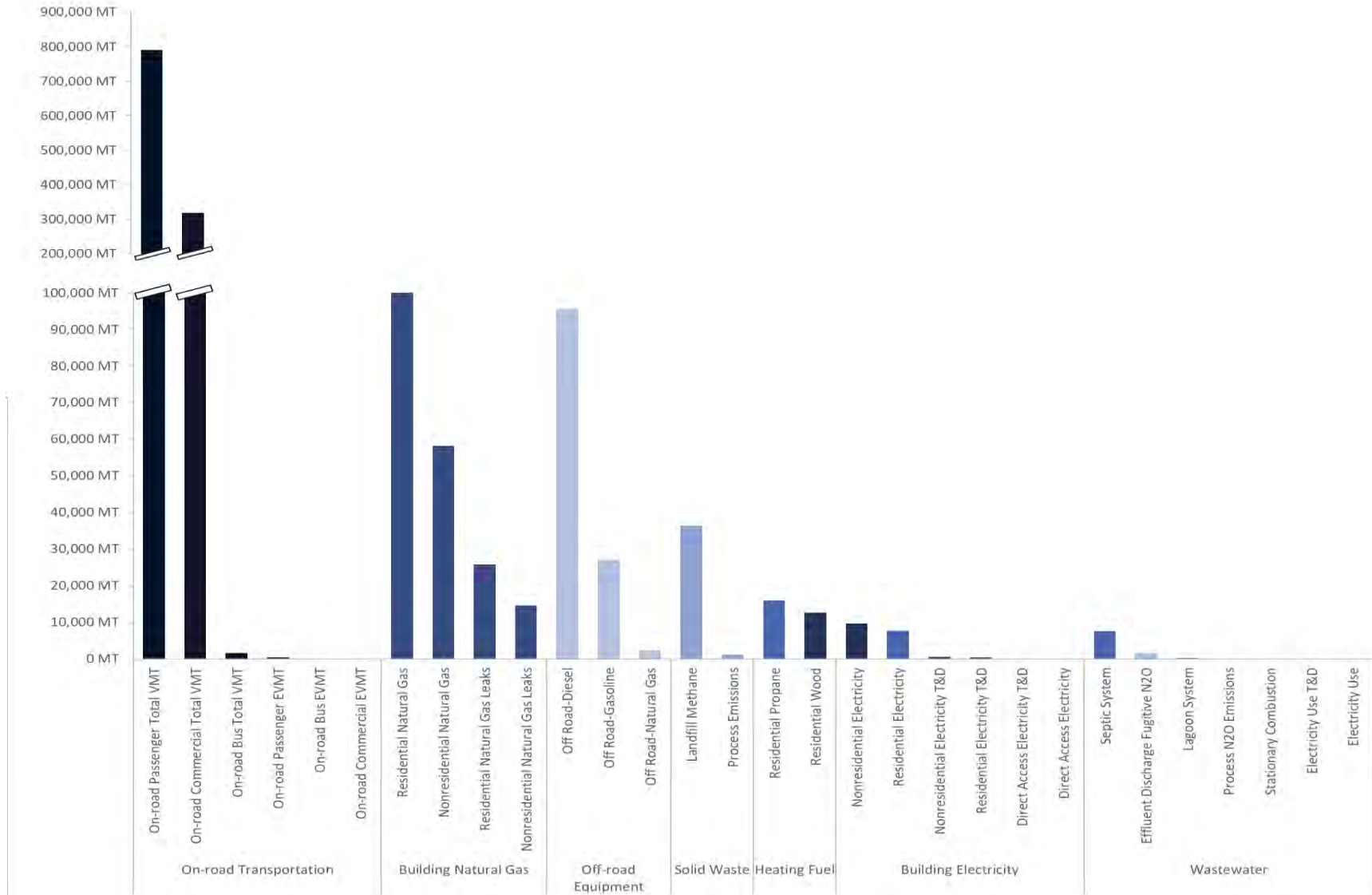


Table 36 2022 Humboldt Community GHG Emissions Inventory

GHG Emissions Sector	GHG Emissions Subsector	Activity Data		Emission Factor		GHG Emissions [MT CO <sub>2</sub> e]
Energy	Residential Electricity	338,582,598	kWh	0.0000227	MT CO <sub>2</sub> e/kWh	7,669
	Residential Electricity T&D	18,119,494	kWh	0.0000227	MT CO <sub>2</sub> e/kWh	410
	Nonresidential Electricity	418,996,532	kWh	0.0000232	MT CO <sub>2</sub> e/kWh	9,735
	Nonresidential Electricity T&D	21,369,291	kWh	0.0000232	MT CO <sub>2</sub> e/kWh	496
	Residential Natural Gas	19,305,756	therms	0.0053115	MT CO <sub>2</sub> e/therm	102,542
	Residential Natural Gas Leaks	543,278	therms	0.0473813	MT CO <sub>2</sub> e/therm	25,741
	Nonresidential Natural Gas	10,962,860	therms	0.0053115	MT CO <sub>2</sub> e/therm	58,229
	Nonresidential Natural Gas Leaks	308,503	therms	0.0473813	MT CO <sub>2</sub> e/therm	14,617
Fuel Use	Residential Propane	4,370	households	3.6512345	MT CO <sub>2</sub> e/household	15,956
	Residential Wood	9,104	households	1.3973035	MT CO <sub>2</sub> e/household	12,721
Transportation	Passenger VMT	2,188,991,265	VMT	0.0003610	MT CO <sub>2</sub> e/mile	790,226
	Commercial VMT	282,211,337	VMT	0.0011290	MT CO <sub>2</sub> e/mile	318,617
	Bus VMT	1,028,481	VMT	0.0014930	MT CO <sub>2</sub> e/mile	1,536
	Passenger EVMT	16,701,602	kWh	0.0000224	MT CO <sub>2</sub> e/kWh	378
	Commercial EVMT	0	kWh	0.0000224	MT CO <sub>2</sub> e/kWh	0
	Bus EVMT	9,168	kWh	0.0000222	MT CO <sub>2</sub> e/kWh	<1
	Off-road Diesel	9,101,978	Gallons	0.0105021	MT CO <sub>2</sub> e/gal	95,590
	Off-road Gasoline	2,975,135	Gallons	0.0091151	MT CO <sub>2</sub> e/gal	27,119
Off-road Natural Gas	410,588	Gallons	0.0058821	MT CO <sub>2</sub> e/gal	2,415	
Solid Waste	Landfill Methane	107,713	Wet short tons	0.3375000	MT CO <sub>2</sub> e/ton	36,353
	Process Emissions	107,713	Wet short tons	0.0110000	MT CO <sub>2</sub> e/ton	1,185
Water <sup>1</sup>	Local	-	kWh	-	MT CO <sub>2</sub> e/kWh	-

<b>GHG Emissions Sector</b>	<b>GHG Emissions Subsector</b>	<b>Activity Data</b>		<b>Emission Factor</b>		<b>GHG Emissions [MT CO<sub>2</sub>e]</b>
	Imported	-	kWh	-	MT CO <sub>2</sub> e/kWh	-
Wastewater	Stationary Combustion	78,598	people	0.0000653	MT CO <sub>2</sub> e/person	5
	Process N <sub>2</sub> O Emissions	103,463	people	0.0009897	MT CO <sub>2</sub> e/person	102
	Effluent Discharge Fugitive N <sub>2</sub> O	104,563	people	0.0156010	MT CO <sub>2</sub> e/person	1,631
	Lagoon System	1,100	people	0.2662673	MT CO <sub>2</sub> e/kWh	293
	Septic System	15,411	people	0.4930875	MT CO <sub>2</sub> e/kWh	7,599
<b>Total</b>						<b>1,531,167</b>

Notes: VMT = vehicle miles traveled; EVMT = electric vehicle miles traveled; kWh = kilowatt hour; MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; gal = gallons

1. Because all water provided to the community in Humboldt County comes from water providers within county-limits, water sector emission from electricity consumption to extract, treat, convey, and distribute water is included under building electricity sector emissions and therefore not accounted separately to avoid double counting.

## 4 GHG Emissions Forecast

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A GHG emissions inventory sets a reference point for a single year; however, annual GHG emissions change over time due to factors such as population and job growth as well as new technologies and policies. A GHG emissions forecast estimates future GHG emission changes by accounting for projected community growth and changes. Calculating the difference between the GHG emissions forecast and GHG emissions reduction targets determines the gap in GHG emissions that needs to be closed through the implementation of local GHG reduction policies. This section includes an estimate of the future emissions for Humboldt County in the years 2030, 2035, 2040 and 2045 in a *business-as-usual scenario* (BAU) forecast and a *legislative adjusted scenario* (adjusted) forecast, which are defined as follows:

- *Business-as-usual scenario*- Provides a forecast of how future GHG emissions would change if consumption trends continued as they did in 2022 and projected changes in population, housing, employment, and transportation activity over time consistent with planned projects within the Humboldt County boundaries. The BAU does not include any GHG reductions associated with local and state regulations.
- *Legislative adjusted scenario*- Provides a forecast of how currently adopted state legislation would reduce GHG emissions from the *business-as-usual scenario*. The *legislative adjusted scenario* represents the State's contribution to reducing local GHG emissions to meet state goals.

Because the adjusted forecast incorporates the impact of State regulations that provide GHG emission reduction potential, the legislative adjusted scenario offers a more accurate picture of future GHG emission growth and the responsibility of Humboldt for GHG reductions through regional actions.

### 4.1 Business-as-usual Scenario GHG Emissions Forecast

For the BAU forecast, future GHG emissions were calculated by multiplying projected activity data with the baseline emission factors utilized in the 2022 community GHG emissions inventory. Several indicator growth rates were developed from 2022 activity data and applied to demographic projections to project future activity data.

Over the past two decades, U.S. Census data and the Department of Finance has indicated a consistent decline in population, likely attributed to the departure of industrial operations. However, evidence garnered from interviews with local jurisdictions and agencies present a contrasting narrative. Through the implementation of significant development projects such as the Cal Poly student housing expansion<sup>20</sup>, Nordic Aquafarms,<sup>21</sup> and the Humboldt Bay Offshore Wind Heavy Lift Multipurpose Marine Terminal project<sup>22</sup> it is anticipated that there will be new job opportunities and increased housing that will serve as catalysts for population movement and

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<sup>20</sup> California State Polytechnic University (Cal Poly). 2023. Final Environmental Impact Report, Student Housing Project. Available at: [https://facilitymgmt.humboldt.edu/sites/default/files/web\\_cal\\_poly\\_humboldt\\_feir\\_student\\_housing\\_project\\_0.pdf](https://facilitymgmt.humboldt.edu/sites/default/files/web_cal_poly_humboldt_feir_student_housing_project_0.pdf)

<sup>21</sup> County of Humboldt, Planning and Building Department. 2022. Final Environmental Impact Report, Samoa Peninsula Land-Based Aquaculture Project. Available at: <https://humboldt.gov/DocumentCenter/View/108020/Nordic-Aquafarms-Final-EIR>

<sup>22</sup> Humboldt Bay Harbor, Recreation & Conservation District. 2024. Humboldt Bay Offshore Wind Heavy Lift Marine Terminal Project. Available at: <https://humboltdbay.org/humboldt-bay-offshore-wind-heavy-lift-marine-terminal-project-3>



regional growth. This anticipation of growth is reflected in the Humboldt County Association of Governments (HCAOG) Regional Transportation Plan (RPT) which projects a 1 percent population growth rate in the region in consideration of local project developments, climate trends, and State-wide population movement trends.<sup>23</sup> Additionally, the State has consistently provided mandates for increases in local housing availability, as specified by the State Regional Housing Needs Allocation (RHNA).<sup>24</sup>

Based on the housing increases required by the 5<sup>th</sup> and 6<sup>th</sup> RHNA cycles, the most recent available cycles for the region, it becomes apparent that Humboldt needs to elevate housing development efforts to meet the specified State housing needs. To provide a comprehensive, forward-looking projection of demographic trends in the Humboldt community, this report utilized 6<sup>th</sup> cycle RHNA data to establish a household baseline growth rate in the percent increase of additional households per year. The household growth rate was then applied to U.S. Census 2022 household data to estimate anticipated growth. Projected household estimates were then used to project population and employment growth according to the methodology described in Table 37. This demographic forecast approach aligns with HCAOG estimates of regional growth, serves as a reasonable reflection of current and future conditions within Humboldt’s community based on best available data, and recognizes the transformative forces shaping the region in the foreseeable future. A summary of the resulting demographics and projection metrics for each forecast year in the BAU forecast are provided in Table 37.

Table 37 BAU Forecast Demographic and Projection Metrics by Forecast Year

Metric	Data Source	2022	2030	2035	2040	2045
Population	Multiple <sup>1</sup>	136,132	143,556	148,196	152,836	157,476
Employment	Multiple <sup>2</sup>	66,837	70,482	72,760	75,038	77,316
Service Population	Calculated <sup>3</sup>	202,969	214,038	220,956	227,874	234,792
Households	Multiple <sup>4</sup>	54,495	57,467	59,324	61,182	63,039
Off-road gasoline usage (gallons)	CARB OFFROAD2021	2,975,135	3,202,801	3,338,686	3,475,420	3,625,989
Off-road diesel usage (gallons)	CARB OFFROAD2021	9,101,978	9,348,454	9,517,249	9,702,621	9,908,708
Off-road natural gas usage (gallons)	CARB OFFROAD2021	410,588	418,808	425,309	430,298	430,298

Notes:

1. Population forecast estimated based on the 2022 proportion of people per household and the forecasted number of households from 2030-2045.
2. Employment forecast estimated based on the 2022 proportion of jobs per person and the forecasted population from 2030-2045.
3. Service population reflects the sum of population and employment in the region.
4. Household forecast estimated based on a 0.68% household growth rate compared to baseline year as determined by Humboldt’s 6<sup>th</sup> cycle RHNA and using U.S. Census 2022 household data as the baseline year. More information regarding Humboldt’s 6<sup>th</sup> cycle RHNA is available at: [https://www.hcd.ca.gov/community-development/housing-element/docs/Humboldt\\_County\\_Regional\\_Housing\\_Need\\_Determination\\_and\\_Plan\\_for\\_the\\_Sixth\\_Housing\\_Element\\_Update\\_1.pdf](https://www.hcd.ca.gov/community-development/housing-element/docs/Humboldt_County_Regional_Housing_Need_Determination_and_Plan_for_the_Sixth_Housing_Element_Update_1.pdf)

<sup>23</sup> Humboldt County Association of Governments (HCAOG). 2022. Regional Transportation Plan, VROOM 2022-2042. Available at: [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report.pdf)

<sup>24</sup> California Department of Housing Needs Allocation (RHNA). 2024. Regional Housing Needs Allocation (RHNA). Available at: <https://www.hcd.ca.gov/planning-and-community-development/regional-housing-needs-allocation>

A description of the demographic metrics used to project activity data and associated growth factors for each forecasted GHG emission source in the 2022 community GHG emissions inventory are provided in Table 38.

Table 38 GHG Emission Sources and Growth Factors for BAU Scenario Forecast

GHG Emissions Source	Demographic Projection Metric	Growth Factor	Value	Units
<b>Energy<sup>1</sup></b>				
Residential Electricity Consumption	Households	Electricity consumption per household	6,213.09	kWh
Non-residential Electricity Consumption	Employment	Electricity consumption per job	6,268.93	kWh
Residential Natural Gas Consumption	Households	Natural gas consumption per household	354.27	therms
Residential Natural Gas Leaks	Households	Natural gas leakage per household	9.97	therms
Non-residential Natural Gas Consumption	Employment	Natural gas consumption per job	164.02	therms
Non-residential Natural Gas Leaks	Employment	Natural gas leakage per job	4.62	therms
Building Fuel Use <sup>2</sup>	-	-	-	-
<b>Transportation</b>				
On-Road Passenger Vehicles	Households	Annual VMT per household	40,168.66	VMT
On-Road Commercial Vehicles	Employment	Annual VMT per job	4,222.38	VMT
On-Road Buses	Service Population	Annual bus service per service population	5.07	VMT
Off-Road Equipment <sup>3</sup>	-	-	-	-
<b>Water &amp; Wastewater<sup>4</sup></b>				
Wastewater Process and Fugitive Emissions	Service Population	Wastewater process and fugitive emissions per service population	0.05	MT CO <sub>2</sub> e
<b>Solid Waste</b>				
Solid Waste Disposal	Service Population	Solid waste disposed per service population	0.18	tons

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; kWh = kilowatt-hour; VMT = vehicle miles traveled; N/A = Not Applicable; SP = Service Population – the combined total number of employees and residents in Humboldt County

1. Electricity T&D growth factor is not included as GHG emissions from electricity T&D is calculated based on each forecasted year’s total electricity amount.
2. Building fuel use is held constant at 2022 rates of household consumption as a conservative estimation of projected emissions.
3. Fuel consumption for each forecasted year are obtained from the CARB OFFROAD2021 Model, available at: <https://arb.ca.gov/emfac/emissions-inventory/5e0cb7d6006cc10661f4b3ffb9c120a486d46ea6%206>
4. Electricity emissions associated with water consumption and wastewater processing are captured within the energy sector, as previously described in the Community Inventory section of this technical report and therefore are projected under energy sector forecasted activity data.

Using the above demographic and projection metrics in Table 37, multiplied by the growth factors in Table 38 and the 2022 Humboldt County Regional GHG inventory emission factors, the BAU forecast

can be calculated. In the BAU forecast, GHG emissions are expected to increase through 2045 due to anticipated regional growth from regional projects and industry expansion. A summary of the BAU forecast results by GHG emission sector is provided in Table 39.

Table 39 BAU Forecast Results Summary by Emission Sector

GHG Emissions Source	2022	2030	2035	2040	2045
<b>Energy</b>	<b>248,118</b>	<b>260,085</b>	<b>267,564</b>	<b>275,044</b>	<b>282,524</b>
Residential Electricity + T&D	8,080	8,520	8,796	9,071	9,347
Nonresidential Electricity + T&D	10,231	10,789	11,138	11,487	11,836
Residential Natural Gas	102,542	108,134	111,629	115,125	118,620
Residential Natural Gas Leaks	25,741	27,145	28,022	28,900	29,777
Nonresidential Natural Gas	58,229	61,405	63,389	65,374	67,359
Nonresidential Natural Gas Leaks	14,617	15,414	15,913	16,411	16,909
Building Fuel	28,677	28,677	28,677	28,677	28,677
<b>Transportation</b>	<b>1,235,880</b>	<b>1,301,168</b>	<b>1,342,077</b>	<b>1,383,159</b>	<b>1,424,556</b>
On-road Passenger Vehicles	790,604	833,720	860,667	887,615	914,562
On-road Commercial Vehicles	318,617	335,992	346,852	357,712	368,572
On-road Buses	1,536	1,619	1,672	1,724	1,777
Off-road Equipment	125,124	129,836	132,885	136,108	139,645
<b>Water and Wastewater</b>	<b>9,631</b>	<b>10,156</b>	<b>10,484</b>	<b>10,812</b>	<b>11,141</b>
Wastewater Process and Fugitive Emissions	9,631	10,156	10,484	10,812	11,141
<b>Solid Waste</b>	<b>37,538</b>	<b>39,585</b>	<b>40,865</b>	<b>42,144</b>	<b>43,424</b>
Solid Waste Disposal	37,538	39,585	40,865	42,144	43,424
<b>Total GHG Emissions</b>	<b>1,531,167</b>	<b>1,610,994</b>	<b>1,660,990</b>	<b>1,711,160</b>	<b>1,761,644</b>

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>e)

## 4.2 Legislative Adjusted Scenario GHG Emissions Forecast

Several federal and state regulations have been enacted that would reduce Humboldt’s GHG emissions below the BAU forecasted levels in 2030, 2035, 2040 and 2045. The impact of these regulations was quantified and incorporated into the adjusted forecast to provide a more realistic depiction of future emissions growth and the GHG emission reduction responsibility of the local governments. The state legislation included in the adjusted forecast reduce GHG emissions associated with transportation, building energy efficiency, and renewable electricity. A brief description of each regulation and the methodology used to calculate associated reductions is

provided in the following, as well as a description of why specific legislation was excluded from the analysis.

#### 4.2.1 Legislative Reduction Programs

Additional legislative programs are expected to reduce GHG emissions in specific sectors throughout California, as identified in the 2017 and 2022 Scoping Plan Updates. Many of these programs were incorporated into the forecast analysis and are summarized in the subsections below.

##### Transportation Legislation

###### *Advanced Clean Cars Programs*

Prior to 2012, mobile emissions regulations were implemented on a case-by-case basis for GHG and criteria pollutant emissions separately. In January 2012, CARB approved a new emissions-control program (the Advanced Clean Cars program) combining the control of smog, soot causing pollutants, and GHG emissions into a single coordinated package of requirements for passenger cars and light trucks model years 2017 through 2025. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles, Zero Emissions Vehicles, and Clean Fuels Outlet programs, and is more stringent than the federal Corporate Average Fuel Economy (CAFE) standards. The new standards will reduce California's GHG emissions by 34 percent in 2025 which is modeled under the CARB Emission FACTor (EMFAC) Model and included in the GHG forecast.<sup>25</sup>

Advanced Clean Cars II was approved by CARB in August 2022 and expands the program's roadmap so that by 2035 all new cars and passenger trucks will be ZEV. This regulation effectively binds the State to EO N-79-20. The executive order was passed by the governor in 2020 and requires all new cars and passenger trucks sold in California be ZEV by 2035. While these legislations will lead to an expedited timeline for ZEV adoption in California, modeling data is not yet available in CARB's EMFAC Model, and emissions reductions attributable to the Advanced Clean Cars II program were therefore, excluded from the GHG forecast.

Advanced Clean Trucks was approved by CARB in June 2020 and sets a zero-emission vehicle (ZEV) percent-of-sales requirement on medium- and heavy- duty vehicle manufacturers to promote increased truck ZEV sales from 2024 to 2035. The standard is intended to reduce NO<sub>x</sub> pollution and GHG emissions, which are disproportionately high in medium- and heavy-duty vehicle classes compared to passenger vehicles, as well as promote first-wave ZEV truck technology penetration in the market.<sup>26</sup> EMFAC models the effect of the Advanced Clean Trucks regulation on ZEV truck penetration and associated GHG emissions and is included in the forecast.

###### *Assembly Bill 1493*

Signed into law in 2002, AB 1493 (Pavley Standards) required vehicle manufacturers to reduce GHG emissions from new passenger vehicles and light trucks from 2009 through 2016. Regulations were adopted by CARB in 2004 and took effect in 2009 when the United States Environmental Protection Agency (USEPA) issued a waiver confirming California's right to implement the bill. CARB anticipates that the Pavley I standard will reduce GHG emissions from new California passenger vehicles by

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<sup>25</sup> California Air and Resource Board (CARB). 2019. Advanced Clean Cars Summary. Available at: [https://ww2.arb.ca.gov/sites/default/files/2019-12/acc%20summary-final\\_ac.pdf](https://ww2.arb.ca.gov/sites/default/files/2019-12/acc%20summary-final_ac.pdf)

<sup>26</sup> California Air and Resource Board (CARB). 2023. Advanced Clean Trucks. Available at: <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks/about>

about 30 percent in 2016, while simultaneously improving fuel efficiency and reducing motorists' costs.<sup>27</sup> The impacts of the Pavley Standards on ZEV market penetration was incorporated into the EMFAC model starting in 2014 and is included in the forecast assessment.

### *Innovative Clean Transit*

Public transit GHG emissions will be reduced in the future through the Innovative Clean Transit (ICT) regulation, which was adopted in December 2018. It requires all public transit agencies to gradually transition to a 100-percent zero-emission bus fleet by 2040. Under ICT, large transit agencies are expected to adopt Zero-Emission Bus Rollout Plans to establish a roadmap towards zero emission public transit buses.<sup>28</sup> The effects of the ICT regulation on GHG emissions are modeled in EMFAC2021 and is therefore included in the forecast.

## Energy Legislation

### *Title 24*

Although it was not originally intended to reduce GHG emissions, California Code of Regulations Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was adopted in 1978 in response to a legislative mandate to reduce California's energy consumption, which in turn reduces fossil fuel consumption and associated GHG emissions. The standards are updated triennially to allow consideration and possible incorporation of new energy-efficient technologies and methods. Starting in 2020, new residential developments had to include on-site solar generation and near-zero net energy use. For projects implemented after January 1, 2020, the California Energy Commission (CEC) estimates that the 2019 standards will reduce electricity consumption by 53 percent for residential buildings and 30 percent for non-residential buildings, relative to the 2016 standards. The CEC further estimates residential natural gas efficiency increases of 7 percent for residential end uses.<sup>29</sup> No efficiency increases were estimated for commercial natural gas end uses, based on lack of requirements in this sector in the 2019 standards. These percentage savings relate to heating, cooling, lighting, and water heating only and do not include other appliances, outdoor lighting not attached to buildings, plug loads, or other energy uses. In December 2022 the CEC published the new Title 24 2022 Building Efficiency Standards.<sup>30</sup>

Due to the complexity of the new code, there is currently no available model establishing projected efficiency increase as a result of the standard. Therefore, the updated 2022 code was not included in the forecast. This provides a conservative estimate of forecasted GHG emission reductions resulting from efficiency increases.

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<sup>27</sup> CARB. Clean Car Standards – Pavley, Assembly Bill 1493. May 2013. Accessed November 14, 2022, at: <http://www.arb.ca.gov/cc/ccms/ccms.htm>

<sup>28</sup> Innovative Clean Transit. Approved August 13, 2019. Accessed November 14, 2022 at: [https://ww2.arb.ca.gov/sites/default/files/2019-10/ictfro-Clean-Final\\_0.pdf?utm\\_medium=email&utm\\_source=govdelivery](https://ww2.arb.ca.gov/sites/default/files/2019-10/ictfro-Clean-Final_0.pdf?utm_medium=email&utm_source=govdelivery)

<sup>29</sup> California Energy Commission. 2019 Building Energy Efficiency Standards Frequently Asked Questions. January 1, 2020. Accessed November 8, 2022 at: [https://www.energy.ca.gov/sites/default/files/2020-03/Title\\_24\\_2019\\_Building\\_Standards\\_FAQ\\_ada.pdf](https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf)

<sup>30</sup> California Energy Commission (CEC). 2023. 2022 Building Energy Efficiency Standards. Available at: <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency>

*Renewables Portfolio Standard, Senate Bill 100, & Senate Bill 1020*

Established in 2002 under SB 1078, enhanced in 2015 by SB 350, and accelerated for the first time in 2018 under SB 100, California’s Renewable Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, publicly owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 50 percent of total procurement by 2026 and 60 percent of total procurement by 2030. The RPS program further requires that by 2045 that 100 percent of total energy procured be a combination of eligible renewable energy resources and zero-carbon resources.

California’s RPS was further accelerated in 2022 by SB 1020 which established additional requirements that procurement from eligible renewable energy resources and zero-carbon resources increase to 90 percent of total procurement by 2035 and 95 percent of total procurement by 2040. The requirements of SB 1020 do not affect those previously set forth and are to be considered additional to the existing RPS requirements. The RPS program and SB 1020 were incorporated into the GHG forecast by adjusting the electricity emissions factors for future years, as discussed in Section 4.4.

PG&E as well as RCEA currently provide electricity to Humboldt and are subject to the RPS requirements. Weighted emission factors adjusted for RPS requirements were used to project emissions through 2045. Table 40 provides the estimated electricity emission factors that would result from SB 100.

Table 40 Forecasted RPS and Weighted Electricity Emission Factor

Metric	2022	2030	2035	2040	2045
Renewables Portfolio Standard Percentage (PG&E)	50%	60%	90%	95%	100%
Renewables Portfolio Standard Percentage (RCEA)	51%	60%	90%	95%	100%
Residential Weighted EF (MT CO <sub>2</sub> e/kWh)	0.0000227	0.0000183	0.0000046	0.0000023	0.0000000
Nonresidential Weighted EF (MT CO <sub>2</sub> e/kWh)	0.0000232	0.0000187	0.0000047	0.0000023	0.0000000

Notes: MT CO<sub>2</sub>e = Metric tons of carbon dioxide equivalent; kWh = kilowatt-hour; EF = emissions factor

Waste Legislation

*Assembly Bill 939 & Assembly Bill 341*

In 2011, AB 341 set the target of 75 percent recycling, composting, or source reduction of solid waste by 2020 calling for the California Department of Resources Recycling and Recovery (also known as CalRecycle) to take a statewide approach to decreasing California’s reliance on landfills. This target was an update to the former target of 50 percent waste diversion set by AB 939.

As actions under AB 341 are not assigned to specific local jurisdictions, potential future reductions from the bill were conservatively not included in the GHG forecast analysis.

### Assembly Bill 1826

In 2014, AB 1826 set regulations in place requiring California businesses to recycle all of their organic waste starting in April 2016. The bill also required jurisdictions across the State to provide organic waste recycling programs to accommodate diverted waste from local businesses. As Humboldt has already implemented an organics collection program, implementation of AB 1826 compliance is reflected in the community’s inventory solid waste activity data and is thereby included in the BAU and adjusted forecast.

### Senate Bill 1383

SB 1383 established a methane emission reduction target for short-lived climate pollutants in various sectors of the economy, including waste. Specifically, SB 1383 establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025.<sup>31</sup> Additionally, SB 1383 requires a 20 percent reduction in “current”<sup>32</sup> edible food disposal by 2025. Although SB 1383 has been signed into law, compliance with this Senate Bill must occur at the jurisdiction-level rather than the state-level. Due to current limitations in local jurisdiction’s ability to comply with organic waste targets set by SB 1383, as well as regional exemptions for some local governments within Humboldt County, anticipated emissions reductions attributable to the bill are conservatively excluded from the forecast. However, estimated impacts associated with SB 1383 will be included in the GHG reduction measures in the CAP.

## 4.2.2 Legislative Adjusted Scenario Forecast Results

In the adjusted emissions forecast, energy and transportation show a steady decline in GHG emissions, while wastewater, solid waste, are projected to slightly increase. Electricity shows a downward trend approaching zero in 2045 due to stringent RPS requirements from SB 100/1020. This effect is counteracted by natural gas consumption growth which experiences minimal benefits from Title 24 code efficiency cycles. Transportation emissions are expected to decrease in the next 10 to 15 years due to existing fuel efficiency requirements, fleet turnover rates, and increased electric vehicle penetration. As most current regulations expire in 2025 or 2030, emissions standards will experience diminishing returns while VMT continues to increase, leading to lower rates of emissions reduction in the transportation sector as 2045 is approached. A detailed summary of Humboldt’s projected GHG emissions under the adjusted forecast by sector and year through 2045 can be found in Table 41.

Table 41 Legislative Adjusted Scenario Forecast Results

GHG Emissions Source	2022	2030	2035	2040	2045
Energy	248,118	255,592	250,748	255,384	259,934
Residential Electricity + T&D	8,080	6,726	1,712	870	0

<sup>31</sup> CalRecycle. California’s Short-Lived Climate Pollutant Reduction Strategy. <https://calrecycle.ca.gov/organics/slcp/>

<sup>32</sup> SB 1383 does not specify a baseline year for the 20 percent food recovery target; however, CalRecycle’s 2018 statewide waste characterization studies will be used to help measure the baseline for the State to meet its SB 1383 goals. See CalRecycle FAQ accessed November 14, 2022 for more information: <https://calrecycle.ca.gov/organics/slcp/faq/foodrecovery/#:~:text=SB%201383%20requires%20the%20state,for%20individual%20jurisdictions%20to%20achieve.>

GHG Emissions Source	2022	2030	2035	2040	2045
Nonresidential Electricity + T&D	10,231	8,580	2,202	1,129	0
Residential Natural Gas	102,542	107,743	110,993	114,244	117,494
Residential Natural Gas Leaks	25,741	27,047	27,863	28,679	29,495
Nonresidential Natural Gas	58,229	61,405	63,389	65,374	67,359
Nonresidential Natural Gas Leaks	14,617	15,414	15,913	16,411	16,909
Building Fuel	28,677	28,677	28,677	28,677	28,677
<b>Transportation</b>	<b>1,235,880</b>	<b>1,154,265</b>	<b>1,106,063</b>	<b>1,078,584</b>	<b>1,073,445</b>
On-road Passenger Vehicles	790,604	698,109	665,176	651,449	653,308
On-road Commercial Vehicles	318,617	324,984	306,827	290,094	279,775
On-road Buses	1,536	1,336	1,175	932	717
Off-road Equipment	125,124	129,836	132,885	136,108	139,645
<b>Water and Wastewater</b>	<b>9,631</b>	<b>10,156</b>	<b>10,484</b>	<b>10,812</b>	<b>11,141</b>
Wastewater Process and Fugitive Emissions	9,631	10,156	10,484	10,812	11,141
<b>Solid Waste</b>	<b>37,538</b>	<b>39,585</b>	<b>40,865</b>	<b>42,144</b>	<b>43,424</b>
Solid Waste Disposal	37,538	39,585	40,865	42,144	43,424
<b>Total GHG Emissions</b>	<b>1,531,167</b>	<b>1,459,598</b>	<b>1,408,160</b>	<b>1,386,924</b>	<b>1,387,943</b>

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>e)

### 4.2.3 Legislative GHG Emission Reduction Contribution

A summary of the reductions from the BAU forecast that can be expected under the adjusted forecast are provided in Table 42.

Table 42 Summary of Legislative GHG Emission Reductions

Metric	2030	2035	2040	2045
California Renewable Portfolio Standards	3,955	17,540	20,999	24,483
Title 24	845	1,440	2,005	2,581
Transportation (Pavley, Innovative Clean Transit, etc.)	146,596	233,850	301,232	346,636
<b>Total</b>	<b>151,396</b>	<b>252,830</b>	<b>324,236</b>	<b>373,700</b>

Notes: All values are presented in metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>e); negative values indicate



## 5 GHG Emissions Targets

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GHG reduction targets are used in climate action planning to establish metrics that guide the community's commitment to achieve GHG emissions reductions and help gauge progress reducing emissions over time. California has established statewide GHG reduction goals for 2030 and 2045, relative to a baseline emissions level. CARB's 2022 Scoping Plan encourages local agencies to take ambitious, coordinated climate action that is consistent with and supportive of the state's climate goals<sup>33</sup>. Thus, local agencies are recommended to establish equivalent reduction targets at the local level by establishing community wide GHG reduction goals for climate action that will help California achieve its 2030 and 2045 goals. CARB has issued several guidance documents concerning the establishment of GHG emission reduction targets for CAPs to comply with California Environmental Quality Act (CEQA) Guidelines § 15183.5(b). Even if a plan is not CEQA-qualified, CARB has long recommended that local targets be a part of the process of developing, monitoring, and updating a CAP.

### 5.1 1990 Level GHG Emissions Back-cast

Humboldt County does not have a 1990 GHG emissions inventory from which to develop GHG reduction targets consistent with SB 32, however, 1990 GHG emissions can be estimated for the community relative to Humboldt's updated 2022 inventory using a state-level emissions change metric.

As the State 2022 GHG emissions inventory has not yet been published, Humboldt's 1990 GHG emissions have been calculated using the State's 2021 GHG emissions inventory<sup>34</sup> as compared to the State's GHG emissions inventory in 1990 to calculate approximate percent reduction in the Humboldt community between 2022 and 1990. The calculation is developed using the published Statewide emissions results from CARB<sup>35</sup>, after removing emissions from sectors not included in Humboldt's inventory (e.g., non-specified, industrial point sources, agricultural land management practices). This approach assumes that Humboldt's community activities and associated GHG emissions have generally tracked with the State's activity trends and associated GHG emissions. However, since 1990, electricity and natural gas consumption and associated GHG emissions in Humboldt have declined at a much more rapid rate than the Statewide trend reflected in the Statewide inventory. This is because Humboldt has experienced a significant decline in industrial operations leading to a significant decrease in electricity and natural gas consumption. Further, RCEA has emerged as the main alternative electricity provider in the region opposed to PG&E, the sole utility provider to the Humboldt region in 1990. Because RCEA has a more renewable and carbon-free energy profile than PG&E, GHG emissions associated with building electricity use in the region have declined to a greater extent than Statewide trends reflect.

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<sup>33</sup> California Air Resources Board. 2022. California's Climate Change Scoping Plan, p.268. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

<sup>34</sup> The State's 2020 GHG emissions inventory was used as this is the most recently available statewide inventory from CARB. It is assumed that the 1990-2020 Statewide GHG emissions change is similar to the 1990-2021 Statewide GHG emissions change, therefore it can be used to estimate 1990 level GHG emissions for Humboldt based on the 2022 Humboldt County Regional GHG Inventory.

<sup>35</sup> California Air Resources Board. 2023. California GHG Emission Inventory Program. <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

Since these trends are specific to the Humboldt region and do not track with Statewide trends reflected in the Statewide inventory, electricity and natural gas emissions were also removed from the Statewide emissions to back-cast Humboldt’s 1990 emissions associated with the following included inventory sectors: transportation (on and off-road), solid waste, wastewater, and heating fuel. GHG emissions from electricity and natural gas consumption in Humboldt in 1990 was quantified using 1990 county-wide activity data obtained from CEC and PG&E 1990 electricity emissions factor provided in the PG&E Community Report. This approach for developing a 1990 back-cast for Humboldt assumes that Humboldt’s community GHG emissions associated with transportation, solid waste, wastewater, and heating fuel consumption have generally tracked with Statewide trends, while taking into consideration the more regionally applicable changes in electricity and natural gas consumption in the county. The 1990 back-cast for Humboldt is shown in Table 43.

Table 43 1990 Back-cast Calculations

GHG Emissions Inventory/Emissions Category	Emissions
2021 Statewide GHG Emissions w/o Building Energy (MMT CO <sub>2</sub> e) <sup>1</sup>	170.32
1990 Statewide GHG Emissions w/o Building Energy (MMT CO <sub>2</sub> e) <sup>1</sup>	188.98
2021 to 1990 Statewide GHG Emissions Change (%)	10.96%
2022 Humboldt GHG Emissions w/o Building Energy (MT CO <sub>2</sub> e) <sup>2</sup>	1,311,726
1990 Humboldt GHG Emissions w/o Building Energy (MT CO <sub>2</sub> e) <sup>3</sup>	1,455,496
1990 Humboldt Electricity Emissions (MT CO <sub>2</sub> e) <sup>4</sup>	259,675
1990 Humboldt Natural Gas Emissions (MT CO <sub>2</sub> e) <sup>4</sup>	354,144
1990 Total Humboldt GHG Emissions (MT CO <sub>2</sub> e) <sup>5</sup>	2,069,316

## Notes:

1. Includes transportation, solid waste, wastewater, and heating fuel emissions.
2. Excludes 2022 building energy emissions associated with electricity and natural gas consumption. As shown in Table 36, in 2022 electricity consumption accounted for X MT CO<sub>2</sub>e and natural gas consumption accounted for X MT CO<sub>2</sub>e.
3. Humboldt 1990 GHG emission associated with transportation, solid waste, wastewater, and heating fuel was back-cast from the Statewide GHG emissions inventory by multiplying the percent change that occurred at the Statewide level to the 2022 Humboldt GHG inventory less electricity and natural gas associated emissions. based on the percent change.
4. In 1990, Humboldt consumed a total of 1,007,867,146 kWh of electricity and 53,349,803 therms of natural gas. According to PG&E, the emissions factor in 1990 was 0.000258 MT CO<sub>2</sub>e/kWh. Emissions were calculated in accordance with methods outlined in Section 3.2.1. More information regarding CEC activity data is available at: <https://ecdms.energy.ca.gov/Default.aspx>
5. Calculated 1990 electricity and natural gas emissions were added to the “1990 Humboldt GHG Emissions w/o Building Energy” back-cast to determine the total Humboldt 1990 GHG Emissions.

## 5.2 GHG Emissions Reduction Target Setting

The purpose of target setting is to develop the trajectory toward achieving the State’s 2030 goal (SB 32) and prepare for the deep decarbonization needed by 2045 in a cost-effective manner by setting an incremental path toward achieving AB 1279 targets. CARB guidance is for jurisdictions to first strive to exceed the SB 32 targets of reducing GHG emissions 40% below 1990 levels, while establishing a policy framework to achieve the long-term target of carbon neutrality by 2045.

Target setting is an iterative process which must be informed by the reductions that can realistically be achieved through the development of feasible GHG reduction measures. As such, the targets identified herein should remain provisional until the quantification and analysis of potential GHG reduction measures has been completed.

Achieving the established target will require major shifts in how communities within California obtain and use energy, transport themselves and goods, and how the population lives and builds. The CEQA Guidelines section 15183.5(b) requires qualified GHG reduction plans (which allow for CEQA streamlining) to “Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable”.<sup>36</sup> A defensible way (shown through litigation) to identify such levels is to demonstrate consistency with State targets.

To maintain consistency with State targets, Humboldt’s provisional GHG emissions reduction targets are:

- Reduce GHG emissions to 40% below 1990 levels by 2030 (SB 32 target year)
- Make substantial progress towards carbon neutrality by 2045 (AB 1279 target year)

With GHG emission reduction targets in place, the reduction gap that Humboldt will be responsible for through local action can be calculated. Humboldt’s GHG emissions reduction gap is based on the difference between the adjusted forecast, discussed previously, and the established GHG emission reduction targets. Table 44 provides a summary of the GHG emission reduction targets in mass emissions.

Table 44 GHG Emissions Reduction Targets and Gap Analysis

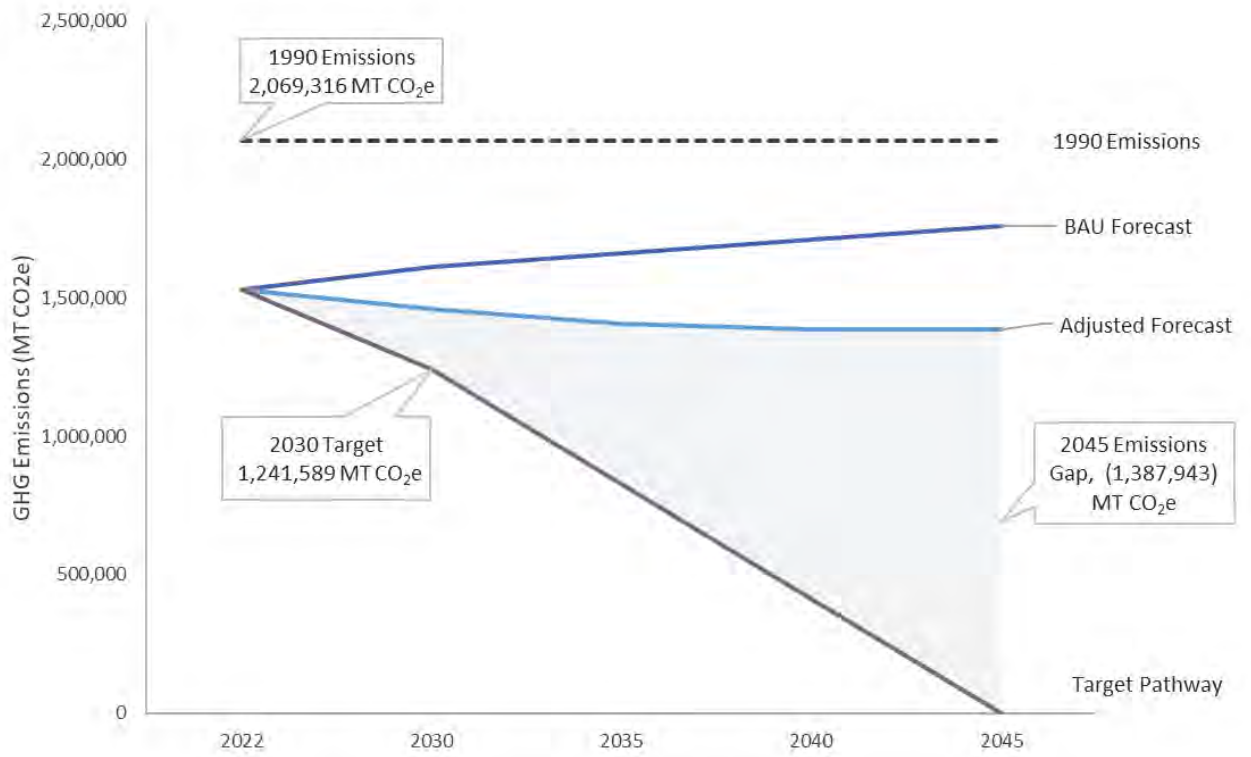
Emissions Forecast or Pathway	2022	2030	2035	2040	2045
<b>Mass Emissions Target Pathway Scenario (MT CO2e)</b>					
Adjusted Forecast	1,531,167	1,459,598	1,408,160	1,386,924	1,387,943
SB 32 Mass Emissions Target Pathway <sup>1</sup>	1,531,167	1,241,589	827,726	413,863	-
Remaining Emissions Gap	-	218,008	580,434	973,061	1,387,943

Notes: MT CO2e = Metric tons of carbon dioxide equivalent  
Emissions have been rounded to the nearest whole number and therefore sums may not match.  
1. The target pathway is calculated by reducing 1990 mass emissions by 40% in 2030 and to 0 in 2045. This provisional target pathway is consistent with both SB 32 and a trajectory set forth to achieve AB 1279.

Figure 3 provides a visual representation of future GHG emissions, with the impacts of State legislation and the remaining gap the community will be responsible for to meet the GHG emission reduction targets set by the State.

<sup>36</sup> <https://casetext.com/regulation/california-code-of-regulations/title-14-natural-resources/division-6-resources-agency/chapter-3-guidelines-for-implementation-of-the-california-environmental-quality-act/article-12-special-situations/section-151835-tiering-and-streamlining-the-analysis-of-greenhouse-gas-emissions>

Figure 3 GHG Emissions Forecast and Provisional Target Pathways (Mass Emissions)



# Appendix C

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GHG Reduction measures Quantification and Evidence



# Humboldt Regional Climate Action Plan

## Greenhouse Gas Emissions Measure Reduction Quantification and Substantial Evidence

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# 1 Introduction

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This technical report presents the quantification and substantial evidence that supports the greenhouse gas (GHG) emissions reduction potential of Humboldt's **Regional Climate Action Plan (RCAP)**. This report also supports the RCAP's classification as a qualified GHG reduction plan. The RCAP is the region's plan to reduce GHG emissions and address climate change. It includes **Measures** with numeric targets to reduce GHG emissions and **Actions** under each Measure that the region will implement through 2045 to reduce GHG emissions.

Section 15183.5(b)(1) of the California Environmental Quality Act (CEQA) guidelines establishes several criteria which a plan must meet to be considered a qualified GHG reduction plan and allow for programmatic CEQA streamlining of project GHG emissions. This report details the evidence substantiating the GHG emissions reductions associated with the RCAP measures pursuant to Subsection (D) which requires measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified GHG emissions level. This report demonstrates the Measures in the RCAP provide the GHG emission reductions necessary to meet the region's 2030 GHG emission reduction target, which aligns with the State's GHG emission reduction goal established by Senate Bill (SB) 32 and make substantial progress towards the region's 2045 target which aligns with the State's goal established Assembly Bill (AB) 1279.

Mechanisms to monitor the implementation of the RCAP and progress toward achieving the region's GHG emission reduction targets are included in the RCAP, as required in CEQA Guidelines Section 15183.5(b)(e). If, based on the tracking of community GHG emissions, the region is not on track to reach the 2030 GHG emission reductions specified in this report, the RCAP as a whole or specific Measures and Actions will be amended. Based on these amendments, a RCAP Update will be prepared that includes altered or additional Measures and Actions, with evidence that with implementation can achieve the region's 2030 GHG emission reduction target and make substantial progress towards the region's 2045 target.

## 1.1 GHG Emission Reduction Targets

The Humboldt Regional GHG emission reduction targets align with California's goal to reduce GHG emissions 40 percent below 1990 levels by 2030 (SB 32) and California's goal to achieve carbon neutrality by 2045 (AB 1279), defined as reducing GHG emissions at least 85 percent below 1990 levels and removing or sequestering the remaining GHG emissions.

Humboldt's regional short- and long-term GHG emission reduction targets are:

- Reduce GHG emissions 40 percent below 1990 levels by 2030; and
- Achieve carbon neutrality by 2045.

## 1.2 Measures and Actions Organization

As part of the RCAP process, the Humboldt region (i.e., the County and all incorporated jurisdictions) has developed a comprehensive set of Measures and Actions to reduce communitywide GHG emissions to achieve the region's 2030 GHG emission reduction target and make substantial progress towards the region's 2045 target. The Measures are organized around a set of six

mitigation Strategies to reduce GHG emissions. Each Measure is then supported by a set of Actions. The structure of the mitigation Strategies, Measures, and Actions are as follows:

- **Strategies:** Strategies describe an overall approach for reducing GHG emissions within a given sector.
- **Measures:** Measures are long-range policies that the Humboldt region has established to ultimately reduce GHG emissions in line with the State.
  - Some Measures will be further defined as “*urban*” or “*rural*” where different goals and approaches were necessary given the characteristics of the communities targeted with the Measure. Generally, “*urban*” is used to define the more densely developed areas in the region with greater access to energy and transportation infrastructure while “*rural*” generally represents the dispersed communities in the region with limited access to energy and transportation infrastructure. See each sector Strategy summary for the definition applied in that Strategy.
- **Actions:** Actions are the discrete steps that the region will take to achieve the established Measures.

The Measures and Actions can be either quantitative or supportive, defined as follows:

- **Quantitative:** Quantitative Measures result in direct and measurable GHG emissions reductions when their Actions, backed by substantial evidence, are implemented. GHG emissions reductions from these Measures and Actions are justified by case studies, scientific articles, calculations, and other third-party substantial evidence that establish the effectiveness of the reduction Actions. Quantitative Measures can be summed to quantify how the region will meet its 2030 GHG emission reduction target and demonstrate progress towards the 2045 target.
- **Supportive:** Supportive Measures may also be quantifiable and have substantial evidence to support their overall contribution to GHG emission reductions. However, due to one of several factors – including a low GHG emission reduction benefit, indirect GHG emission reduction benefit, or potential for double-counting– they have not been quantified and do not contribute directly to achieving and making progress towards the region’s GHG emission reduction targets. Despite not being quantified, supportive Measures are nevertheless critical to the overall success of the RCAP and provide support so that the quantitative Measures will be successfully implemented.

This report identifies both the quantitative and supportive Measures and provides a complete description of their contribution to achieving the Humboldt region’s 2030 GHG emission reduction target and making substantial progress towards region’s 2045 target. This report, however, only details the quantitative Actions that enable each Measure. The supportive Actions are excluded from this report because they do not quantitatively contribute to achieving and making progress towards the region’s GHG emission reduction targets. These supportive Actions are nevertheless critical to the overall success of each Measure. Detail on these supportive Actions can be found in the RCAP.

### 1.3 GHG Emissions Reductions

The primary focus of RCAP measures is to determine the actions needed to achieve the region’s 2030 GHG reductions target, while the RCAP is anticipated to be revised in future iterations to address 2045 targets for longer term planning. Table 1 summarizes the mitigation Measures and the

GHG emission reductions they would achieve in 2030, and estimated for 2045, upon the implementation of their Actions.

Table 1 Regional RCAP GHG Emission Reduction Summary by Measure

Measure ID	Measure Text	2030 GHG Emission Reduction Potential (MT CO <sub>2</sub> e)	2045 GHG Emission Reduction Potential (MT CO <sub>2</sub> e)
<b>Strategy C: Cornerstone</b>			
Measure C-1	Establish a Regional Climate Committee comprised of elected officials from each jurisdiction, HTA, HCAOG, HWMA, and RCEA.	Supportive/Critical	Supportive/Critical
<b>Strategy BE: Building Energy</b>			
Measure BE-1	By 2030, source 90% of grid-supplied electricity from renewable and carbon-free sources.	15,403	0
Measure BE-2	Increase the development of micro-grids and storage across the region to support RCEA's RePower Humboldt goals of enhancing grid capacity and facilitating the electrification of buildings and transportation.	Supportive	Supportive
Measure BE-3 Urban	Reduce existing residential building natural gas consumption by 4% by 2030 and 74% by 2045.	2,603	55,866
Measure BE-3 Rural	Reduce existing residential fossil-fuel consumption in households not connected to natural gas infrastructure by 2% by 2030.	Supportive	Supportive
Measure BE-4	Reduce existing nonresidential building natural gas consumption by 5% by 2030 and 79% by 2045.	3,821	42,887
Measure BE-5	Decarbonize 95% of new residential building construction by 2027.	2,252	13,907
Measure BE-6	Decarbonize 95% of new nonresidential building construction by 2027.	1,374	8,492
Measure BE-7	Decarbonize 30% municipal buildings and facilities by 2030.	Supportive	Supportive
Measure BE-8	Lobby Off-shore Wind developers and PG&E to build electrical infrastructure to supply Humboldt with energy produced by the off-shore wind project which will increase supply and resilience.	Supportive	Supportive
<b>Strategy TR: Transportation</b>			
Measure TR-1 Urban	Implement programs, such as those identified in HCAOG's RTP, to increase the mode share of active transportation in urbanized areas from 9% to 12% by 2030, thereby achieving a regional active transportation mode share of 8%.	1,147	2,594
Measure TR-1	Implement programs, such as those identified in	1,080	4,405

Measure ID	Measure Text	2030 GHG Emission Reduction Potential (MT CO2e)	2045 GHG Emission Reduction Potential (MT CO2e)
Rural	HCAOG's RTP, that increase access to safe active transportation, to increase the mode share of active transportation in rural areas from 5% to 6% by 2030 thereby achieving a regional active transportation mode share of 9%.		
Measure TR-2 Urban	Expand the public transit network in support of HCAOG's Regional Transportation Plan to increase public transit mode share from 2% to 20% public transit mode share in urbanized areas to achieve a regional 13% public transit mode share by 2030.	18,055	26,482
Measure TR-2 Rural	Develop a robust public transit network in support of HCAOG's Regional Transportation Plan to increase public transit mode share from 1% to 10% in rural areas and achieve a regional 13% public transit mode share by 2030.	20,180	29,703
Measure TR-3	Reduce regional VMT by increasing promotion of mixed-use development in infill priority areas in alignment with HCAOG's baseline connectivity score included in the RTP.	Supportive	Supportive
Measure TR-4	Develop and implement regional mobility hubs and ZEV car-share programs to support mode shift from single occupancy vehicles.	Supportive	Supportive
Measure TR-5	Require commercial and industrial employers with 25 employees or more to develop a Transportation Demand Management plan.	Supportive	Supportive
Measure TR-6	Decarbonize 15% of passenger vehicle miles traveled by 2030 and 100% by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.	55,726	590,124
Measure TR-7	Increase commercial zero-emission vehicle use and adoption to 10% by 2030 and 100% by 2045 through a regional charging network and development of hydrogen hubs.	17,441	279,775
Measure TR-8	Electrify or otherwise decarbonize 12% of applicable SORE off-road equipment by 2030 and 100% by 2045 and replace fossil diesel consumption with renewable diesel in 55% of applicable large diesel in alignment with EO N-79-20 by 2030.	49,143	139,645
Measure TR-9	Establish Humboldt as a pilot program for the decarbonization of the transportation sector to help drive state and philanthropic investment throughout Humboldt.	Supportive	Supportive

Measure ID	Measure Text	2030 GHG Emission Reduction Potential (MT CO2e)	2045 GHG Emission Reduction Potential (MT CO2e)
Measure TR-10	Work with the state and biofuel industry to establish a biofuel network within Humboldt thereby funding new green industry and job growth to support the decarbonization of the transportation sector.	Supportive	Supportive
Measure TR-11	Lead by example and electrify or otherwise decarbonize 50% of the municipal fleet by 2030 in alignment with the state's Advanced Clean Fleet Rule.	Supportive	Supportive
<b>Strategy SW: Solid Waste</b>			
Measure SW-1	Establish a local waste separation facility and organics management to be able to reduce waste sent to landfills by 75% by 2030. Reduce GHG emissions by limiting truck trips required to ship waste out of the county and import compost from out of the county.	29,689	32,568
<b>Strategy WW: Water and Wastewater</b>			
Measure WW-1	Expand regional opportunities for implementation of wastewater decarbonization technologies such as anaerobic digesters to reduce GHG and produce renewable fuel sources.	Supportive	Supportive
Measure WW-2	Reduce per capita potable water consumption by 15% by 2030.	Supportive	Supportive
<b>Strategy CS: Carbon Sequestration</b>			
Measure CS-1	Research and implement feasible carbon sequestration technology opportunities to support growth and expansion of green jobs industry within the region.	Supportive	Supportive
Measure CS-2	Offset fossil-based emissions and increase carbon sequestration in the community by achieving SB 1383 procurement requirements (0.08 tons recovered organic waste per person) by 2030.	1,532	1,681
Measure CS-3	Develop a County-wide Natural and Working Lands GHG Inventory baseline by 2027 to better understand the existing and future GHG sequestration and help obtain resources to protect and increase natural carbon sequestration occurring in the region as well as promote biodiverse forests and wetlands resistant to wildfire.	Supportive	Supportive
<b>Total</b>		<b>219,446</b>	<b>1,228,128</b>

Together, the Measures and Actions in in the RCAP provide the Humboldt region with the GHG emission reductions necessary to achieve the region's 2030 GHG emission reduction target (see Section 1.1). Additionally, with full implementation of the RCAP Measures and Actions and assuming

complete alignment with State on-road and off-road decarbonization goals, the 2045 GHG emissions reductions quantified in this report demonstrate a potential 85 percent reduction from 1990 levels. However, to meet Humboldt's 2045 target of carbon neutrality the rate at which Measures and Actions are implemented would need to be increased, and additional Measure and Actions to increase carbon removal will need to be added. Future RCAP updates will monitor effectiveness of RCAP implementation, address addition of emerging technologies, increase the specificity of measures, review new state regulations, and include new Measures and Actions that Humboldt will implement to continue on the track toward carbon neutrality by 2045.

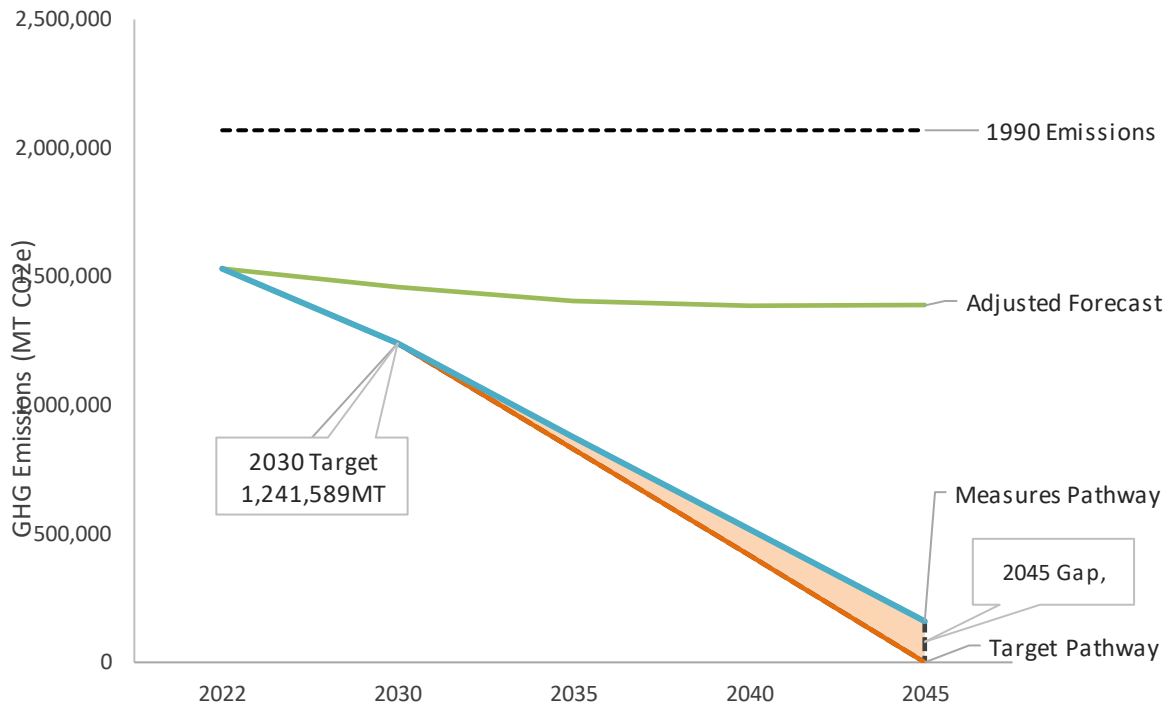
Table 2 Humboldt Region GHG Emissions Reductions Pathway

GHG Emission Forecast or Reduction Target	2030 GHG Emissions (MT CO <sub>2</sub> e)	2045 GHG Emissions (MT CO <sub>2</sub> e)
Business-as-usual Forecast	1,610,994	1,761,644
Adjusted Forecast	1,459,598	1,387,943
GHG Emissions Reductions (from full implementation of Measures)	219,446	1,228,128
GHG Emissions Remaining (after Measure reductions)	1,240,151	159,815
GHG Emission Reduction Target	1,241,589	0
GHG Emissions Gap (between remaining GHG emissions and target)	-1,438	159,815
<b>Target anticipated to be met?</b>	<b>Yes</b>	<b>No</b>

Notes: Numeric numbers donated in parathesis represent negative numbers.

Figure 1 shows the the region's GHG emission reduction targets in relation to the Humboldt Regional GHG emissions after implementation of the Mitigation Measures and Actions included in the RCAP. A complete description of each Measure and the quantitative Actions is included in the remainder of the report.

Figure 1 Humboldt Regional GHG Emissions Reductions Pathway





## 2 Strategy C: Cornerstone

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The Humboldt Regional Cornerstone Strategy focuses on fostering collaboration between jurisdictions and key organizations to establish a regional approach to climate-related challenges through coordinated efforts. Given the rural nature of the region and its dispersed population, individual municipalities, even the larger incorporated cities, face significant constraints in their efforts to reduce GHG emissions due to limited resources (e.g. staffing and funding). These constraints can be overcome through a coordinated and collaborative approach to RCAP implementation. Through a collaborative approach the region can more effectively identify and build efficiencies, attract and share resources (e.g., funding, staff time), and undertake regional infrastructure initiatives needed to enhance capacity and interconnectivity in sectors such as solid waste and transportation, thereby reducing GHG emissions as outlined in the RCAP Measures. While this Strategy will not produce quantifiable GHG emission reductions, it is critical to successful implementation of the RCAP Measures where deep GHG reductions can only be achieved through regionally applied efforts. Based on this approach, the RCAP’s Cornerstone Strategy consists of the Measure presented in Table 3. The table also indicates the Measure is supportive.

Table 3 Strategy C: Cornerstone GHG Emissions Reduction Summary

Measure ID	Measure	2030 GHG Emission Reductions (MT CO <sub>2</sub> e)	2045 GHG Emission Reductions (MT CO <sub>2</sub> e)
C-1	Establish a Regional Climate Committee comprised of elected officials from each jurisdiction, HTA, HCAOG, HWMA, and RCEA.	Supportive/Critical	Supportive/Critical
<b>Total</b>		<b>0</b>	<b>0</b>

Notes:

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Measure C-1: Establish a Regional Climate Committee comprised of elected officials from each jurisdiction, HTA, HCAOG, HWMA, and RCEA.

Measure C-1 commits the region to establishing a Regional Climate Committee, facilitated by the County, to serve as a regional coalition. This committee is crucial to facilitate implementation of the Measures outlined in the RCAP. The measure emphasizes the six pillars used in each measure of the RCAP to provide proven structure for successful implementation and clearly illustrates the purposes.

- **Structural Change:** Develop and provide models, pilot programs, and template policies or ordinances that enable each jurisdiction in the region to implement uniform changes and facilitating local communities in making the necessary structural adjustments to reduce GHG emissions.
- **Engagement:** Develop and distribute promotional materials and programs across the region to inform the community, gain buy-in, and promote awareness of new and existing programs and opportunities.
- **Equity:** Leverage regional programs to engage and support frontline communities that may experience secondary impacts or not benefit directly from the measures' objectives. Ensure these communities can access regional resources or funding opportunities to mitigate identified impacts and benefit the entire community.
- **Feasibility Studies:** Utilize regional resources to conduct efficient studies that provide a clear understanding of the details, obstacles, and feasibility of proposed programs. This includes necessary analyses to identify the best path forward or the feasibility of implementing specific measures.
- **Funding:** Collaborate regionally to identify and pursue grants and financial backing. Ensure resources and efforts are directed towards securing funds that can be distributed across the region, such as grants or rebates to support measure implementation and adequate program staffing.
- **Partnerships:** Use the collaborative network of local jurisdictions, agencies, and community-based organizations (CBOs) to attract additional internal and external support and expertise. This includes engaging community organizations that are well-positioned to consistently and sustainably advance specific measures.

This committee would include representatives from municipalities across Humboldt County as well as representatives from regional agencies such as the HTA, HCAOG, HWMA, and RCEA, and other partner organizations. The purpose of this coalition is to foster collaboration and coordination among the region to address climate-related challenges and implement effective climate action strategies. By bringing together key parties from various sectors and jurisdictions, Measure C-1 leverages collective expertise, resources, and efficiencies to tackle climate change at a regional level. The committee would support RCAP implementation through information sharing, coordination of RCAP efforts, development of joint initiatives to reduce GHG emissions, support and pursue funding, and promote sustainable development practices.

It is critical to have such collaboration and coalition-building to implement the RCAP in a rural and dispersed region that is highly constrained by limited resources. As this is the first RCAP for the region, establishing a collaborative approach is necessary to expand and improve upon shared infrastructure development, such as an interconnected energy and transportation system and regional waste management solutions, that is needed to successfully achieve GHG reductions in the RCAP on both a regional and individual municipality level. Measure implementation will be phased

and iterative, which will allow for the strategies to evolve based on ongoing monitoring of the region's GHG emission levels and progress on measure implementation. Regular monitoring allows progress with implementation to be tracked and effectively inform changes in approach. If the region skews from the GHG reduction targets established in the RCAP, the approach will be updated to include additional and more specific measures to focus on sectors that require renewed emphasis. However, long term change first requires foundational regional efforts to address the region's disconnected infrastructure and resource disadvantages.

Coalition building has been referenced by multiple local, state, national, and international organizations as being critical features in the fight against climate change. Evidence supporting the effectiveness of coalitions in climate action can be found in various successful initiatives globally. For instance, the World Resources Institute notes a significant rise in number of coalitions since the 2015 Paris Agreement and highlights over 90 intergovernmental climate initiatives, emphasizing the importance of cooperation across sectors to tackle emissions effectively.<sup>1</sup> The necessity of coalition-building is further endorsed by senior diplomats, who assert that environmental diplomacy and effective climate action require robust coalitions and convening interested parties (UNC Global, 2022).<sup>2</sup> The United Nations Net Zero Coalition exemplifies this approach by bringing together non-state entities such as cities, regional entities, businesses, and investors to accelerate implementation and achieve net-zero emissions by 2050.<sup>3</sup> Additionally, the World Economic Forum showcases numerous alliances and initiatives aimed at addressing the United Nations Sustainable Development Goals, reinforcing the critical role of partnerships in global climate action.<sup>4</sup> EcoAmerica also underscores the need for coalition-building to enhance community engagement and implementation efficiency in climate action.<sup>5</sup>

At the state level, California has emphasized a coalition-based approach, recognizing it as a crucial strategy for achieving climate-related goals. The State's 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) identifies a number of partnership strategies and opportunities for partnership development to aid in reducing GHG emissions including but not limited to developing partnerships across state and local governments, fostering regional collaboration, and establishing public-private partnerships.<sup>6</sup> As detailed in the 2022 Scoping Plan, the State is investing one billion dollars into regional partnerships and economic diversification to support the creation of new jobs and/or economic transition to a carbon neutral economy. The Community Economic Resilience Fund (CERF) was specifically created to support regional groups in developing comprehensive roadmaps for economic recovery and transition, with a focus on creating accessible, high-quality jobs in sustainable industries. Given the Humboldt region's economic downturn in recent decades due to

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<sup>1</sup> World Resources Institute. 2023. Launching a Climate Coalition? Learn from Existing Ones First. Available at: <https://www.wri.org/insights/climate-coalition-cooperation-strategies>

<sup>2</sup> The University of North Carolina at Chapel Hill. 2024. Climate change, environmental diplomacy require coalition-building, say senior diplomats. Available at: <https://global.unc.edu/news-story/climate-change-environmental-diplomacy-require-coalition-building-say-senior-diplomats/>

<sup>3</sup> United Nations. 2023. Net Zero #ItsPossible. Available at: <https://www.un.org/en/climatechange/net-zero-coalition>

<sup>4</sup> World Economic Forum. 2022. Meet the 100 Coalitions accelerating climate action and sustainable development. Available at: <https://widgets.weforum.org/sdg-alliances-initiatives-coalitions/index.html>

<sup>5</sup> EcoAmerica. 2023. We need coalitions to stop climate change. Available at: <https://ecoamerica.org/we-need-coalitions-to-stop-climate-change/>

<sup>6</sup> California Air and Resources Board (CARB). 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Available at: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

the decline of industries like logging, and the emerging opportunities for green industry growth such as offshore wind, the region is well-positioned to apply for this type of funding. Through the 2022 Scoping Plan, the State also recognizes the importance of establishing partnerships with tribal leaders to incorporate their priorities, expertise, and knowledge to achieve climate goals. There are several tribes in the Humboldt region that have already engaged in climate action efforts on their own. It will be important for the region to continue to engage with these tribes to gain insight on implementation of measures and actions that may impact tribal cultural resources and/or may benefit from tribal input.

The California Climate Adaptation Strategy, a program mandated by AB 1482, also recognizes the importance of regional collaboration and has recently updated priority strategies to enhance the implementation methods and metrics for establishing effective collaboratives and the successful leveraging of resources.<sup>7</sup> There are several grant funding opportunities available for regional climate adaptation resilience planning and scaling of regional climate solutions through the Integrated Climate Adaptation and Resiliency Program (ICARP).<sup>8</sup> ICARP was formed by the Governor's Office of Planning and Research (OPR) as directed by SB 246 signed in 2015. The most recent round of funding through the Adaptation Planning Grant Program (APGP) prioritized funding communities with capacity and resource constraints such as those in rural communities. Although this round of grant funding for the APGP has closed, the focus on supporting regional-scale climate planning and implementation efforts underscores the emphasis state programs place on addressing climate change through regional coalitions and the added value of such coalitions for rural communities like Humboldt.

An example of a successful coalition within the State includes the San Mateo County Regionally Integrated Climate Action Planning Suite (RICAPS) program that was developed to provide the tools and technical support for climate action planning and implementation to the 21 local jurisdictions in San Mateo County. The program was developed with the recognition that smaller incorporated cities in the region were limited in staff resources and funding to implement climate actions on their own and that a regional approach was necessary to reduce GHG emissions countywide and meet statewide GHG reduction goals. The RICAPS program is funded by grants from the regional air quality district (Bay Area Air Quality Management District) and PG&E.

Similar to San Mateo County, Humboldt's RCAP seeks to address climate change on a regional level and recognizes that the individual jurisdictions face significant constraints to implementation of the RCAP due to staffing and funding availability. Establishing a Regional Climate Committee in Humboldt aligns with state-recommended methods for implementing climate-related initiatives and addresses the constraints faced by individual jurisdictions. By leveraging the region's collective resources, this coalition can increase efficiency, pool resources, and enhance access to funding opportunities for implementing the RCAP measures. Furthermore, a regional approach focuses on increasing the interconnectedness of infrastructure in the region, which is essential for achieving substantial reductions in GHG emissions.

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<sup>7</sup> CA.gov. 2024. California Climate Adaptation Strategy. Available at: <https://www.climate resilience.ca.gov/>

<sup>8</sup> <https://opr.ca.gov/climate/icarp/grants/>

## 3 Strategy BE: Building Energy

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The Humboldt region’s Building Energy Strategy focuses on two approaches developed specifically for the incorporated cities with natural gas infrastructure, termed as “urban” areas and for the unincorporated Humboldt County and smaller jurisdictions without natural gas infrastructure, that are best characterized as “rural”. In the larger incorporated cities, the RCAP strategy primarily consists of electrifying and weatherizing residential and nonresidential buildings to leverage the carbon-free and renewable electricity provided by Redwood Coast Energy Authority (RCEA) and increase building energy efficiencies to reduce the load on the local grid. The strategy also focuses on supporting RCEA’s buildout of local residential solar installations and community-scale generation and storage of renewable energy.<sup>9</sup> This strategy also aims to collaborate with the Rural Regional Energy Network (RuralREN) administered by RCEA to access funding and develop locally-appropriate programs to enhance energy efficiency in the community and reduce the energy burden in the region. RuralREN formation was approved by the California Public Utilities commission (CPUC) in June of 2023 to expand access of rural communities to energy efficiency services by investing \$177 million to underserved rural regions across the state including the North Coast where Humboldt is located. The funding is intended to go towards helping customers with financing options for energy projects, workforce education and training, energy codes and standards training, as well as energy assessments, rebates, and incentives for cleaner energy efficient equipment.<sup>10</sup>

Electrifying the urban areas of the region’s building stock consists of transitioning natural gas appliances—the equipment that heats the water we use and heats and cools the spaces we live and work in—to electric alternatives. When coupled with renewable and zero-carbon electricity, all-electric buildings eliminate GHG emissions from natural gas consumption and transition to a zero-emission operational energy footprint. The incorporated jurisdictions will also work to increase the generation and storage of community-scale renewable energy via on-site solar and battery storage to further support the additional electricity demand resulting from building electrification.

Due to the limitations of the energy infrastructure in rural regions, many rural households in Humboldt rely on alternative energy sources such as propane. In recognition of difference in regional characteristics, the RCAP Building Energy Strategy includes efforts to provide direct, decarbonized substitutions for currently used fuels in addition to electrification, weatherization, and on-site generation efforts. Based on these regionally specific approaches, the RCAP’s Building Energy Strategy consists of the following Measures presented in Table 4. The table also indicates which Measures are quantitative and which Measures are supportive. The following subsections detail the substantial evidence and calculation methodologies of the quantitative Measures and the role of the supportive Measures.

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<sup>9</sup> Community-scale renewable energy provides electricity for community or commercial consumption rather than for a single home as residential rooftop solar does.

<sup>10</sup> <https://kymkemp.com/2023/07/11/rcea-to-administer-new-energy-network-serving-rural-california/>

Table 4 Strategy BE: Building Energy GHG Emission Reduction Summary

Measure ID	Measure	2030 GHG Emission Reductions (MT CO <sub>2</sub> e)	2045 GHG Emission Reductions (MT CO <sub>2</sub> e)
Measure BE-1	By 2030, source 90% of grid-supplied electricity from renewable and carbon-free sources.	15,403	0
Measure BE-2	Increase the development of micro-grids and storage across the region to support RCEA's RePower Humboldt goals of enhancing grid capacity and facilitating the electrification of buildings and transportation.	Supportive	Supportive
Measure BE-3 Urban	Reduce existing residential building natural gas consumption by 4% by 2030 and 74% by 2045.	2,603	55,866
Measure BE-3 Rural	Reduce existing residential fossil-fuel consumption in households not connected to natural gas infrastructure by 2% by 2030.	Supportive	Supportive
Measure BE-4	Reduce existing nonresidential building natural gas consumption by 5% by 2030 and 79% by 2045.	3,821	42,887
Measure BE-5	Decarbonize 95% of new residential building construction by 2027.	2,252	13,907
Measure BE-6	Decarbonize 95% of new nonresidential building construction by 2027.	1,374	8,492
Measure BE-7	Decarbonize 30% municipal buildings and facilities by 2030	Supportive	Supportive
Measure BE-8	Lobby Off-shore Wind developers and PG&E to build electrical infrastructure to supply Humboldt with energy produced by the off-shore wind project which will increase supply and resilience	Supportive	Supportive
<b>Total</b>		<b>25,453</b>	<b>121,152</b>

1. Assumes emissions for electricity will be 0 due to SB 100 requirements that all retail electricity must be generated from renewable, carbon-free sources by 2045.

Measure BE-1: By 2030, source 90% of grid-supplied electricity from renewable and carbon-free sources.

Measure BE-1 aims to increase the share of electricity-supplied to the region that is sourced from renewable and carbon-free sources such that 90 percent of all electricity consumed in the Humboldt region is carbon-free. As RCEA is on track to provide 100 percent renewable electricity to all customers by 2030, this Measure would significantly aid in decarbonizing the region's building energy sector. The primary Actions that enable this Measure are:

- **Action BE-1a**, which supports RCEA in implementation of the RePower Humboldt plan which focuses on the continued procurement of renewable and carbon-free power and administration of decarbonization programs such as continued customer solar installations, electrification support, EV charging infrastructure buildout, and advanced biofuel infrastructure development;
- **Action BE-1b**, which directs the Regional Climate Committee to develop a policy or ordinance that will be adapted and adopted by each jurisdiction that requires new commercial and industrial developments to acquire electricity from renewable and carbon-free sources by either enrolling with RCEA or a comparable program;
- **Action BE-1d**, which involves the development of promotional materials and engagement with the community to inform the community of available incentives and benefits of enrolling in RCEA programs and discourage opting-out,
- **Action BE-1e**, which commits the region to increasing communication and technical assistance to low/moderate income households on the rebate and funding assistance programs available through the California Alternate Rates for Energy (CARE) and Low Income Home Energy Assistance Program (LIHEAP).

Currently, electricity customers in the Humboldt region are automatically enrolled in RCEA's REPower electricity option but may choose to 1) opt-up to the REPower+ option, 2) opt-out to receive electricity directly from PG&E, or 3) opt-out to procure electricity at wholesale directly from electricity generators (i.e., direct access). Automatic enrollment has shown to be an effective method of increasing the use of carbon-free and renewable electricity, with RCEA currently maintaining a 9 percent opt-out rate<sup>11</sup>. Based on electricity data provided by RCEA and region wide electricity use from CEC, RCEA currently supplies 77 percent of all electricity consumed in the region. A majority of the remaining 23 percent is provided by PG&E.

RCEA currently offers electricity options with a GHG emission rate lower than the standard electricity options offered in the region. In 2022, RCEA's REPower electricity option sourced 50 percent of its supply from eligible renewable sources, while the REPower+ option supplied 100 percent from solar, wind, and eligible hydroelectric at a GHG emissions rate of zero.<sup>12</sup> Though RCEA currently provides two renewable rate options, RCEA has established a strategy (RePower Humboldt Plan) and is currently on track to provide all customers with electricity that is sourced from 100 percent net-zero-carbon emission renewable sources by 2030.<sup>13</sup> As such, by maintaining the current enrollment level and opt-out rates, approximately 77 percent of building electricity emissions in the region will be reduced to zero by 2030 as RCEA achieves its goal to procure electricity that is 100

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<sup>11</sup> Opt-out rates reported by RCEA via email on March 21, 2024.

<sup>12</sup> California Energy Commission (CEC). 2022 Power Content Label: Redwood Coast Energy Authority. Accessed at: <https://www.energy.ca.gov/filebrowser/download/6060>.

<sup>13</sup> Redwood Coast Energy Authority (RCEA). 2019. REPower Humboldt (2019 Update). Available at: <https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>

percent net-zero-carbon for both REPower and REPower+ customers. This means that to achieve Measure BE-1 goal, an additional 13 percent of electricity supplied to the region will need to be sourced from renewable and carbon-free sources. Through **Action BE-1a** the region will support RCEA in implementing the renewable energy and decarbonization programs, by providing the necessary assessments to plan and implement an effective energy strategy that addresses obstacles to implementation.

To further increase the percent of regional electricity that is supplied by RCEA or a comparable 100% renewable program, jurisdictions in Humboldt will leverage the Regional Climate Committee to develop education initiatives to advertise benefits and financial incentives to increase enrollment in RCEA and minimize opt-out rates through **Action BE-1d**. RCEA and jurisdictions in Humboldt understand cost is often the deciding factor for residents and businesses when making choices about an energy provider.<sup>14</sup> Currently, RCEA has capacity to enroll all Humboldt electricity consumers in their REPower and REPower+ energy packages, though higher procurement costs pose the largest constraint for higher enrollment rates. For this reason, the region will focus educational efforts on, and support RCEA in implementing energy finance programs through **Action BE-1f** and pursuing funding to expand available financial assistance such as the CARE and LIHEAP programs to keep customers enrolled in RCEA's power supply programs. As directed by **Action BE-1e**, expanding the CARE and LIHEAP programs will reduce financial limitations of low income residents in maintaining RCEA enrollment as well as increase access to the REPower+ option at no extra cost. This plan will prevent customers enrolled in these programs from experiencing cost increases that may drive decisions to opt-out of RCEA. Moreover, studies have also shown informational programs can result in up to a 70 percent implementation rate of recommended practices by participants.<sup>15</sup> The jurisdictions will, therefore, include education on the benefits of clean energy for residents and businesses to encourage customers to remain in RCEA programs.

In 2022, RCEA provided 85 percent of residential electricity and 71 percent of non-residential electricity indicating that there is a lower enrollment rate of RCEA by non-residential customers. To increase the percent of non-residential customers receiving renewable and carbon-free electricity, **Action BE-1b** commits jurisdictions to require new commercial and industrial facilities to enroll with a 100 percent renewable energy and carbon free source such as RCEA<sup>16</sup> or PG&E's 100% Solar Choice or Green Saver program.<sup>17</sup> The unincorporated County of Humboldt implemented such a building code<sup>18</sup> for cannabis industries developing in the region which was effective in increasing enrollment in 100 percent renewable energy electricity. This building code serves as an example of implementation that has been proven successful in the region. The template for such a policy or ordinance would be developed by the Regional Climate Committee through **Action BE-1b** to increase efficiencies during policy development, best utilize limited staff resources and time, and to create consistency across the jurisdictions. With actions focused on education and financial

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<sup>14</sup> Villasenor, Karen. The City of Rancho Mirage Launches Community Choice Aggregation Program with Low Opt-Out Rate (2018). Accessed at: <https://www.civicbusinessjournal.com/city-rancho-mirage-launches-community-choice-aggregation-program-low-opt-rate/>.

<sup>15</sup> Laquatra, Joseph et al. The Consumer Education Program for Residential Energy Efficiency (2009). Accessed at: <https://archives.joe.org/joe/2009december/a6.php>.

<sup>16</sup> Note that RCEA REPower and REPower+ enrollment options are both expected to provide 100 percent carbon free renewable energy by 2030.

<sup>17</sup> PG&E offers a varied of rate plans that include 100% renewable and carbon-free rates that can be enrolled in. Available at: <https://www.pge.com/en/clean-energy.html>

<sup>18</sup> Humboldt County. Section B: Regulations That Apply In All or Several Zones, Part 1: Uses and Activities. Available at: <https://humboldt.county.codes/Code/313-55>



incentives in conjunction with building code requirements on non-residential land uses it is anticipated that the percent of regional supplied electricity that is sourced from renewable and carbon-free sources will increase to 90 percent by 2030.

Table 5 shows the parameters and data sources that support these clean energy GHG emission reductions and Table 6 shows the calculations as outlined in Equations 1 through 1.1.

RCEA Clean Energy Equations

Equation 1  $CO_2e\ Reduction_{Elec,y,i} = Total\ Elec_{y,i} * Supply\ Rate_i * (EF_{elec,y,i} - EF_{CF,y})$

Equation 1.1  $Total\ Elec_{y,i} = (Elec_{y,i} + Total\ Elec\ Converted_{y,i}) * (1 + L_{T\&D})$

Table 5 RCEA Clean Energy Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 1</b>				
$CO_2e\ Reduction_{Elec,y,i}$	Electricity GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$Total\ Elec_{y,i}$	Total electricity consumption	See calculation table	kWh	Calculated
$Supply\ Rate_i$	Target supply rate community-wide	90%	percentage	Estimated to account for current RCEA enrollment and increased enrollment in RCEA or an alternative Green Rate expected with education and incentive programs via Action BE-1e and required enrollment by nonresidential sector via Action BE-1b.
$EF_{elec,y,i}$	Forecasted electricity emission factor	See calculation table	MT CO <sub>2</sub> e/kWh	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$EF_{CF,y}$	Electricity emission factor of carbon-free electricity	0.00	MT CO <sub>2</sub> e/kWh	RCEA REPower Plan <sup>1</sup> PG&E 100% Solar or Green Saver Program <sup>2</sup>
$y$	Year	2030	year	–
$i$	Subsector	Residential or Nonresidential	N/A	–
<b>Equation 1.1</b>				
$Elec_{y,i}$	Forecasted electricity consumption	See calculation table	kWh	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Elec\ Converted_{y,i}$	Total electricity usage from conversions	See calculation table	kWh	Measures BE-3, BE-4, BE-5, and BE-6
$L_{T\&D}$	Electricity transmission and distribution loss percentage	5.10%	Percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report

Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows  
1. Redwood Coast Energy Authority (RCEA). REPower Humboldt (2019 Update). Available at: <https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>

2. Action BE-1b would require industries to enroll in carbon free electricity program. Beyond RCEA, PG&E a few options for 100% renewable and carbon-free rates that can be enrolled in. Available at: <https://www.pge.com/en/clean-energy.html> The aPG&E's green saver

Table 6 RCEA Clean Energy GHG Emission Reduction Calculations

Definition	Definition	Units	Sector	2030	2045
<b>Equation 1.1</b>					
$Elec_{y,i}$	Forecasted electricity consumption	kWh	Residential	400,921,013	452,724,827
			Nonresidential	451,198,361	570,590,085
$Elec\ Converted_{y,i}$	Total electricity usage from conversions	kWh	Residential	14,037,798	234,911,282
			Nonresidential	12,889,430	160,324,644
$Total\ Elec_{y,i}$	Total electricity consumption	kWh	Residential	436,121,710	722,705,550
			Nonresidential	487,756,269	768,191,380
<b>Equation 1</b>					
$EF_{elec,y,i}$	Forecasted electricity emission factor	MT CO <sub>2</sub> e/kWh	Residential	0.0000183	0.00
			Nonresidential	0.0000187	0.00
$CO_2e\ Reduction_{Elec,y,i}$	Electricity GHG emission reductions	MT CO <sub>2</sub> e	Residential	7,180	0
			Nonresidential	8,224	0

Measure BE-2: Increase the development of micro-grids and storage across **the region to support RCEA's RePower Humboldt goals of enhancing grid capacity and facilitating the electrification of buildings and transportation.**

Measure BE-2 calls for the regional enhancement of energy grid capacity by developing micro-grids and energy storage systems, supporting RCEA's goals established in the REPower Humboldt Plan. Micro-grids, which can operate independently from the traditional grid, combined with energy storage, improve grid reliability and resilience by storing excess energy during low demand and supplying it during peak periods. While the GHG emission reductions from this measure are not quantified in this RCAP due to potential overlaps with other measures, these efforts play a crucial role in reducing the strain on the current grid and increase the available renewable energy to source locally. This supports the region's transition to renewable electricity and the electrification of buildings and transportation, as outlined in Measures BE-3 through BE-7, as well as TR-6 through TR-8.

With their flexibility and resilience, micro-grids serve as a viable method for addressing the capacity constraints that exist throughout the region.<sup>19</sup> Micro-grids and energy storage enhance grid efficiency, reduce reliance on fossil fuel-based plants, and facilitate the integration of renewable energy sources. Micro grids provide for increased resilience against power outages, crucial for climate adaptation. Furthermore, by decentralizing energy production, micro-grids can expand access to renewable energy in rural and isolated areas, thereby promoting greater availability of low-carbon energy solutions.

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<sup>19</sup> Redwood Coast Energy Authority (RCEA). 2024. Resilience, Energy Resilience and Emergency Response. Available at: <https://redwoodenergy.org/resilience/>

Measure BE-3 Urban: Reduce existing residential building natural gas consumption by 4% by 2030 and 74% by 2045.

Measure BE-3 puts the region's urban areas (i.e. all incorporated cities with natural gas infrastructure) on a path to reduce residential natural gas consumption by approximately 4 percent by 2030 and 74 percent by 2045 to reduce GHG emissions. The primary Actions that enable this level of adoption include:

- **Action BE-3a** which calls for the development of an equitable decarbonization plan for urban residences connected to natural gas infrastructure that determine feasibility, cost, and equity concerns of retrofits as well as identifies projects and specific strategies to meet decarbonization targets;
- **Action BE-2b** which commits the Regional Climate Committee to petition PG&E on the region's behalf to help identify priority areas for electric grid expansion to help increase regional grid capacity and islanding capabilities;
- **Action BE-2d** which coordinates a regional effort to pursue and obtain increased funding from sources such as CARB, the Investment Reduction Act, and the Infrastructure Investment and Jobs Act; and
- **Action BE-2e** which commits incorporated jurisdictions to promote and provide information regarding currently available rebates for heat pumps, weatherization, smart appliances, etc. developed by the Regional Climate Committee with support provided by RCEA.

These actions will prepare urban areas with the engagement, resources, and funding assistance needed to reduce natural gas consumption through voluntary replacement. Currently available incentives will help continue the growth in electric space and water heaters seen in California over the past decade. According to Opinion Dynamics' *California Heat Pump Residential Market Characterization and Baseline Study (2022)*, electric space heaters have grown from a five percent market share in 2009 to a 20 percent market share in 2019. Likewise, electric water heaters have grown from a six percent market share in 2009 to a 12 percent market share in 2019.<sup>20</sup> This trend is not only expected to continue through 2030 as electric appliances become more efficient and more cost-effective, but also be accelerated when coupled with sufficient funding for community members to replace their space and water heating appliances with electric or heat pump alternatives. While the total amount of funding available will change with sunset dates and budget cycles, the currently available federal (i.e., High Efficiency Electric Home Rebate [HEEHRA], Homeowner Managing Energy Savings [HOMES] Rebate, Inflation Reduction Act), state (i.e., TEHC Clean California), and local (i.e., RCEA's Residential Equipment Rebate Catalog and Heat Pump Rebate Catalog) funding options make it so that low- and middle-income residents in the Humboldt region can install electric space and water heaters at no additional cost compared to gas space and water heaters. In some cases, such customers will even be able to install the heat pump water heaters for free.<sup>21</sup> Though the region is currently limited in its electrification potential largely due to capacity restrictions from PG&E infrastructure, it is anticipated that the significant amount of funding available to Humboldt region residents and businesses combined with RCEA efforts to expand regional capacity (See Measure BE-2) will remove this hinderance to electrification and thereby help drive the voluntary market trend for electric space and water heating appliances

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<sup>20</sup> Opinion Dynamics. California Heat Pump Residential Market Characterization and Baseline Study (2022). Accessed at: <https://pda.energydataweb.com/#!/documents/2625/view>.

<sup>21</sup> Rincon Consultants, Inc. Installation Costs for Zero-NOx Space and Water Heating Appliances (2024).

through 2030. Further, by developing a regional residential decarbonization plan that accounts for infrastructure and cost limitations and identifies strategies for partial electrification, more widespread adoption of residential decarbonization strategies can be anticipated.<sup>22</sup>

Table 7 shows the parameters and data sources that support these electrification programs and incentives for voluntary replacement, and Table 8 shows the GHG emissions reductions as outlined in Equation 2 through 2.4. Though the primary rebate programs specified prioritize heat pump replacements due to their superior efficiency, electric resistance equipment currently make up the majority of the electric technology market, likely due to their overall lower up-front cost. As the Actions employed by the Regional Climate Committee and urban areas would rely largely on voluntary replacement, the quantification of GHG reductions for this Measure assumes alignment with current market penetration of available electric technologies. Studies, such as those conducted by the American Council for an Energy-Efficient Economy (ACEEE) and the California Energy Commission (CEC), indicate that electrification and decarbonization practices are more common in urban areas due to better access to electrical infrastructure and greater policy and regulatory support.<sup>22,23</sup> As such, the GHG reductions associated with this Measure were conservatively applied only to the natural gas consumption in the incorporated cities of Humboldt, which account for approximately 60% of the region's total residential natural gas consumption. Given the substantial funding opportunities and increased awareness regarding the benefits of partial or full electrification available to all residences connected to the natural gas infrastructure in the region, it is anticipated that larger GHG reductions than those presented below are achievable.

Additionally, the emissions associated with natural gas consumption from PG&E are expected to decrease due to Senate Bill 1440, which mandates gas utilities, including PG&E, to replace pipeline-supplied natural gas with renewable natural gas (RNG). In 2022, the California Public Utilities Commission (CPUC) set RNG supply requirements for California utilities, requiring them to increase the amount of RNG in the pipeline supplied to residential and commercial customers by 12% by 2030.<sup>24</sup> RNG is derived from organic waste materials, such as landfill waste, sewer, and agricultural waste through processes like anaerobic digestion. Because organic waste naturally releases biogenic carbon dioxide during decomposition, conversion of organic waste into RNG means that any carbon dioxide released during combustion of RNG is considered part of the natural carbon cycle and does not contribute a net increase in carbon dioxide emissions to the atmosphere like combustion of fossil derived natural gas does. Production and consumption of RNG still releases non-biogenic GHG emissions, but to a lesser extent than extraction and consumption of fossil derived natural gas.<sup>25</sup> The information on SB 1440 provided here is for informational purposes only. The potential GHG emissions reductions associated with SB 1440's RNG procurement requirements are not quantified in this RCAP as it is unclear how extensively SB 1440 might affect emissions linked to natural gas sourced from pipelines.

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<sup>22</sup> American Council for an Energy-Efficient Economy (ACEEE). (2022). Building Electrification: Programs and Best Practices. Available at: <https://www.aceee.org/sites/default/files/pdfs/b2201.pdf>

<sup>23</sup> California Energy Commission (CEC). 2021. California Building Decarbonization Assessment – Final Commission Report. Available at: [file:///C:/Users/elinard/Downloads/TN239311\\_20210813T140633\\_California%20Building%20Decarbonization%20Assessment%20-%20Final%20Commission%20Report.pdf](file:///C:/Users/elinard/Downloads/TN239311_20210813T140633_California%20Building%20Decarbonization%20Assessment%20-%20Final%20Commission%20Report.pdf)

<sup>24</sup> Pacific Gas and Electric Company's (PG&E). (2022) Draft Renewable Gas Procurement Plan in Compliance with Commission Decision 22-02-02. Available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M500/K435/500435651.PDF>

<sup>25</sup> U.S. Environmental Protection Agency. (2021). An Overview of Renewable Natural Gas from Biogas. Available at: [https://www.epa.gov/sites/default/files/2021-02/documents/lmop\\_rng\\_document.pdf](https://www.epa.gov/sites/default/files/2021-02/documents/lmop_rng_document.pdf)

## Existing Building Technical Assistance and Incentive Program Equations

$$\text{Equation 2} \quad CO_2e \text{ Reduction}_{NG,y,i} = \Sigma ((\text{Fuel Avoided}_{j,y,i} * EF_{NG}) + (\text{Fuel Avoided}_{j,y,i} * (L_{Pipeline} + L_{End-use}) * EF_{NGL})) - (\text{Elec Converted}_{y,i} * EF_{elec,y,i} * (1 + L_{T\&D}))$$

$$\text{Equation 2.1} \quad \text{Elec Convert}_{y,i} = \Sigma (\text{Fuel Avoided}_{j,y,i} * CF_{elec} / \text{Eff}_{elec,j})$$

$$\text{Equation 2.2} \quad \text{Fuel Avoided}_{j,y,i} = \text{Fuel}_{y,i} * \text{Prop}_{urban} * (EOL_{NG,j,y,i} * \text{Fuel Share}_{j,i} * MS_{elec,j,y})$$

$$\text{Equation 2.3} \quad EOL_{NG,j,y,i} = 1 / LSP_{j,i} * (y - imp.y_i)$$

$$\text{Equation 2.4} \quad \text{Eff}_{elec,j} = \Sigma \text{Eff}_{elec,j,k} * \text{Prop}_{elec,j,k}$$

Table 7 Existing Building Voluntary Replacement Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 2</b>				
$CO_2e\ Reduction_{NG,y,i}$	Natural gas GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$Fuel\ Avoided_{j,y,i}$	Natural gas consumption avoided	See calculation table	therms	Calculated
$EF_{NG}$	Natural gas emission factor	0.005311	MT CO <sub>2</sub> e/therm	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$EF_{NGL}$	Natural gas leakage emission factor	0.047381	MT CO <sub>2</sub> e/therm	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Elec\ Converted_{y,i}$	Electricity usage from conversion	See calculation table	kWh	Calculated
$EF_{elec,y,i}$	Forecasted electricity emission factor	See calculation table	MT CO <sub>2</sub> e/kWh	Forecast
$L_{pipeline}$	Natural gas pipeline leakage percentage	2.3%	percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$L_{End-use}$	Natural gas end-use leakage percentage	0.5%	percentage	See Appendix GHG Inventory, Forecast, and Targets Technical Report
$L_{T\&D}$	Electricity transmission and distribution loss percentage	5.10%	percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$y$	Year	2030 or 2045	year	—
$i$	Subsector	Residential or Nonresidential	—	—
$j$	Electric equipment type	HVAC or water heater	—	—
<b>Equation 2.1</b>				
$CF_{elec}$	Electricity to therms conversion factor	29.3	kWh/therm	Metric Conversions <sup>1</sup>
$Eff_{elec,j}$	Efficiency factor of electric equipment relative to natural gas equipment	See calculation table	unitless	Calculated
<b>Equation 2.2</b>				
$Prop_{urban}$	Estimated proportion of natural gas attributable to incorporated cities	See calculation table	percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Fuel_{y,i}$	Forecasted natural gas consumption after new building electrification	See calculation table	therms	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$EOL_{NG,j,y,i}$	Percent of equipment reaching end of life	See calculation table	percentage	Calculated

Variable	Definition	Value	Unit	Data Source
$Fuel\ Share_{j,i}$	Percent of sector natural gas consumption	—	—	—
$Fuel\ Share_{wh,Res}$	Percent of residential natural gas consumption from water heaters	38%	percentage	Synapse <sup>2</sup>
$Fuel\ Share_{wh,Nonres}$	Percent of nonresidential natural gas consumption from water heaters	28%	percentage	Synapse <sup>2</sup>
$Fuel\ Share_{HVAC,Res}$	Percent of residential natural gas consumption from HVAC units	39%	percentage	Synapse <sup>2</sup>
$Fuel\ Share_{HVAC,Nonres}$	Percent of nonresidential natural gas consumption from HVAC units	42%	percentage	Synapse <sup>2</sup>
$MS_{elec,j,y}$	Market share of electric equipment	—	—	—
$MS_{elec,wh,2030}$	Market share of electric water heaters	12%	percentage	Opinion Dynamics <sup>3</sup>
$MS_{elec,HVAC,2030}$	Market share of electric space heating units	22%	percentage	Opinion Dynamics <sup>4</sup>
$MS_{elec,wh,2045}$	Market share of electric water heaters	100%	percentage	Assuming 100% electric market share by 2045
$MS_{elec,HVAC,2045}$	Market share of electric space heating units	100%	percentage	Assuming 100% electric market share by 2045
<b>Equation 2.3</b>				
$LSP_{i,wh}$	Average water heater lifespan in sector	—	—	—
$LSP_{residential,wh}$	Average residential water heater lifespan	13	years	EIA <sup>5</sup>
$LSP_{nonresidential,wh}$	Average nonresidential water heater lifespan	10	years	EIA <sup>5</sup>
$LSP_{i,HVAC}$	Average HVAC unit lifespan in sector	—	—	—
$LSP_{residential,HVAC}$	Average residential HVAC unit lifespan	21.5	years	EIA <sup>5</sup>
$LSP_{nonresidential,HVAC}$	Average nonresidential HVAC unit lifespan	23	years	EIA <sup>5</sup>
$imp.y_i$	Ordinance implementation year	—	—	—
$imp.y_{residential}$	Ordinance implementation year for residential buildings	2025	year	RCAP adoption
$imp.y_{nonresidential}$	Ordinance implementation year for nonresidential buildings	2025	year	RCAP adoption
<b>Equation 2.4</b>				
$Eff_{elec,HVAC}$	Efficiency factor of HVAC systems relative to natural gas equipment	See calculation table	unitless	—



Variable	Definition	Value	Unit	Data Source
$Eff_{elec,HVAC,HP}$	Efficiency factor of heat pumps	3	unitless	Leonardo Energy <sup>6</sup> and European Copper Institute <sup>8</sup>
$Eff_{elec,HVAC,ER}$	Efficiency factor of electric resistance	1	unitless	Energy.gov <sup>7</sup> and Schnackel Engineering <sup>9</sup>
$Eff_{elec,wh,ER}$	Efficiency factor of water heaters relative to natural gas	1	unitless	Conservative estimate of 1:1 efficiency of gas and electric water heaters <sup>10,11</sup>
$Prop_{elec,HVAC,k}$	Proportion of electric equipment types making up the electric HVAC market	—	—	—
$Prop_{elec,HVAC,HP}$	proportion of heat pump technology for HVAC systems	18%	percentage	Calculated based on the combined market share of heat pumps and electric resistance heaters for space heating <sup>4</sup>
$Prop_{elec,HVAC,ER}$	proportion of electric resistance technology for HVAC systems	82%	percentage	Calculated based on the combined market share of heat pumps and electric resistance heaters for space heating <sup>4</sup>
$Prop_{elec,wh,ER}$	Electric HVAC technology proportion of electric resistance space heaters	100%	percentage	As high efficiency technology (i.e. solar and heat pumps) is 1% of the market, assume all water heaters are electric resistance as a conservative estimation <sup>3</sup>
$k$	types of options for a given electric equipment system	e.g. heat pumps, electric resistance	—	—

Notes: “—” means either reference not applicable or see references for disaggregated parameter in the following table rows

1. Metric Conversions. Therms (US) to Kilowatt-hours. Available at: <https://www.metric-conversions.org/energy-and-power/therms-us-to-kilowatt-hours.htm>
2. Synapse Energy Economics, Inc. 2018. Decarbonization of Heating Energy Use in California Buildings, Figure 2. Available at: <https://www.synapse-energy.com/sites/default/files/Decarbonization-Heating-CA-Buildings-17-092-1.pdf>
3. Opinion Dynamics. 2022. California Heat Pump Residential Market Characterization and Baseline Study, Figure 34. Available at: [https://pda.energydataweb.com/api/view/2625/OD-CPUC-Heat-Pump-Market-Study-Report\\_Final.pdf](https://pda.energydataweb.com/api/view/2625/OD-CPUC-Heat-Pump-Market-Study-Report_Final.pdf)
4. Opinion Dynamics. 2022. California Heat Pump Residential Market Characterization and Baseline Study, Figure 21. Available at: [https://pda.energydataweb.com/api/view/2625/OD-CPUC-Heat-Pump-Market-Study-Report\\_Final.pdf](https://pda.energydataweb.com/api/view/2625/OD-CPUC-Heat-Pump-Market-Study-Report_Final.pdf)
5. U.A. Energy Information Administration (eia). 2023. Updated Buildings Sector Appliance and Equipment Costs and Efficiencies. Available at: <https://www.eia.gov/analysis/studies/buildings/equipcosts/pdf/full.pdf>
6. Leonardo Energy - Knowledge Base. 2023. How efficient is a heat pump?. Available at: <https://help.leonardo-energy.org/hc/en-us/articles/203047881-How-efficient-is-a-heat-pump>
7. Energy.gov. Electric Resistance Heating. Available at: <https://www.energy.gov/energysaver/electric-resistance-heating#:~:text=Electric%20resistance%20heating%20is%20100,the%20fuel's%20energy%20into%20electricity.>
8. European Copper Institute. 2018. Heat Pumps: Integrating technologies to decarbonize heating and cooling. Accessed at: [https://www.ehpa.org/wp-content/uploads/2022/10/White\\_Paper\\_Heat\\_pumps-1.pdf](https://www.ehpa.org/wp-content/uploads/2022/10/White_Paper_Heat_pumps-1.pdf)
9. Schnackel Engineers. 2023. Electric Heating vs Gas Heating. Available at: <https://schnackel.com/blogs/electric-heating-vs-gas-heating#:~:text=One%20of%20the%20significant%20advantages,losses%20during%20the%20combustion%20process.>

Variable	Definition	Value	Unit	Data Source
10.	Southface Energy Institute. Water Heater Efficiency, Efficiency of Fuel Types and Alternatives for Heating Water. Available at: <a href="https://www.ncelec.org/sites/ncelec/files/documents/waterheater_efficiency_041614.pdf">https://www.ncelec.org/sites/ncelec/files/documents/waterheater_efficiency_041614.pdf</a>			
11.	Pennsylvania State University. 2023. Energy Efficiency of Water Heaters. Available at: <a href="https://www.e-education.psu.edu/egee102/node/2009">https://www.e-education.psu.edu/egee102/node/2009</a>			

Table 8 Existing Residential Voluntary Replacement GHG Emission Reduction Calculations

Definition	Definition	Units	Sector	2030	2045
<b>Equation 2.4</b>					
$Eff_{elec,wh}$	Efficiency factor of water heaters relative to natural gas	unitless	Residential	1.00	1.00
$Eff_{elec,HVAC}$	Efficiency factor of HVAC systems relative to natural gas equipment	unitless	Residential	1.36	1.36
<b>Equation 2.3</b>					
$EOL_{NG,y,i,wh}$	Percent of water heaters reaching end-of-life since ordinance implementation	percentage	Residential	38.46%	100.00%
$EOL_{NG,y,i,HVAC}$	Percent of HVAC units reaching end-of-life since ordinance implementation	percentage	Residential	23.26%	93.02%
$imp.y_i$	Ordinance implementation year	year	Residential	2025	2025
<b>Equation 2.2</b>					
$Prop_{urban}$	Estimated proportion of natural gas attributable to incorporated cities	percentage	Residential	56.57%	56.57%
$Fuel_{y,i}$	Forecasted natural gas consumption after new building electrification	therms	Residential	11,278,225	11,330,156
$Fuel\ Avoided_{wh,y,i}$	Natural gas consumption avoided (water heaters)	therms	Residential	197,803	4,305,459
$Fuel\ Avoided_{HVAC,y,i}$	Natural gas consumption avoided (HVAC)	therms	Residential	225,040	4,110,475
<b>Equation 2.1</b>					
$Elec\ Converted_{wh,i}$	Electricity usage from conversion of water heater systems	kWh	Residential	5,795,620	126,149,953
$Elec\ Converted_{HVAC,i}$	Electricity usage from conversion of HVAC systems	kWh	Residential	4,835,358	88,320,408
<b>Equation 2</b>					
$EF_{elec,y,i}$	Forecasted electricity emission factor	MT CO <sub>2</sub> e/kWh	Residential	0.0000183	0.0000000
$CO_2e\ Reduction_{NG,y,i}$	Natural gas GHG emission reductions	MT CO <sub>2</sub> e	Residential	2,603	55,866

Measure BE-3 Rural: Reduce existing residential fossil-fuel consumption in households not connected to natural gas infrastructure by 2% by 2030.

Much of rural Humboldt lies at the edge of PG&E's natural gas infrastructure, and experience reduced electric grid capacity compared to other areas in the county. These households typically rely on other fossil fuels such as, propane or diesel, in place of natural gas. Measure BE-3 Rural aims to reduce fossil fuel usage in residential households not connected to PG&E natural gas infrastructure by 2% by 2030. While this measure's GHG emission reductions are not quantified in the RCAP due to the complexity of accurate measurement and data limitations with regards to rural building decarbonization initiatives, it contributes to the community's broader goals of reducing carbon emissions and transitioning to cleaner energy sources.

Reducing fossil-fuel use in rural areas not only helps decrease GHG emissions but also encourages the adoption of alternative energy sources such as electricity or renewable fuels. This transition supports the overall electrification efforts and aligns with other measures aimed at decarbonizing the regional energy supply. Additionally, like Measure BE-3 Urban, this measure aims to provide rural areas with weatherization assistance that will help reduce consumption rates and provide community benefits such as decreased utility cost. By focusing on these rural households, Measure BE-3 Rural seeks to make the benefits of a low-carbon transition accessible to all segments of the community.

Measure BE-4: Reduce existing nonresidential building natural gas consumption by 5% by 2030 and 79% by 2045.

Measure BE-4 puts the Humboldt region on a path to reduce commercial and mixed-use natural gas consumption by 5 percent by 2030 and 79 percent by 2045 to reduce GHG emissions. The primary Actions that enable this level of adoption include:

- **Action BE-4a** which calls for the inclusion of feasibility assessment, cost analysis and strategy development for decarbonization of nonresidential buildings as part of the decarbonization plan led by the Regional Climate Committee as part of Measure BE-3;
- **Action BE-4c** which establishes streamlined permitting for energy efficiency technology, onsite renewable energy, and battery storage projects in support of RCEA RePower Humboldt goals to offset increased electrical needs associated with electrifying buildings;
- **Action BE-4d** which commits jurisdictions to adopt a decarbonization policy for existing commercial buildings by 2027 that establishes a regulatory mechanism, such as permitting processes, that limits expansion of natural gas infrastructure and incentivizes the decarbonization of appliances upon replacement;
- **Action BE-4e** which directs the Regional Climate Committee to develop and administer an outreach program that promotes building decarbonization, involves targeted outreach to businesses and local contractors, and provides information on funding availability specifically to commercial, industrial, and multifamily building owners for decarbonization efforts.

Similar to Measure BE-3 Urban, these actions will prepare jurisdictions county-wide to facilitate voluntary replacement of equipment in the commercial, mixed use, and multifamily buildings, as well as mandatory replacements for large scale renovations. **Action BE-4d** involves adoption of a decarbonization policy to guide decision-making and administrative actions such as permitting processes. Similarly, **Action BE-4c** facilitates permitting processes to make decarbonization easier. This Measure is designed to leverage the Regional Climate Committee to lead the development of a decarbonization strategy, prepare and administer an educational program, and support the jurisdictions with policy and ordinance drafting to conserve staff resources. GHG reduction associated with this measure were calculated based on market trends and the assumption that conditions in more urbanized areas are more favorable for decarbonization of nonresidential buildings. As such, the GHG reductions associated with this Measure were conservatively applied only to the natural gas consumption by nonresidential buildings in the incorporated cities of Humboldt, which account for approximately 75% of the region's total nonresidential natural gas consumption. Based on market trends of electric water and space heater technology, voluntary replacement is anticipated to account for 3-4 percent of the region's 5 percent target.<sup>26</sup> GHG Emissions from voluntary replacement of building equipment was quantified using the same methodology as Equations 2 through 2.4. The full set of parameters and data sources that support these electrification programs and incentives for voluntary replacement are identified in Table 7. Table 9 shows the GHG emissions reductions as outlined in Equation 2 through 2.4.

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<sup>26</sup> For more information and substantial evidence regarding electric equipment market trends, see *Measure BE-3 Urban: Reduce existing residential building natural gas consumption connected to PG&E natural gas infrastructure by 3.8% by 2030 and 74% by 2045.*

Table 9 Existing Commercial Voluntary Replacement GHG Emission Reduction Calculations

Definition	Definition	Units	Sector	2030	2045
<b>Equation 2.4</b>					
$Eff_{elec,wh}$	Efficiency factor of water heaters relative to natural gas	unitless	Nonresidential	1.00	1.00
$Eff_{elec,HVAC}$	Efficiency factor of HVAC systems relative to natural gas equipment	unitless	Nonresidential	1.36	1.36
<b>Equation 2.3</b>					
$EOL_{NG,y,i,wh}$	Percent of water heaters reaching end-of-life since ordinance implementation	percentage	Nonresidential	50.00%	100.00%
$EOL_{NG,y,i,HVAC}$	Percent of HVAC units reaching end-of-life since ordinance implementation	percentage	Nonresidential	21.74%	86.96%
$imp.y_i$	Ordinance implementation year	year	Nonresidential	2025	2025
<b>Equation 2.2</b>					
$Prop_{urban}$	Estimated proportion of natural gas attributable to incorporated cities	percentage	Nonresidential	76.22%	76.22%
$Fuel_{y,i}$	Forecasted natural gas consumption after new building electrification	therms	Nonresidential	8,649,265	8,691,986
$Fuel\ Avoided_{wh,y,i}$	Natural gas consumption avoided (water heaters)	therms	Nonresidential	145,308	2,433,756
$Fuel\ Avoided_{HVAC,y,i}$	Natural gas consumption avoided (HVAC)	therms	Nonresidential	173,737	3,174,465
<b>Equation 2.1</b>					
$Elec\ Converted_{wh,i}$	Electricity usage from conversion of water heater systems	kWh	Nonresidential	4,257,514	71,309,056
$Elec\ Converted_{HVAC,i}$	Electricity usage from conversion of HVAC systems	kWh	Nonresidential	3,733,038	68,208,662
<b>Equation 2</b>					
$EF_{elec,y,i}$	Forecasted electricity emission factor	MT CO2e/kWh	Nonresidential	0.0000187	0.0000000
$CO2e\ Reduction_{NG,y,i}$	Natural gas GHG emission reductions	MT CO2e	Nonresidential	1,961	37,228

Under **Action BE-4d**, the remaining 2-3 percent of natural gas is anticipated to be achieved by including major renovations in the new commercial building ordinance (see Measure BE-6). Major renovations will be defined by this ordinance as renovation projects that affect over 50 percent of the building, add an additional 50 percent of gross floor space to the building, or value more than 50 percent of the assessed value of the property at time of application submittal. These three definitions will be utilized to capture more projects under the ordinance established as part of Measure BE-6.

In the United States, the commercial building renovation market made up about 22 percent of the total commercial building market in 2022. It is anticipated that the commercial renovation market

will continue to grow and make up a larger portion of the commercial building market due to the aging building stock and need for upgrades.<sup>27</sup> A study by the Lawrence Berkely National Laboratory found that of the renovation and retrofit projects occurring in commercial buildings, approximately 18 percent and 20 percent of the projects included water heater and HVAC system replacements, respectively.<sup>28</sup> This equates to an estimated replacement of water heaters and HVAC units at a 4.0 percent and 4.5 percent annual rate, respectively, due to renovation or retrofit.

Since Humboldt is largely a bedroom community where even urban centers are considered to be small rural communities, this Measure assumes the region’s nonresidential building stock has a similar history to the residential housing stock. As much of the region can be considered as bedroom communities serving surrounding commercial centers, most of the existing nonresidential buildings in the region were developed to support the residents of Humboldt. Thus, it is anticipated that the development and age of nonresidential buildings would have followed the same path as residential development, so residential housing stock data can be utilized for this Measure. As shown in Table 10, over 60 percent of Humboldt’s regional housing stock was built prior to the 1980s. This means the majority of commercial buildings in the community are older than 45 years old, having reached or soon reaching the point of needing major renovations since the average lifespan of a commercial building is 50 to 60 years.<sup>29</sup> This quantification thus conservatively assumes 1 percent of commercial buildings will need major renovations each year through 2045 so that a conservative 3 percent receive major renovations cumulatively by 2030 and 18 percent by 2045.

Table 10 **Humboldt’s Regional** Housing Stock Age

Year Built	Age (years)	Total Houses	Share of Houses
Built 2020 or later	4 or younger	148	0.20%
Built 2010 to 2019	5 to 14	2,757	4.40%
Built 2000 to 2009	15 to 24	5,045	8.10%
Built 1990 to 1999	25 to 34	8,041	12.90%
Built 1980 to 1989	35 to 44	8,391	13.50%
Built 1970 to 1979	45 to 54	9,098	14.60%
Built 1960 to 1969	55 to 64	6,746	10.80%
Built 1950 to 1959	65 to 74	8,764	14.10%
Built 1940 to 1949	75 to 84	4,349	7.00%
Built 1939 or earlier	85 or older	8,967	14.40%
<b>Total</b>		<b>62,306</b>	<b>100%</b>

1. US Census:  
[https://data.census.gov/table/ACSDP5Y2022.DP04?g=050XX00US06023\\_040XX00US06&tid=ACSDP5Y2022.DP04](https://data.census.gov/table/ACSDP5Y2022.DP04?g=050XX00US06023_040XX00US06&tid=ACSDP5Y2022.DP04)

<sup>27</sup> IBISWorld. 2023. Commercial Property Remodeling Industry in the US – market Research Report. Available at: <https://www.ibisworld.com/united-states/market-research-reports/commercial-property-remodeling-industry/#IndustryStatisticsAndTrends>

<sup>28</sup> Cindy Regnier P.E., Paulk Mathew Ph.D., Alastair Robinson, Jordan Shackelford, Travis, Walter Ph.D. 2020. System Retrofit Trends in Commercial Buildings: Opening Up Opportunities for Deeper Savings. Lawrence Berkeley National Laboratory. Available at: [https://buildings.lbl.gov/sites/default/files/Regnier%20-%20Systems%20Retrofit%20Trends.docx\\_1.pdf](https://buildings.lbl.gov/sites/default/files/Regnier%20-%20Systems%20Retrofit%20Trends.docx_1.pdf)

<sup>29</sup> BCI Construction. Which Factors Determine the Lifespan of a Building? (2021). Accessed at: <https://bciconstruction.us/which-factors-determine-the-lifespan-of-a-building/>.

The annual major renovation percentage (i.e., 1 percent) is applied to a decreasing existing building stock (i.e., buildings receiving major renovations the previous year are removed from the existing building stock) to employ diminishing returns in the quantification. Due to the available incentives, ordinance requirements, and the age of existing appliances, the quantification assumes all major renovations will replace existing natural gas appliances with electric alternatives, eliminating the natural gas usage of the renovated building.

As a component of the new commercial building ordinance, **Action BE-6a** helps local jurisdictions enforce the ordinance through a permit compliance program. Although permits are required for many energy efficiency improvements (e.g., water heaters, insulation, HVAC systems, duct replacement) many jurisdictions face permit evasion issues, with permitted HVAC systems only accounting for eight to about 30 percent of total HVAC system installations.<sup>30,31</sup> According to a report by the NRDC, only 25 percent of commercial HVAC replacements are properly installed and inspected, highlighting the widespread issue of non-compliance and poor installation practices that undermine energy efficiency and increase operational costs.<sup>32</sup> This trend in permit evasion means jurisdictions face issues determining compliance with building ordinances and codes. Strategies that have proven effective at improving permit compliance in various states and local jurisdictions include streamlining the compliance process and providing advanced training for enforcement staff—actions each jurisdiction’s permit compliance program will implement to enforce the major renovation electrification ordinance.<sup>33</sup> Considering challenges in maintaining 100 percent compliance, the quantification conservatively assumes a portion of major renovations (i.e., 12 percent) will not conform with the ordinance each year to electrify. Jurisdictions will monitor permit numbers to estimate compliance rates and adjust the permit compliance program strategies as needed to achieve a high compliance rate with the ordinance.

This Action will result in a 2.6 percent reduction in existing nonresidential natural gas usage by 2030 and 14.7 percent by 2045. Table 11 shows the parameters and data sources that support this Action’s GHG emission reductions and Table 12 shows the calculations as outlined in Equations 4 through 4.2.

#### Electric-Preferred Nonresidential Major Renovation Equations

$$\text{Equation 4} \quad CO_2e \text{ Reduction}_{NG,y,i} = (Fuel \text{ Avoided}_{NG,y,i} * EF_{NG}) + (Fuel \text{ Avoided}_{NG,y,i} * L_{NGL} * EF_{NGL}) - (Elec \text{ Converted}_{y,i} * EF_{elec,y,i} * (1 + L_{T\&D}))$$

$$\text{Equation 4.1} \quad Fuel \text{ Avoided}_{NG,y,i} = Fuel_{NG,y,i} * (1 - MR_i * (1 - NCR_i))^{(y-imp.y)}$$

$$\text{Equation 4.2} \quad Elec_{convert,y,i} = Fuel_{AvoidedNG,y,i} * CF_{elec} / Eff_{elec}$$

<sup>30</sup> Alvarez, Emily and Mast, Bruce. BayREN Codes & Standards Program. Local Government Policy Calculator for Existing Single-Family Buildings – User Guide (2021). Accessed at: [https://www.bayrencodes.org/wp-content/uploads/2021/11/BayREN-Policy-Calculator-User-Guide\\_10.29.2021.pdf](https://www.bayrencodes.org/wp-content/uploads/2021/11/BayREN-Policy-Calculator-User-Guide_10.29.2021.pdf).

<sup>31</sup> California Public Utilities Commission (CPUC). Final Report: 2014-16 HVAC Permit and Code Compliance Market Assessment (Work Order 6) Volume I – Report (2017). Accessed at: [http://www.calmac.org/publications/HVAC\\_WO6\\_FINAL\\_REPORT\\_VolumeI\\_22Sept2017.pdf](http://www.calmac.org/publications/HVAC_WO6_FINAL_REPORT_VolumeI_22Sept2017.pdf).

<sup>32</sup> Kiki Velez, Merrian Morgeson. 2023. Poor-Quality HVAC Installs are Costing Us – A solution is within reach. NRDC. Available at: <https://www.nrdc.org/bio/kiki-velez/poor-quality-hvac-installs-are-costing-us-solution-within-reach>

<sup>33</sup> Meres, Ryan et al. American Council for an Energy-Efficient Economy (ACEEE). Successful Strategies for Improving Compliance with Building Energy Codes (2012). Accessed at: <https://www.aceee.org/files/proceedings/2012/data/papers/0193-000112.pdf>.



Table 11 Electric-Preferred Nonresidential Major Renovation Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 4</b>				
$CO_2e\ Reduction_{NG}$	Natural gas GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$Fuel\ Avoided_{NG}$	Natural gas consumption avoided	See calculation table	therms	Calculated
$EF_{NG}$	Natural gas emission factor	0.005311	MT CO <sub>2</sub> e/therm	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$L_{NGL}$	Natural gas leakage factor	2.3%	percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$EF_{NGL}$	Natural gas leakage emission factor	0.04738	MT CO <sub>2</sub> e/therm	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Elec\ Converted$	Electricity usage from conversion	See calculation table	kWh	Calculated
$EF_{elec}$	Forecasted electricity emission factor	See calculation table	MT CO <sub>2</sub> e/kWh	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$y$	Year	2030 or 2045	year	–
$i$	Subsector	Nonresidential	N/A	–
<b>Equation 4.1</b>				
$Fuel_{NG}$	Forecasted natural gas consumption after new building electrification ordinance (Measure BE-1)	See calculation table	therms	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$MR_i$	Annual percentage of nonresidential buildings receiving major renovations	1%	percentage	Estimated based on age of Humboldt’s regional building stock (Table 10) and average lifespan of commercial buildings. <sup>1</sup>
$NCR$	Ordinance noncompliance rate	12%	percentage	Estimate based on permit evasion rates and strategies to increase building code compliance. <sup>2, 3, 4</sup>
$imp.y$	Ordinance implementation year	See calculation table	year	Measure BE-6
<b>Equation 4.2</b>				
$CF_{elec}$	Electricity to therms conversion factor	29.3	kWh/therm	Metric Conversions <sup>5</sup>
$Eff_{elec}$	Efficiency factor of electric equipment	3	unitless	Assume ordinance and/or efficiency standards will

Variable	Definition	Value	Unit	Data Source
	relative to natural gas equipment			promote the majority of renovations to implement highly efficient electric equipment such as heat pumps <sup>3</sup>
<ol style="list-style-type: none"> <li>1. BCI Construction. 2021. Which Factors Determine the Lifespan of a Building?. Available at: MIT Architecture. Architectural Longevity: What Determines a Building’s Lifespan? (2023). Accessed at: <a href="https://architecture.mit.edu/news/architectural-longevity-what-determines-buildings-lifespan#:~:text=Courtesy%20of%20the%20artists.&amp;text=The%20average%20lifespan%20of%20a%20years%2C%20from%20construction%20to%20demolition.">https://architecture.mit.edu/news/architectural-longevity-what-determines-buildings-lifespan#:~:text=Courtesy%20of%20the%20artists.&amp;text=The%20average%20lifespan%20of%20a%20years%2C%20from%20construction%20to%20demolition.</a></li> <li>2. Alvarez, Emily and Mast, Bruce. BayREN Codes &amp; Standards Program. Local Government Policy Calculator for Existing Single-Family Buildings – User Guide (2021). Accessed at: <a href="https://www.bayrencodes.org/wp-content/uploads/2021/11/BayREN-Policy-Calculator-User-Guide_10.29.2021.pdf">https://www.bayrencodes.org/wp-content/uploads/2021/11/BayREN-Policy-Calculator-User-Guide_10.29.2021.pdf</a>.</li> <li>3. California Public Utilities Commission (CPUC). Final Report: 2014-16 HVAC Permit and Code Compliance Market Assessment (Work Order 6) Volume I – Report (2017). Accessed at: <a href="http://www.calmac.org/publications/HVAC_WO6_FINAL_REPORT_VolumeI_22Sept2017.pdf">http://www.calmac.org/publications/HVAC_WO6_FINAL_REPORT_VolumeI_22Sept2017.pdf</a>.</li> <li>4. Meres, Ryan et al. American Council for an Energy-Efficient Economy (ACEEE). Successful Strategies for Improving Compliance with Building Energy Codes (2012). Accessed at: <a href="https://www.aceee.org/files/proceedings/2012/data/papers/0193-000112.pdf">https://www.aceee.org/files/proceedings/2012/data/papers/0193-000112.pdf</a>.</li> <li>5. Metric Conversions. Therms (US) to Kilowatt-hours. Available at: <a href="https://www.metric-conversions.org/energy-and-power/therms-us-to-kilowatt-hours.htm">https://www.metric-conversions.org/energy-and-power/therms-us-to-kilowatt-hours.htm</a></li> <li>6. Leonardo Energy - Knowledge Base. 2023. How efficient is a heat pump?. Available at: <a href="https://help.leonardo-energy.org/hc/en-us/articles/203047881-How-efficient-is-a-heat-pump">https://help.leonardo-energy.org/hc/en-us/articles/203047881-How-efficient-is-a-heat-pump</a></li> </ol>				

Table 12 Electric-Preferred Nonresidential Major Renovation GHG Emission Reduction Calculations

Variable	Definition	Units	Sector	2030	2045
<b>Equation 6.1</b>					
$Fuel_{NG}$	Forecasted natural gas consumption after new building electrification ordinance (Measure BE-1)	therms	Nonresidential	11,028,690	5,795,564
$imp.y$	Ordinance implementation year	year	Nonresidential	2027	2027
$Fuel\ Avoided_{NG}$	Natural gas consumption avoided	therms	Nonresidential	288,603	852,469
<b>Equation 6.2</b>					
$Elec\ Converted$	Electricity usage from conversion	kWh	Nonresidential	2,818,687	8,325,777
<b>Equation 6</b>					
$EF_{elec}$	Forecasted electricity emission factor	MT CO <sub>2</sub> e/kWh	Nonresidential	0.0000187	0.0000000
$CO_2e\ Reduction_{NG}$	Natural gas GHG emission reductions	MT CO <sub>2</sub> e	Nonresidential	1,860	5,659

Measure BE-5: Decarbonize 95% of new residential building construction by 2027.

Measure BE-5 commits the Humboldt region to decarbonize new residential building construction in the community. The primary Action that enables this Measure is:

- **Action BE-5a** which directs each jurisdiction to adopt an energy design rating, reach code, energy performance ordinance, or some other type of ordinance in 2027 to limit new natural gas construction for residential buildings. The action also establishes a permit compliance program to monitor and reach the 95% goal.

Humboldt jurisdictions are committed to limiting new natural gas developments in the community. However, the U.S. Court of Appeals for the Ninth Circuit's decision to overturn Berkeley's natural gas regulation—the ordinance that prohibited the installation of natural gas piping within newly constructed buildings—limits the region's ability to establish regulations to ban new natural gas construction.<sup>34</sup> As part of the previous CAP initiative, some jurisdictions in the region had already drafted electrification ordinances as part of their efforts to pursue building decarbonization. However, these efforts were halted prior to adoption due to the results of the Berkeley case. Despite this setback, the drafting of these electrification building codes demonstrates the regional interest in pursuing building decarbonization and highlights the community's commitment to reducing reliance on natural gas. Through **Action BE-5a**, each jurisdiction will employ the most stringent regulation currently available and suitable to their needs to electrify or otherwise decarbonize the majority of new construction in the community. To conserve staff resources and increase efficiencies, the Regional Climate Committee will develop an ordinance template based on jurisdictional input and feedback that can be modified as needed by each jurisdiction. **Action BE-5a's** ordinance will be designed to either strongly encourage electrification of new construction as a single margin energy score or specifically restrict the use of natural gas in new construction.

As a single margin source energy score, the ordinance would establish a low Energy Design Rating (EDR)—a scoring metric that determines a building's compliance with California's Building Energy Efficiency Standards—that new residential buildings in the applicable jurisdiction would need to meet. The EDR would be set in a way to make electrification the easiest pathway to meet the standard. However, since the ordinance does not ban natural gas infrastructure outright, this ordinance may permit some new construction to be built with natural gas. These exceptions are expected to be minimal because of the cost effectiveness of new building electrification and the available incentives in the region that will help continue the natural growth in electric space and water heater installations seen in California over the past decade. As previously discussed, electric space heaters have grown to a 20 percent market share in 2019, while electric water heaters have grown to an 11 percent market share in 2019.<sup>35</sup> This trend is not only expected to continue through 2030 because all-electric new construction has proven to be cost-effective in the region for most all buildings types,<sup>36,37</sup> but also be accelerated when coupled with the large amount of funding available for community members to install electric or heat pump space and water heating

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<sup>34</sup> CRA V. City of Berkeley, No. 21-16278. Accessed at: <https://law.justia.com/cases/federal/appellate-courts/ca9/21-16278/21-16278-2023-04-17.html>.

<sup>35</sup> Opinion Dynamics. California Heat Pump Residential Market Characterization and Baseline Study (2022). Accessed at: <https://pda.energydataweb.com/#!/documents/2625/view>.

<sup>36</sup> California Energy Codes and Standards. Cost Effectiveness Explorer (2024). Accessed at: [https://explorer.localenergycodes.com/jurisdiction/eureka-city/study-results/1-PGE?only\\_study\\_type=new-buildings](https://explorer.localenergycodes.com/jurisdiction/eureka-city/study-results/1-PGE?only_study_type=new-buildings)

<sup>37</sup> According to the California Energy Codes and Standards' Cost Effectiveness Explorer, all-electric construction is cost effective for all residential building types.

appliances. While the total amount of funding available will change with sunset dates and budget cycles, the currently available federal (i.e., High Efficiency Electric Home Rebate [HEEHRA], Homeowner Managing Energy Savings [HOMES] Rebate, Inflation Reduction Act), State (i.e., TEHC Clean California), and local (i.e., RCEA’s Residential Equipment Rebate Catalog and Heat Pump Rebate Catalog) funding makes it so that low- and middle-income residents in the region can install electric or heat pump space and water heaters at no additional cost compared to gas space and water heaters. In some cases, such customers will even be able to install the heat pump water heaters for free.<sup>38</sup>

For those minimal cases where construction with natural gas may still occur under a single margin source energy score despite cost effectiveness and incentives, this Measure relies on CEQA mechanisms to require such buildings to mitigate the GHG emissions from natural gas construction. This mitigation can be assumed because the RCAP assumes 95 percent of new construction will be all-electric or otherwise decarbonized. This assumption is then incorporated into the regional CEQA GHG Emissions Thresholds and CEQA GHG Emissions Analysis Compliance Checklist. This incorporation means new construction that utilizes natural gas will need to identify other ways to mitigate GHG emissions to meet the GHG emission threshold of an all-electric building. Moreover, **Action BE-5a** also allows jurisdictions to adopt a more stringent ordinance that effectively bans new natural gas construction. This option may be feasible as more jurisdictions across the State explore pathways for all-electric new construction after the Berkeley case. With limited exemptions, this option would also allow for 95 percent electric-preferred or decarbonized new construction.

Thus, the GHG emission reductions from this Measure are based on the forecasted residential building growth and the assumption that 95 percent of new buildings will be all-electric or otherwise decarbonized. Table 13 shows the parameters and data sources that support these electrification ordinance GHG emission reductions and Table 14 shows the calculations as outlined in Equations 4 through 4.2.

All-electric New Residential Construction Equations

Equation 4  $CO_2e\ Reduction_{NG,y,i} = (Fuel\ Avoided_{NG,y,i} * EF_{NG}) + (Fuel\ Avoided_{NGL,y,i} * EF_{NGL}) - (Elec\ Convert_{y,i} * EF_{elec,y,i} * (1 + L_{T\&D}))$

Equation 4.1  $Fuel\ Avoided_{NG,y,i} = (Fuel_{NG,y,i} - Fuel_{NG,imp,y,i}) * Ord_{target,i}$

Equation 4.2  $Fuel\ Avoided_{NGL,y,i} = (Fuel\ Avoided_{NG,y,i} * (1 + L_{End-use})) * (L_{Pipeline} + L_{End-use})$

Equation 4.3  $Elec\ Convert_{y,i} = Fuel\ Avoided_{NG,y,i} * CF_{elec} / Eff_{elec}$

Table 13 All-electric New Construction Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 4</b>				
$CO_2e\ Reduction_{NG,y,i}$	Natural gas GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$Fuel\ Avoided_{NG,y,i}$	Natural gas consumption avoided	See calculation table	therms	Calculated
$EF_{NG}$	Natural gas emission factor	0.005311	MT CO <sub>2</sub> e/therm	See references in Appendix GHG Inventory,

<sup>38</sup> Rincon Consultants, Inc. Installation Costs for Zero-NOx Space and Water Heating Appliances (2024).

Variable	Definition	Value	Unit	Data Source
				Forecast, and Targets Technical Report
$EF_{NGL}$	Natural gas leakage emission factor	0.047381	MT CO <sub>2</sub> e/therm	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Elec\ Convert_{y,i}$	Electricity usage from conversion	See calculation table	kWh	Calculated
$EF_{elec,y,i}$	Forecasted electricity emission factor	See calculation table	MT CO <sub>2</sub> e/kWh	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$L_{T\&D}$	Electricity transmission and distribution loss percentage	5.10%	Percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$y$	Year	2030 or 2045	year	–
$i$	Subsector	Residential or Nonresidential	–	–
<b>Equation 4.1</b>				
$Fuel_{NG,y,i}$	Forecasted natural gas consumption	See calculation table	therms	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Fuel_{NG,imp,i}$	Forecasted natural gas in implementation year	See calculation table	therms	Calculated
$Ord_{target,i}$	Percent of buildings ordinance applies to	–	percentage	–
$Ord_{target,res}$	–	95%	percentage	Assumed due to electric appliance market trends, cost-effectiveness, incentives, and inclusion of all-electric assumption in CEQA documents.
$Ord_{target,nonres}$	–	95%	percentage	
$imp.y$	Ordinance implementation year	–	year	–
$imp.y,res$	–	2027	year	Building code adoption cycle
$imp.y,nonres$	–	2027	year	Building code adoption cycle
<b>Equation 4.2</b>				
$L_{Pipeline}$	Natural gas pipeline leakage percentage	2.3%	kWh/therm	Metric Conversions <sup>1</sup>
$L_{End-use}$	Natural gas end-use leakage percentage	0.5%	unitless	Leonardo Energy <sup>2</sup> and European Copper Institute <sup>3</sup>
<b>Equation 4.3</b>				
$CF_{elec}$	Electricity to therms conversion factor	29.3	kWh/therm	Metric Conversions <sup>1</sup>

Variable	Definition	Value	Unit	Data Source
$Eff_{elec}$	Efficiency factor of electric equipment relative to natural gas equipment	3	unitless	Leonardo Energy <sup>2</sup> and European Copper Institute <sup>3</sup>

Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows

1. Metric Conversions. Therms (US) to Kilowatt-hours. Available at: <https://www.metric-conversions.org/energy-and-power/therms-us-to-kilowatt-hours.htm>
2. Leonardo Energy - Knowledge Base. 2023. How efficient is a heat pump?. Available at: <https://help.leonardo-energy.org/hc/en-us/articles/203047881-How-efficient-is-a-heat-pump>
3. European Copper Institute. 2018. Heat Pumps: Integrating technologies to decarbonise heating and cooling. Accessed at: [https://www.ehpa.org/wp-content/uploads/2022/10/White\\_Paper\\_Heat\\_pumps-1.pdf](https://www.ehpa.org/wp-content/uploads/2022/10/White_Paper_Heat_pumps-1.pdf).

Table 14 All-electric New Residential Construction GHG Emission Reduction Calculations

Variable	Definition	Units	Sector	2030	2045
<b>Equation 4.1</b>					
$Fuel_{NG,y,i}$	Forecasted natural gas consumption	therms	Residential	20,284,903	22,120,804
$imp.y$	Ordinance implementation year	year	Residential	2027	2027
$Fuel_{NG,imp,i}$	Forecasted natural gas in implementation year	therms	Residential	19,917,723	19,917,723
$Fuel\ Avoided_{NG,y,i}$	Natural gas consumption avoided	therms	Residential	348,821	2,092,927
<b>Equation 4.2</b>					
$Fuel\ Avoided_{NGL,y,i}$	Natural gas leakage avoided	therms	Residential	9,816	58,895
<b>Equation 4.3</b>					
$Elec\ Convert_{y,i}$	Electricity usage from conversion	kWh	Residential	3,406,820	20,440,921
<b>Equation 4</b>					
$EF_{elec,y,i}$	Forecasted electricity emission factor	MT CO <sub>2</sub> e/kWh	Residential	0.0000183	0.000000
$CO_2e\ Reduction_{NG}$	Natural gas GHG emission reductions	MT CO <sub>2</sub> e	Residential	2,252	13,907

Measure BE-6: Decarbonize 95% of new nonresidential building construction by 2027.

Measure BE-5 commits the Humboldt region to electrify new nonresidential building construction in the community. The primary Action that enables this Measure is:

- **Action BE-6a** which directs each jurisdiction to adopt an energy design rating, reach code, energy performance ordinance, or some other type of ordinance in 2027 to avoid new natural gas construction for nonresidential (including commercial, industrial, and multi-family) buildings. The action also establishes permit compliance program to monitor and reach the 95% goal.

The Humboldt regional jurisdictions are committed to limiting new natural gas developments in the community from nonresidential buildings. Similar to Action BE-5a, **Action BE-6a** commits each jurisdiction to employ the most stringent regulation currently available and suitable to their needs to electrify or otherwise decarbonize the majority of new nonresidential construction in the community. To conserve staff resources and increase efficiencies, the Regional Climate Committee will develop an ordinance template based on jurisdictional input and feedback that can be modified as needed by each jurisdiction. **Action BE-6a's** ordinance will be designed to either strongly encourage electrification of new construction as a single margin energy score or specifically restrict the use of natural gas in new construction. For further discussion supporting the effectiveness of this method in achieving natural gas reductions, see *Measure BE-5: Decarbonize 95% of new nonresidential building construction by 2027*.

Similar to Measure BE-5, this Measure relies on CEQA mechanisms such as CEQA GHG Emissions Thresholds and CEQA GHG Emissions Analysis Compliance Checklist to require such buildings to mitigate the GHG emissions from nonresidential natural gas construction. By incorporating all-electric or decarbonized construction requirements through CEQA mechanisms, it is assumed that RCAP mitigation will achieve 95 percent decarbonization of new nonresidential building construction. This incorporation means new nonresidential construction that utilizes natural gas will need to identify other ways to mitigate GHG emissions to meet the GHG emission threshold of an all-electric or fully decarbonized building. Moreover, **Action BE-6a** also allows jurisdictions to adopt a more stringent ordinance that effectively bans new natural gas construction. This option may be feasible as more jurisdictions across the State explore pathways for all-electric new construction after the Berkeley case. Without limited exemptions, this option would also allow for 95 percent all-electric new construction.

Thus, the GHG emission reductions from this Measure are based on the forecasted nonresidential building growth and the assumption that 95 percent of new buildings will be all-electric. GHG reductions were quantified according to the methodology outlined by Table 13 and Equation 4 through 4.3 (See Measure BE-5). Table 15 shows the calculations and estimated GHG reductions from ordinance implementation for new nonresidential construction.

Table 15 All-electric New Nonresidential Construction GHG Emission Reduction Calculations

Variable	Definition	Units	Sector	2030	2045
<b>Equation 4.1</b>					
$Fuel_{NG,y,i}$	Forecasted natural gas consumption	therms	Nonresidential	11,560,724	12,681,718
$imp.y$	Ordinance implementation year	year	Nonresidential	2027	2027
$Fuel_{NG,imp,i}$	Forecasted natural gas in implementation year	therms	Nonresidential	11,336,525	11,336,525
$Fuel\ Avoided_{NG,y,i}$	Natural gas consumption avoided	therms	Nonresidential	212,989	1,277,933
<b>Equation 4.2</b>					
$Fuel\ Avoided_{NGL,y,i}$	Natural gas leakage avoided	therms	Nonresidential	5,994	35,961
<b>Equation 4.3</b>					
$Elec\ Convert_{y,i}$	Electricity usage from conversion	kWh	Nonresidential	2,080,192	12,481,149
<b>Equation 1</b>					
$EF_{elec,y,i}$	Forecasted electricity emission factor	MT CO <sub>2</sub> e/kWh	Nonresidential	0.0000187	0.000000
$CO_2e\ Reduction_{NG}$	Natural gas GHG emission reductions	MT CO <sub>2</sub> e	Nonresidential	1,374	8,492



Measure BE-7: Decarbonize 30% municipal buildings and facilities by 2030.

Measure BE-5 commits the jurisdictions to lead by example through decarbonizing municipal buildings and facilities region-wide. While the strategies to decarbonize municipal buildings and facilities will reduce GHG emissions, emissions from municipal building energy are included as a subset of the nonresidential building energy sector in the Humboldt Regional GHG Inventory. This means the associated GHG emission reductions are included within the community mitigation Measures (i.e., BE-1 through BE-6). Thus, to avoid double counting, this municipal mitigation measure emissions reductions are not counted towards the 2030 and 2045 targets.

Measure BE-8: Lobby Off-shore Wind developers and PG&E to build electrical infrastructure to supply Humboldt with energy produced by the off-shore wind project which will increase supply and resilience.

The Humboldt Bay Offshore Wind project recently received over \$400 million in grant funding to construct a wind farm off the coast of Humboldt. The project will produce 1 GW of energy and the project will help toward the State's 2030 target to deploy 5 GW of offshore wind.<sup>39</sup> Though this energy would be produced off the coast of Humboldt county, local jurisdictions and interested parties have expressed concern that, due to current infrastructure limitations, this energy will be sold outside of the county and the local community will not receive an equitable benefit from the project.

Measure BE-8 focuses on advocating for the development of appropriate electrical infrastructure by offshore wind developers and PG&E so that the community can benefit from the Humboldt Bay Offshore Wind project. Receiving an equitable share of the generated electricity would increase the region's energy resilience and increase capacity to meet other electrification goals outlined in the RCAP (see measures BE-1 through BE-7, and TR-6 through TR-8). While the GHG emission reductions from this measure are not quantified in the RCAP, it plays a vital role in supporting the region's transition to renewable energy and strengthening energy security.

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<sup>39</sup> Humboldt Bay Harbor Recreation & Conservation District. 2024. Humboldt Bay Offshore Wind Heavy Lift Marine Terminal Project. Available at: <https://humboldtbay.org/humboldt-bay-offshore-wind-heavy-lift-marine-terminal-project-3>

## 4 Strategy TR: Transportation

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The Humboldt regional Transportation Strategy aims to reduce vehicle miles travelled (VMT) and leverage renewable and carbon-free electricity (partially provided by Strategy BE) to reduce GHG emissions from the transportation system. Reducing VMT consists of transitioning residents and visitors out of single-occupancy vehicles and into active transportation mode options (i.e., walking and biking) and public and shared transit options (e.g., public buses, rail, carpools) by improving these mode options and adopting policies to discourage single-occupancy vehicle commutes. Additionally, land use changes such as promoting jobs and amenities to be located near residents, particularly in more rural areas, can help reduce the community's average trip length as well as encourage mode shifts to active or public transit. VMT reduction is further supported by the use of VMT thresholds developed by Fehr & Peers for the County where the County has elected to establish a threshold of significance at 15 percent below existing baseline VMT per capita, in line with current Office of Planning and Research (OPR) guidance and consistent with the achievement of the state's climate goals.

The remaining VMT will then be decarbonized by increasing the adoption of zero-emission vehicles (ZEVs). When combined with renewable and carbon-free electricity, electric vehicles (EVs) eliminate GHG emissions from fossil fuel combustion and transition commutes to a zero-emission operational footprint. Other ZEVs such as fuel cell electric vehicles (FCEVs), which are powered by hydrogen and only produce water when operated, also result in zero tailpipe emissions<sup>40</sup> and serve as important options for reducing emissions from hard to electrify sectors such as heavy-duty and off-road transportation equipment. Though upstream production of fuel is not considered in the GHG emissions attributable to a community, hydrogen fuel has the potential to further decarbonize the transportation sector when the fuel is produced from electricity sourced from renewable energy sources, known as "green hydrogen."<sup>41,42</sup> In addition to targeting mode shift and increasing the number of ZEVs, the Strategy targets off-road equipment and vehicles for decarbonization. Based on this approach, the RCAP's Transportation Strategy consists of the following Measures presented in Table 16.

The table also indicates which Measures are quantitative and which Measures are supportive. The following subsections detail the substantial evidence and calculation methodologies of the quantitative Measures and the role of the supportive Measures. Note that Measures which are designated as "Urban" provide strategies and targets designed for the incorporated cities of Arcata, Fortuna, and Eureka,<sup>43</sup> while "Rural" Measures are intended for areas which are not considered central economic hubs such as the unincorporated Humboldt County as well as incorporated cities of Blue Lake, Ferndale, Rio Dell, and Trinidad that have transportation networks more characteristic of rural areas.

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<sup>40</sup> U.S. Department of Energy. Fuel Cell Electric Vehicles. Available at: [https://afdc.energy.gov/vehicles/fuel-cell#:~:text=Fuel%20cell%20electric%20vehicles%20\(FCEVs,the%20early%20stages%20of%20implementation.](https://afdc.energy.gov/vehicles/fuel-cell#:~:text=Fuel%20cell%20electric%20vehicles%20(FCEVs,the%20early%20stages%20of%20implementation.)

<sup>41</sup> National grid. The Hydrogen Colour Spectrum (2023). Available at: <https://www.nationalgrid.com/stories/energy-explained/hydrogen-colour-spectrum>

<sup>42</sup> Energy Education. Types of Fuel. Available at: [https://energyeducation.ca/encyclopedia/Types\\_of\\_hydrogen\\_fuel](https://energyeducation.ca/encyclopedia/Types_of_hydrogen_fuel)

<sup>43</sup> Caltrans. Caltrans District 1 Active Transportation Plan. Available at: <https://storymaps.arcgis.com/stories/75fb376153094696b56c0e6dac3055d7>

Table 16 Strategy TR: Transportation GHG Emission Reduction Summary

Measure ID	Measure	2030 GHG Emission Reductions (MT CO <sub>2</sub> e)	2045 GHG Emission Reductions (MT CO <sub>2</sub> e)
Measure TR-1 Urban	Implement programs, such as those identified in HCAOG's RTP, to increase the mode share of active transportation in urbanized areas from 9% to 12% by 2030 thereby achieving a regional active transportation mode share of 8%.	1,147	2,594
Measure TR-1 Rural	Implement programs, such as those identified in HCAOG's RTP, that increase access to safe active transportation, to increase the mode share of active transportation in rural areas from 5% to 6% by 2030 thereby achieving a regional active transportation mode share of 9%.	1,080	4,405
Measure TR-2 Urban	Expand the public transit network in support of HCAOG's Regional Transportation Plan to increase public transit mode share from 2% to 20% public transit mode share in urbanized areas to achieve a regional 13% public transit mode share by 2030.	18,055	26,482
Measure TR-2 Rural	Develop a robust public transit network in support of HCAOG's Regional Transportation Plan to increase public transit mode share from 1% to 10% in rural areas and achieve a regional 13% public transit mode share by 2030.	20,180	29,703
Measure TR-3	Reduce regional VMT by increasing promotion of mixed-use development in infill priority areas in alignment with HCAOG's baseline connectivity score included in the RTP.	Supportive	Supportive
Measure TR-4	Develop and implement regional mobility hubs and ZEV car-share programs to support mode shift from single occupancy vehicles.	Supportive	Supportive
Measure TR-5	Require commercial and industrial employers with 25 employees or more to develop a Transportation Demand Management plan.	Supportive	Supportive
Measure TR-6	Decarbonize 15% of passenger vehicle miles traveled by 2030 and 100% by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.	55,726	590,124
Measure TR-7	Increase commercial zero-emission vehicle use and adoption to 10% by 2030 and 100% by 2045 through a regional charging network and development of hydrogen hubs.	17,441	279,775
Measure TR-8	Electrify or otherwise decarbonize 12% of applicable SORE off-road equipment by 2030 and 100% by 2045 and replace fossil diesel consumption with renewable diesel in 55% of applicable large diesel in alignment with EO N-79-20 by 2030.	49,143	139,645
Measure TR-9	Establish Humboldt as a pilot program for the decarbonization of the transportation sector to	Supportive	Supportive

Measure ID	Measure	2030 GHG Emission Reductions (MT CO <sub>2</sub> e)	2045 GHG Emission Reductions (MT CO <sub>2</sub> e)
	help drive state and philanthropic investment throughout Humboldt.		
Measure TR-10	Work with the state and biofuel industry to establish a biofuel network within Humboldt thereby funding new green industry and job growth to support the decarbonization of the transportation sector.	Supportive	Supportive
Measure TR-11	Lead by example and electrify or otherwise decarbonize 50% of the municipal fleet by 2030 in alignment with the state’s Advanced Clean Fleet Rule.	Supportive	Supportive
<b>Total</b>		<b>162,772</b>	<b>1,072,728</b>

Measure TR-1 Urban: Implement programs, such as those identified in **HCAOG's RTP, to increase** the mode share of active transportation in urbanized areas from 9% to 12% by 2030 thereby achieving a regional active transportation mode share of 8%.

Measure TR-1 Urban aims to increase the active transportation mode share in urbanized areas in Humboldt to 12 percent by 2030 and to 16 percent by 2045. The primary Actions that enable this Measure are:

- **Action TR-1a** which directs the Regional Climate Committee to facilitate partnerships between urbanized areas of Humboldt and Humboldt County Association of Governments (HCAOG) to identify and pursue funding opportunities to support the goals set forth in HCAOG's Regional Transportation Plan (RTP).
- **Action TR-1f** which directs the Regional Climate Committee established in the RCAP measures to work with HCAOG to identify land use and interconnectivity opportunities and to pursue regional funding to implement active transportation interconnectivity improvement projects.

In 2022 (i.e. Humboldt's regional GHG Inventory year), the urban areas of Humboldt had weighted average commuting bicycle and walking mode shares of 1.4 percent and 7.7 percent, respectively, equating to a 9 percent total commuting active transportation mode share.<sup>44,45</sup> At 12.2 percent walking and 1.9 percent bike, the incorporated city of Arcata has the highest active transit mode share in the region. Census reported active mode shares only include commute-based trips and exclude tourist-based travel on trails focused on eco-tourism that is prevalent in the region, though expansion of these trails can also serve to reduce VMT. Though the more urbanized areas of the region exhibit relatively high combined walking and biking mode share, studies show that investments in active transportation infrastructure can further drive active transportation mode shifts and GHG emissions reductions.<sup>46</sup> For example, urban cities that make a strong commitment to bicycle travel can see up to an 11 percent reduction in vehicle miles traveled and associated GHG emissions.<sup>47</sup> Such reductions can be reasonably expected because in 2022, about 16 percent of vehicle trips made nationally were one mile or less—a distance easily travelled by foot or bicycle.<sup>48</sup>

To estimate the mode shift potential of developing and implementing an Active Transportation Plan in Humboldt urbanized centers, other cities' bicycle and road networks were analyzed. The City of Berkeley leads the State with an 18 percent active transportation mode share in 2022 (i.e., 4.9 percent bicycle mode share and 13.4 percent pedestrian mode share) followed by the City of Davis with a 16 percent active transportation mode share in 2022 (i.e., 13.5 percent bicycle mode share

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<sup>44</sup> US Census Bureau. 2022: ACS 5-Year Estimates Subject Tables. S0801|Commuting Characteristics by Sex. Accessed at: <https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting>

<sup>45</sup> Weighted average mode shares were estimated based on mode share data provided in the U.S. Census Bureau's ACS 5-Year Survey and vehicle miles travelled (VMT) data for each region as reported in the Humboldt Regional 2022 GHG Inventory Report for the CAP.

<sup>46</sup> Glazener, Andrew and Khreis, Haneen. Transforming our Cities: Best Practices Towards Clean Air and Active Transportation (2019). Accessed at: <https://link.springer.com/article/10.1007/s40572-019-0228-1>

<sup>47</sup> Jacob Mason et al., Institute for Transportation & Development Policy and the University of California, Davis. A Global High Shift Cycling Scenario (2015). Accessed at: [https://itdpdotorg.wpengine.com/wp-content/uploads/2015/11/A-Global-High-Shift-Cycling-Scenario\\_Nov-2015.pdf](https://itdpdotorg.wpengine.com/wp-content/uploads/2015/11/A-Global-High-Shift-Cycling-Scenario_Nov-2015.pdf)

<sup>48</sup> National Household Travel Survey. Population Vehicle Trips Statistics (2021). Accessed at: <https://nhts.ornl.gov/vehicle-trips>

and 2.6 percent pedestrian mode share).<sup>49, 50</sup> The City of Davis has 9.8 miles of bike lane per square mile, which equates to approximately 0.6 miles of bike lane per mile of street. <sup>51, 52</sup> City of Berkeley has approximately 4.8 miles of bike lane per square mile, but equates to 0.2 miles of bike lane per mile of street given the number of street miles in the Cities 10.5 square miles.<sup>53, 54</sup> Currently the urbanized areas of Humboldt (e.g. Arcata, Eureka, and Fortuna) have about 2 miles of bike lane per square mile based on the bike map provided by HCAOG.<sup>55</sup> HCAOG's Regional Bicycle Plan plans for approximately 506 miles of bikeways over the 20 year planning horizon throughout Humboldt county to connect all the cities and unincorporated areas as well as connecting the county to adjacent counties.<sup>56</sup> Humboldt County has approximately 1,200 miles of county roads and city streets roadway, full implementation of this plan would lead to 0.4 miles of bike lane per mile of street. Based on other similar cities it would seem that this increase in bicycle lane miles per street mile would lead to a bicycle mode share of approximately 10-15%. Implementation of the Bicycle Plan largely depends on securing funding. The region has had good success at obtaining funding to implement the projects to increase the bicycle and pedestrian routes. In 2023 HCAOG allocated \$2.1 million to jurisdictions for road improvements including funds specifically for bicycle and pedestrian improvements.<sup>57</sup> Additionally, Eureka was recently awarded a combined \$11.3 million from Caltrans for a multi-use trail and a bike boulevard in the city.<sup>58</sup>

Given the success of the region at obtaining funding and continually implementing priority bicycle projects, the current active transportation mode share, and trends in active transportation in other locations with similar bike lane to street ratios, it was assumed that this Measure would lead to a 3 percent increase in active transportation mode share to 12 percent in urbanized regions. It was assumed that the increase would come predominantly from bicycle mode share while walking mode share is conservatively assumed to remain constant. 2045 quantification estimates an active transportation mode shift by an additional 4 percent to 16 percent to align with the City of Davis and assumes by 2045 the regional infrastructure will support significant active transit mode shift for the last mile of distance travelled. An increase in active transportation to 12 percent and 16 percent in urbanized areas equates to a 0.2 percent and 0.4 percent passenger VMT reduction, respectively. This is conservative compared with the VMT reduction target of 15 percent from baseline conditions used for the VMT Significance Threshold established by the County in compliance with SB 743. Like 2030, the 2045 quantification assumes the increases would be attributable to bicycle mode share,

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<sup>49</sup> US Census Bureau. 2022: ACS 5-Year Estimates Subject Tables. S0801 | Commuting Characteristics by Sex. Accessed at: <https://data.census.gov/table?t=Commuting&g=160XX00US0618100>.

<sup>50</sup> US Census Bureau. 2022: ACS 5-Year Estimates Subject Tables. S0801 | Commuting Characteristics by Sex. Accessed at: <https://data.census.gov/table?t=Commuting&g=160XX00US0606000>.

<sup>51</sup> <https://www.cityofdavis.org/city-hall/public-works-utilities-and-operations/streets>

<sup>52</sup> <https://www.cityofdavis.org/city-hall/public-works-engineering-and-transportation/bike-pedestrian-program/davis-bike-and-pedestrian-infrastructure#:~:text=4%20miles%20of%20buffered%20bike,and%20twenty%20Done%20underpass%20crossings.>

<sup>53</sup> <https://www.visitberkeley.com/media-press/press-kit/fact-sheet/>

<sup>54</sup> <https://berkeleyca.gov/your-government/about-us/departments/public-works#:~:text=Our%20325%2B%20staff%20are%20responsible,%2C%20and%20waste%2C%20recycling%2C%20and>

<sup>55</sup> <https://www.hcaog.net/map/>

<sup>56</sup> Humboldt County Association of Governments (HCAOG). (2018). Humboldt Regional Bicycle Plan. Available at: <https://www.hcaog.net/sites/default/files/Final%20Bike%20Plan%20Update%202018%20incl%20maps.pdf>

<sup>57</sup> [https://www.hcaog.net/sites/default/files/HCAOG%202023%20Highlights%20\(Canva\).pdf](https://www.hcaog.net/sites/default/files/HCAOG%202023%20Highlights%20(Canva).pdf)

<sup>58</sup> <https://dot.ca.gov/news-releases/news-release-2022-043>

while walking mode share remains constant. These 2030 and 2045 targets conservatively support HCAOG’s Regional Transportation Plan which sets ambitious goals to increase public and active transit mode share by a combined 30 percent by 2030, and 40 percent by 2050.<sup>59</sup>

Table 17 shows the parameters and data sources that support the GHG emission reductions from active transportation mode shifts and Table 18 shows the calculations as outlined in Equations 5 through 5.2.

Active Transportation Mode Share Equations

Equation 5  $CO_2e\ Reduction_{i,y} = VMT\ Reduced_{i,y} * VMT\ EF_{i,y}$

Equation 5.1  $VMT\ Reduced_{i,y} = VMT_{i,y} * Prop_j * TPM_{i,y} * TL_i * MS\ Increase_{Bike,y}$

Equation 5.2  $MS\ Increase_{Bike,y} = MS\ Target_{Active,y} - MS_{Walk,by} - MS_{Bike,by}$

Table 17 Active Transportation Mode Share Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 5</b>				
<i>CO<sub>2</sub>e Reduction</i>	VMT GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
<i>VMT Reduced</i>	VMT reduced	See calculation table	miles	Calculated
<i>VMT EF</i>	VMT emission factor	See calculation table	MT CO <sub>2</sub> e/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<b>Equation 5.1</b>				
<i>VMT<sub>i,y</sub></i>	Forecasted VMT	See calculation table	miles	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<i>Prop<sub>j</sub></i>	Proportion of total regional VMT	See calculation table	percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report /Calculated
<i>TPM<sub>i,y</sub></i>	Forecasted trips per mile	See calculation table	trips/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<i>TL<sub>i</sub></i>	Average bicycle trip length	1.5	miles	CARB Quantifying Reductions in Vehicle Miles Traveled from New Bike Paths, Lanes, and Cycle Tracks: Technical Documentation <sup>1</sup>
<i>MS Increase<sub>Bike,y</sub></i>	Bicycle mode share increase	See calculation table	percentage	Calculated
<i>i</i>	VMT type	Passenger	–	–
<i>y</i>	Year	2030 or 2045	–	–
<i>j</i>	County subregion	Urban or rural	–	–
<b>Equation 5.2</b>				

<sup>59</sup> Humboldt County Association of Governments (HCAOG). Regional Transportation Plan, VROOM 2022-2042. Available at: [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)



Variable	Definition	Value	Unit	Data Source
<i>MS Target<sub>Active,y</sub></i>	Active transportation mode share target	–	percentage	Conservative estimate based on bicycle mode shares currently seen in Davis and Berkeley. <sup>2,3</sup>
<i>MS Target<sub>Active,2030</sub></i>	–	12.00%	percentage	City of Davis and Berkeley. <sup>2,3</sup>
<i>MS Target<sub>Active,2045</sub></i>	–	16.00%	percentage	HCAOG RTP goals
<i>MS<sub>Walk,by</sub></i>	Walking mode share in baseline year	7.73%	percentage	US Census Bureau. ACS 5-Year Estimates Subject Tables (2022) <sup>4</sup>
<i>MS<sub>Bike,by</sub></i>	Bicycle mode share in baseline year	1.35%	percentage	US Census Bureau. ACS 5-Year Estimates Subject Tables (2022) <sup>4</sup>
<i>by</i>	Baseline year	2022	year	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report

Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows

1. CARB. Quantifying Reductions in Vehicle Miles Traveled from New Bike Paths, Lanes, and Cycle Tracks: Technical Documentation (2019). Accessed at: [https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle\\_facilities\\_technical\\_041519.pdf](https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle_facilities_technical_041519.pdf).
2. US Census Bureau. ACS 5-Year Estimates Subject Tables. S0801 | Commuting Characteristics by Sex, Davis (2022). Available at: <https://data.census.gov/table/ACSST5Y2022.S0801?t=Commuting&g=160XX00US0618100>
3. US Census Bureau. ACS 5-Year Estimates Subject Tables. S0801 | Commuting Characteristics by Sex, Berkeley (2022). Available at: <https://data.census.gov/table/ACSST5Y2022.S0801?t=Commuting&g=160XX00US0606000>
4. US Census Bureau. ACS 5-Year Estimates Subject Tables. S0801 | Commuting Characteristics by Sex (2022). Available at: <https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting>

Table 18 Active Transportation Mode Share GHG Emission Reduction Calculations

Variable	Definition	Units	VMT Type	2030	2045
<b>Equation 5.2</b>					
<i>MS Target<sub>Active,y</sub></i>	Active transportation mode share target	percentage	Passenger	12.00%	16.00%
<i>MS Increase<sub>Bike,y</sub></i>	Bicycle mode share increase	percentage	Passenger	2.92%	6.92%
<b>Equation 5.1</b>					
<i>VMT</i>	Forecasted VMT	miles	Passenger	2,308,368,699	2,532,201,389
<i>Prop<sub>urban</sub></i>	Proportion of total regional VMT	percentage	Passenger	30.77%	30.77%
<i>TPM</i>	Forecasted trips per mile	trips/mile	Passenger	0.121980	0.124294
<i>VMT Reduced</i>	VMT reduced	miles	Passenger	3,797,653	10,055,097
<b>Equation 5</b>					
<i>VMT EF</i>	VMT emission factor	MT CO <sub>2</sub> e/mile	Passenger	0.000302	0.000258
<i>CO<sub>2</sub>e Reduction</i>	VMT GHG emission reductions	MT CO <sub>2</sub> e	Passenger	1,147	2,594

Measure TR-1 Rural: Implement programs, such as those identified in **HCAOG's RTP, that increase access to safe active transportation, to increase** the mode share of active transportation in rural areas from 5% to 6% by 2030, thereby achieving a regional active transportation mode share of 8%.

Measure TR-1 Rural aims to increase rural area active transportation mode share to 6 percent by 2030 and to 10 percent by 2045. For the purpose of transportation related Measures, "rural" is defined as small, incorporated cities not considered to be major commuter hubs in the region (i.e. Blue Lake, Ferndale, Rio Dell, and Trinidad) as well as unincorporated Humboldt County. The primary Actions that enable this Measure are:

- **Action TR-1c** which directs the Regional Climate Committee to work with the regions rural jurisdictions and HCAOG to obtain funding and prioritize construction and improvement projects connecting bikeway and pedestrian systems to high employment zones such as Eureka, Arcata, and Fortuna;
- **Action TR-1e** which commits jurisdictions with planned land use development to establish building code standards for inclusion of bicycle and pedestrian facilities; and
- **Action TR-1g** which dedicates staff time or the Regional Climate Committee to assist HCAOG in pursuing grant opportunities such as the Active Transportation Program, AARP Community Challenge, CalEPA's Environmental Justice Action Grants, and Caltrans Sustainable Transportation Planning Grants.

Actions under Measure TR-1 Rural are designed to align with HCAOG's RTP program, VROOM 2022-2042. HCAOG's VROOM 2022-2042 plan is the county-wide guiding long range regional planning document when it comes to public and active transportation implementation. Listed projects focus on aggressive mode share shift projects to achieve an aggregate public and active transportation mode share of 30 percent by 2030 and 40 percent by 2050.<sup>60</sup> Though increasing active transportation mode share can be a challenge, the projects listed in the RTP and supported by the Actions in **Measure TR-1 Rural** employ many recommended strategies for increasing active transportation in rural communities, such as focusing on strategic land use development planning, implementing complete streets, pursuit of diverse funding sources, building partnerships, and defining activity centers.<sup>61</sup> In order to achieve VMT reductions from these Actions, the rural areas will need to work collaboratively with the high employment centers of the county to implement mutually beneficial projects found in the RTP. Many of the zoning and land use policies are implemented through the General Plan. The RTP modeling results provide additional evidence for the ability of the region to reduce VMT through improved land use and growth management.

Despite their rural characteristics, the rural cities and unincorporated areas of Humboldt currently have relatively high walking mode shares, though biking mode shares are low. In 2022, the weighted average bicycle and pedestrian mode shares for the designated rural areas were 0.55 percent and 4.78 percent, respectively.<sup>62</sup> However, studies show that investments in active transportation infrastructure have demonstrated significant improvements in active transportation mode shifts and

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<sup>60</sup> For a full list of the projects please see the Connected 2050 plan. Accessed here: [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)

<sup>61</sup> Smart Growth America. 2023. An Active Roadmap: Best Practices in Rural Mobility. Available at: [https://smartgrowthamerica.org/wp-content/uploads/2023/07/SGA-Rural-Transportation-Field-Scan\\_Final\\_7.27.pdf](https://smartgrowthamerica.org/wp-content/uploads/2023/07/SGA-Rural-Transportation-Field-Scan_Final_7.27.pdf)

<sup>62</sup> US Census Bureau. 2017: ACS 5-Year Estimates Subject Tables. S0801 | Commuting Characteristics by Sex. Accessed at: [https://data.census.gov/table/ACSST5Y2019.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476\\_06230\\_42\\_0625296](https://data.census.gov/table/ACSST5Y2019.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476_06230_42_0625296)

GHG emissions reductions.<sup>63</sup> Rural areas can also reasonably expect to see significant mode share increases, as approximately 7.7 percent of rural trips nation-wide are one mile or less, with 15 percent of trips being three miles or less.<sup>64</sup> As the average bike trip length is approximately 1.5 miles,<sup>65</sup> a similar 11 percent reduction in vehicles miles travelled can be similarly expected with rural investment in bicycle and pedestrian infrastructure. A key to increasing active transportation mode share in rural areas in the county is creating an interconnected system of safe pedestrian and bicycle lanes that connect to city centers, job centers, amenities, and other parts of the region. HCAOG’s 2018 Regional Bicycle Plan and VROOM 2022-2042 plan recognize the need for interconnectivity across the region and have identified specific projects to enhance the interconnectivity of the bicycle and pedestrian system. Of the 506 miles of bikeway planned in the 2018 Regional Bicycle Plan, 406 of those miles are planned for the unincorporated county with many of the planned bikeways designated as rural routes that would connect the incorporated cities and unincorporated communities. The Actions in this Measure focus on obtaining the funding and resources to implement priority infrastructure projects that will continue to build out this interconnected system. The region has seen success with obtaining funding for such projects already, including grant funding for the bicycle and pedestrian improvements through the Caltrans Sustainable Transportation Planning Grant.<sup>66</sup>

Based on these factors and the alignment of the Actions for this Measure with HCAOG’s RTP and the planned county-wide bicycle and pedestrian projects to increase interconnectivity, it is conservatively estimated that rural areas can increase their combined biking and walking mode share from 4.8 percent to 6.0 percent by 2030. An increase in active transportation to 4.8 percent and 6.0 percent in rural areas equates to a 0.2 percent and 0.7 percent passenger VMT reduction, respectively. This is conservative compared with the VMT reduction target of 15 percent from baseline conditions used for the VMT Significance Threshold established by the County in compliance with SB 743. A 1.2 percent increase in active transportation in rural areas is further supported by the California Air Pollution Control Officers Association (CAPCOA) Handbook that found that enhancing the pedestrian network and expanding the bikeway network can reduce VMT by up to 7%.<sup>67</sup> Bike share programs, such as those to be implemented by **Action T-1i** have also been shown to reduce VMT.<sup>67</sup>

Table 19 shows the parameters and data sources that support these electrification ordinance GHG emission reductions and Table 20 shows the calculations as outlined in Equations 6 through 6.5.

#### Active Transportation Mode Share Equations

Equation 6  $CO_2e\ Reduction_{i,y} = VMT\ Reduced_{i,y} * VMT\ EF_{i,y}$

Equation 6.1  $VMT\ Reduced_{i,y} = VMT_{i,y} * Prop_j * TPM_{i,y} * TL_i * MS\ Increase_{Bike,y}$

<sup>63</sup> Glazener, Andrew and Khreis, Haneen. Transforming our Cities: Best Practices Towards Clean Air and Active Transportation (2019). Accessed at: <https://link.springer.com/article/10.1007/s40572-019-0228-1>

<sup>64</sup> U.S. Department of Transportation. 2022. Downloads, 2022 NHTS Dataset. Available at: <https://nhts.ornl.gov/downloads>

<sup>65</sup> CARB. Quantifying Reductions in Vehicle Miles Traveled from New Bike Paths, Lanes, and Cycle Tracks: Technical Documentation (2019). Accessed at: [https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle\\_facilities\\_technical\\_041519.pdf](https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle_facilities_technical_041519.pdf).

<sup>66</sup> <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/fiscal-year-2023-24-award-list-a11y.pdf>

<sup>67</sup> California Air Pollution Control Officers Association (CAPCOA). 2021. Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Accessed at: [https://www.airquality.org/ClimateChange/Documents/Final%20Handbook\\_AB434.pdf](https://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf)

Equation 6.2  $MS\ Increase_{Bike,y} = MS\ Target_{Active,y} - MS_{Walk,by} - MS_{Bike,by}$

Table 19 Rural Active Transportation Mode Share Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 6</b>				
<i>CO<sub>2</sub>e Reduction</i>	VMT GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
<i>VMT Reduced</i>	VMT reduced	See calculation table	miles	Calculated
<i>VMT EF</i>	VMT emission factor	See calculation table	MT CO <sub>2</sub> e/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<b>Equation 6.1</b>				
<i>VMT<sub>i,y</sub></i>	Forecasted VMT	See calculation table	miles	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<i>Prop<sub>j</sub></i>	Proportion of total regional VMT	See calculation table	percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<i>TPM<sub>i,y</sub></i>	Forecasted trips per mile	See calculation table	trips/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<i>TL<sub>i</sub></i>	Average bicycle trip length	1.5	miles	CARB <sup>1</sup>
<i>MS Increase<sub>Bike,y</sub></i>	Bicycle mode share increase	See calculation table	percentage	Calculated
<i>i</i>	VMT type	Passenger	–	–
<i>y</i>	Year	2030 or 2045	–	–
<i>j</i>	County subregion	Urban or rural	–	–
<b>Equation 6.2</b>				
<i>MS Target<sub>Active,y</sub></i>	Active transportation mode share target	–	percentage	–
<i>MS Target<sub>Active,2030</sub></i>	–	6.00%	percentage	U.S. Department of Transportation <sup>1</sup> and Jabon Mason <sup>3</sup>
<i>MS Target<sub>Active,2045</sub></i>	–	10.00%	percentage	Conservative alignment with HCAOG RTP goals and TR-1 Urban active transportation goals
<i>MS<sub>Walk,by</sub></i>	Walking mode share in baseline year	0.55%	percentage	US Census Bureau. ACS 5-Year Estimates Subject Tables (2022) <sup>4,5</sup>
<i>MS<sub>Bike,by</sub></i>	Bicycle mode share in baseline year	4.22%	percentage	US Census Bureau. ACS 5-Year Estimates Subject Tables (2022) <sup>4,5</sup>
<i>by</i>	Baseline year	2022	year	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report

Variable	Definition	Value	Unit	Data Source
Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows				
1. CARB. Quantifying Reductions in Vehicle Miles Traveled from New Bike Paths, Lanes, and Cycle Tracks: Technical Documentation (2019). Accessed at: <a href="https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle_facilities_technical_041519.pdf">https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/bicycle_facilities_technical_041519.pdf</a> .				
2. U.S. Department of Transportation. 2022. Downloads, 2022 NHTS Dataset. Available at: <a href="https://nhts.ornl.gov/downloads">https://nhts.ornl.gov/downloads</a>				
3. Jacob Mason et al., Institute for Transportation & Development Policy and the University of California, Davis. A Global High Shift Cycling Scenario (2015). Accessed at: <a href="https://itdpdotorg.wpengine.com/wp-content/uploads/2015/11/A-Global-High-Shift-Cycling-Scenario_Nov-2015.pdf">https://itdpdotorg.wpengine.com/wp-content/uploads/2015/11/A-Global-High-Shift-Cycling-Scenario_Nov-2015.pdf</a>				
4. US Census Bureau. 2022: ACS 5-Year Estimates Subject Tables. S0801 Commuting Characteristics by Sex. Accessed at: <a href="https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&amp;t=Commuting">https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&amp;t=Commuting</a>				
5. Weighted average active transit mode share estimated based on walking and biking mode shares provided by U.S. Census data for Blue Lake (2.9%, 2.6%), Ferndale (4.5%, 0.0%), Rio Dell (0.9%, 0.0%), Trinidad (3.4%, 0.0%), and Unincorporated Humboldt County (4.36%, 0.57%), and their respective VMT contributions as reported in the Humboldt Regional 2022 GHG Inventory.				

Table 20 Rural Active Transportation Mode Share GHG Emission Reduction Calculations

Variable	Definition	Units	VMT Type	2030	2045
<b>Equation 6.2</b>					
<i>MS Target<sub>Active,y</sub></i>	Active transportation mode share target	percentage	Passenger	6.00%	10.00%
<i>MS Increase<sub>Bike,y</sub></i>	Bicycle mode share increase	percentage	Passenger	1.22%	5.22%
<b>Equation 6.1</b>					
<i>VMT</i>	Forecasted VMT	miles	Passenger	2,308,368,699	2,532,201,389
<i>Prop<sub>rural</sub></i>	Proportion of total regional VMT	percentage	Passenger	69.23%	69.23%
<i>TPM</i>	Forecasted trips per mile	trips/mile	Passenger	0.121980	0.124294
<i>VMT Reduced</i>	VMT reduced	miles	Passenger	3,576,953	17,072,304
<b>Equation 6</b>					
<i>VMT EF</i>	VMT emission factor	MT CO <sub>2</sub> e/mile	Passenger	0.000302	0.000258
<i>CO<sub>2</sub>e Reduction</i>	VMT GHG emission reductions	MT CO <sub>2</sub> e	Passenger	1,080	4,405

Measure TR-2 Urban: **Expand the public transit network in support of HCAOG's** Regional Transportation Plan to increase public transit mode share from 2% to 20% public transit mode share in urbanized areas to achieve a regional 13% public transit mode share by 2030.

Measure TR-2 Urban aims to increase major regional urban centers' (i.e. Arcata, Eureka, Fortuna) public and shared transit mode share to 20 percent by 2030 and 30 percent by 2045. The primary Actions that enable this Measure are:

- **Action TR-2a** which directs the Regional Climate Committee to work with HCAOG and Humboldt Transit Authority (HTA) to implement initiatives in HCAOG's Regional Transportation Plan (RTP) to achieve a 10-minute headway; and
- **Action TR-2f, g** which commits the region to developing a multi-jurisdictional staff position through the Regional Climate Committee to support HTA and HCAOG in obtaining funding through grant opportunities or other identified sources and prioritize access improvements in low-income communities.

Actions under Measure TR-2 Urban are designed to align with HCAOG's RTP program, VROOM 2022-2042. HCAOG's VROOM 2022-2042 plan is the county-wide guiding long range regional planning document when it comes to public and active transportation implementation. Listed projects focus on aggressive mode share shift projects to achieve an aggregate public and active transportation mode share of 30 percent by 2030 and 40 percent by 2050.<sup>68</sup> Additionally, HTA's acquisition of 11 zero-emissions buses makes the shift to increased public transit mode share an even more attractive option for reducing GHG emissions.<sup>69</sup> Consistent with the RTP, a majority of VMT reductions will come from land use changes and infrastructure improvement projects to aid the expansion of HTA services and prioritizing neighboring city and rural interconnectivity improvement projects. In order to achieve these reductions, the cities will need to work collaboratively with the County and neighboring cities to implement mutually beneficial projects found in the RTP. By leveraging the Regional Climate Committee to administer a multi-jurisdictional staff position to work with HTA and HCAOG on behalf of the jurisdictions to support transit projects that best improve interconnectivity and serve the jurisdictions' needs, it will lessen the load on each individual jurisdiction and create consistency in planning. Many of the zoning and land use policies are implemented through the General Plan. The RTP modeling results provide additional evidence for the ability of the region to reduce VMT through improved land use and growth management.

In general, increases and improvements to public transportation systems reduce a jurisdiction's dependence on fossil fuels and reduce VMT. The best ways to improve a transit system and reduce driving is to expand its geographical reach and increase the frequency and reliability of transit service. Each new mile of transit usage reduces VMT on much more than a 1:1 basis. Approximately 1% increase in transit frequency saves 0.5% in VMT.<sup>70</sup> Further, improving transit access has the

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<sup>68</sup> For a full list of the projects please see the Connected 2050 plan. Accessed here: [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)

<sup>69</sup> Humboldt Transit Authority (HTA). 2024. Expanding Transit Services and Introducing Zero-Emission Fleets on the North Coast. Available at: <https://hta.org/projects-tircp/>

<sup>70</sup> Todd Litman. Victoria Transport Policy Institute. August 2021. Evaluating Public Transit Benefits and Costs Best Practices Guidebook. Accessed at: <https://www.vtpi.org/tranben.pdf>

potential to shift trips from cars to transit, which may reduce vehicle trips, VMT, and greenhouse gas emissions, with time spent getting to a transit stop being the key indicator of transit access.<sup>71</sup>

In 2022 (i.e., the Humboldt RCAP inventory year), Arcata, Eureka, and Fortuna had a weighted average regional public transit mode share of 1.74 percent.<sup>72</sup> However, other city areas have shown that increasing investment can significantly raise public mode transit mode share. The City of San Francisco leads the state with 26% transit mode share in 2017 (pre-COVID).<sup>73, 74</sup> The City of Seattle has documented significant increases in public transit mode share to 48% in 2017 (pre-COVID).<sup>75</sup> Key strategies employed by these cities include significant expansions of transit service lines, designated streets or lanes for bus lines to decrease headways, implementation of taxes to support transit, reduced parking availability, and user taxes. Though these city areas experience higher population density compared to the urban centers of Humboldt, these strategies represent core principles for improving public transit and largely align with objectives set forth in the Humboldt RTP. Therefore, it is anticipated that the urban areas (e.g., Arcata, Eureka, and Fortuna) will follow the trends of San Francisco and Seattle by implementing similar strategies under Measure TR-2. Quantification estimates suggest that, with full implementation of public transit improvement actions, achieving a public transit mode share of 29% (the average of Seattle and San Francisco) by 2030 is ambitious for the urban areas in the region. This is due to the current impacts of COVID-19 and existing barriers to public transit in the region. A more realistic goal set forth by this measure is public transit mode share of 20% by 2030. Though this goal is still ambitious, it conservatively aligns with the aggressive 2030 alternative mode share goals set by HCAOG in the RTP and HTA's goals to expand transit services such that there is a less than 10-minute headway. An increase in public transportation mode share to 20 percent in urbanized areas equates to a 3 percent passenger VMT reduction. This is conservative compared with the VMT reduction target of 15 percent from baseline conditions used for the VMT Significance Threshold established by the County in compliance with SB 743. It is further supported by CAPCOA's findings that expanding transit network coverage or hours can reduce VMT by up to 4.6 %, while increasing transit service frequency (e.g., reducing headway) can reduce VMT by up to 11.3%.<sup>76</sup> Obtaining funding to expand transit coverage and frequency will be key to achieving these aggressive goals. HCAOG and HTA have continually worked to procure funds for transit. In 2023 HCAOG allocated over \$9 million in funds for funding transit operations, route planning, and operation assistance.<sup>77</sup> Additionally, HTA was awarded a \$38.7 million grant from the California State Transportation Agency's Transit and Intercity Rail Capital Program to expand fleet

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<sup>71</sup> California Air Resources Board (CARB). August 2017. Methods to Assess Co-Benefits of California Climate Investments: Vehicle Miles Travelled. Accessed at: [http://ww2.arb.ca.gov/sites/default/files/auction-proceeds/carb\\_vehicle\\_miles\\_traveled.pdf](http://ww2.arb.ca.gov/sites/default/files/auction-proceeds/carb_vehicle_miles_traveled.pdf)

<sup>72</sup> US Census Bureau. 2022: ACS 5-Year Estimates Subject Tables. S0801 | Commuting Characteristics by Sex. Accessed at: [https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476\\_06230\\_42\\_0625296](https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476_06230_42_0625296)

<sup>73</sup> San Francisco Municipal Transportation Agency (SFMTA). December 2021. Sustainable Transportation Mode Share. Accessed at: <https://www.sfmta.com/reports/sustainable-transportation-mode-share>

<sup>74</sup> Pre-COVID numbers are referenced here with the understanding that public transit usage during the COVID pandemic were lower than normal and are likely to increase again assuming a return to pre-COVID conditions.

<sup>75</sup> Commute Seattle. December 2021. 2019 Mode Split Study Report. Accessed at: <https://www.commuteseattle.com/resource/2019-mode-split-study/>

<sup>76</sup> California Air Pollution Control Officers Association (CAPCOA). 2021. Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Accessed at: [https://www.airquality.org/ClimateChange/Documents/Final%20Handbook\\_AB434.pdf](https://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf)

<sup>77</sup> HCAOG. 2023. HCAOG 2023 Highlights. Accessed at: [https://www.hcaog.net/sites/default/files/HCAOG%202023%20Highlights%20\(Canva\).pdf](https://www.hcaog.net/sites/default/files/HCAOG%202023%20Highlights%20(Canva).pdf)

services and procure 11 new zero-emission hydrogen fuel cell electric buses to add to the fleet.<sup>78</sup> Further, HCAOG recently submitted a competitive application for the Caltrans Sustainable Communities Planning Grant Program - Strategic Transit Partnerships that focuses on building strong relationships among HCAOG, HTA, other transit and mobility-service providers, Caltrans, local tribes, cities, and county agencies in order to plan transportation and land use together. The focus on regional collaboration for land use planning and coordination for transit is key to creating an interconnected network. With this Measure providing additional support through the Regional Climate Committee to identify and apply for funding and jurisdictions committing to implementing initiatives locally, it is anticipated to accelerate implementation of the projects necessary to meet the HCAOG and HTA goals.

Table 21 shows the parameters and data sources that support the GHG emission reductions associated with reducing vehicle miles traveled through public transit mode share and Table 22 shows the calculations as outlined in Equations 7 through 7.2.

Public Transit Mode Share Equations

Equation 7  $CO_2e\ Reduction_{i,y} = VMT\ Reduced_{i,y} * VMT\ EF_{i,y}$

Equation 7.1  $VMT\ Reduced_{i,y} = ((VMT_{i,y} * Prop_j) - VMT_{active}) * TPM_{i,y} * TL_i * MS\ Increase_{public,y}$

Equation 7.2  $MS\ Increase_{public,y} = MS\ Target_{public,y} - MS_{public,by}$

Table 21 Public Transit Mode Share Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 7</b>				
$CO_2e\ Reduction_{i,y}$	VMT GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$VMT\ Reduced_{i,y}$	VMT reduced	See calculation table	miles	Calculated
$VMT\ EF_{i,y}$	VMT emission factor	See calculation table	MT CO <sub>2</sub> e/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<b>Equation 7.1</b>				
$VMT_{i,y}$	Forecasted VMT after active transportation reductions	See calculation table	miles	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Prop_j$	Proportion of total regional VMT	See calculation table	miles	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$VMT_{active,y}$	VMT reduction from active transportation targets	See calculation table	miles	Calculated (See Measures TR-1)
$TPM_{i,y}$	Forecasted trips per mile	See calculation table	trips/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report

<sup>78</sup> Humboldt Transit Authority (HTA). 2022. Humboldt Transit Authority Awarded \$38.7M Grant for Fuel Cell Electric Buses. Accessed at: [https://hta.org/wp-content/uploads/2022/07/2022-07\\_HTA-TIRCP-Press-Release.pdf](https://hta.org/wp-content/uploads/2022/07/2022-07_HTA-TIRCP-Press-Release.pdf)



Variable	Definition	Value	Unit	Data Source
$TL_i$	Average public transit trip length	3.8	miles	American Public Transportation Association's Public Transportation Fact Book <sup>1,2</sup>
$MS Increase_{Public,y}$	Public transit mode share increase	See calculation table	percentage	Calculated
$i$	VMT type	Passenger	–	–
$y$	Year	2030 or 2045	–	–
$j$	County subregion	Urban or Rural	–	–
<b>Equation 7.2</b>				
$MS Target_{Public,y}$	Public transit mode share target	–	percentage	–
$MS Target_{Public,2030}$	Public transit mode share target (2030)	20%	percentage	Conservative estimate based on achievable pre-COVID public transit mode shares in San Francisco <sup>3</sup> and Seattle. <sup>4</sup>
$MS Target_{Public,2045}$	Public transit mode share target (2045)	30%	percentage	
$MS_{Public,by}$	Public transit mode share in baseline year	1.74%	percentage	US Census Bureau <sup>5,6</sup>
$by$	Baseline year	2022	year	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report

Notes: “–” means either reference not applicable or see references for disaggregated parameter in the following table rows

1. American Public Transportation Association. Public Transportation Fact Book (2018). Accessed at: <https://www.apta.com/wp-content/uploads/Resources/resources/statistics/Documents/FactBook/2018-APTA-Fact-Book.pdf>.
2. Note: Regular bus trip length was utilized to remain conservative.
3. San Francisco Municipal Transportation Agency (SFMTA). December 2021. Sustainable Transportation Mode Share. Accessed at: <https://www.sfmta.com/reports/sustainable-transportation-mode-share>
4. Commute Seattle. December 2021. 2019 Mode Split Study Report. Accessed at: <https://www.commuteseattle.com/resource/2019-mode-split-study/>
5. US Census Bureau. 2022: ACS 5-Year Estimates Subject Tables. S0801|Commuting Characteristics by Sex. Accessed at: [https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476\\_0623042\\_0625296](https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476_0623042_0625296)
6. Weighted average public transit mode share estimated based on mode shares provided by U.S. Census data for Arcata (2.5%), Eureka (0.9%) and Fortuna (1.2%), and their respective VMT contributions as reported in the Humboldt Regional 2022 GHG Inventory.

Table 22 Public Transit Mode Share GHG Emission Reduction Calculations

Variable	Definition	Units	VMT Type	2030	2045
<b>Equation 7.2</b>					
$MS Target_{Public}$	Public transit mode share target	percentage	Passenger	20.00%	30.00%
$MS Increase_{Public}$	Public transit mode share increase	percentage	Passenger	18.26%	28.26%
<b>Equation 7.1</b>					
$VMT$	Forecasted VMT after active transportation reductions	miles	Passenger	2,308,368,699	2,532,201,389
$Prop_{urban}$	Proportion of total regional VMT	Percentage	Passenger	30.77%	30.77%
$VMT_{active}$	VMT reduction from active transportation targets	miles	Passenger	3,797,653	10,055,097

<b>Variable</b>	<b>Definition</b>	<b>Units</b>	<b>VMT Type</b>	<b>2030</b>	<b>2045</b>
<i>TPM</i>	Forecasted trips per mile	trips/mile	Passenger	0.121980	0.124294
<i>VMT Reduced</i>	VMT reduced	miles	Passenger	59,785,448	102,641,693
<b>Equation 7</b>					
<i>VMT EF</i>	VMT emission factor	MT CO <sub>2</sub> e/mile	Passenger	0.000302	0.000258
<i>CO<sub>2</sub>e Reduction</i>	VMT GHG emission reductions	MT CO <sub>2</sub> e	Passenger	18,055	26,482

Measure TR-2 Rural: Develop a robust public transit network in support of **HCAOG's Regional Transportation Plan to increase public transit mode share** from 1% to 10% in rural areas and achieve a regional 13% public transit mode share by 2030.

Measure TR-2 Rural aims to increase rural incorporated and unincorporated regions of the county (i.e. Blue Lake, Ferndale, Rio Dell, Trinidad, and Unincorporated Humboldt County) public and shared transit mode share to 10 percent by 2030 and 15 percent by 2045. The primary Actions that enable this Measure are:

- **Action TR-2a** which directs the Regional Climate Committee to work with HCAOG and Humboldt Transit Authority (HTA) to implement initiatives in HCAOG's Regional Transportation Plan (RTP) to achieve a 30-minute headway in rural areas;
- **Action TR-2c, d** which directs jurisdictions to work with HCAOG to conduct a feasibility study for micro transit programs to enhance public transit use and develop a micro-mobility policy that establishes the process for implementing a micro-mobility program; and
- **Action TR-2e** which directs jurisdictions to require nonresidential and mixed-use developments to participate in Transportation Demand Management strategies such as shuttle services or pre-tax commute benefits; and
- **Action TR-2i** which commits the Regional Climate Committee to direct a multi-jurisdictional staff position to support HCAOG and HTA in pursuing funding for expanding the transit network and prioritizing public transportation access in low-income communities.

Actions under Measure TR-2 Rural are designed to align with HCAOG's RTP program, VROOM 2022-2042. HCAOG's VROOM 2022-2042 plan is the county-wide guiding long range regional planning document when it comes to public and active transportation implementation. Listed projects focus on aggressive mode share shift projects to achieve an aggregate public and active transportation mode share of 30 percent by 2030 and 40 percent by 2050.<sup>79</sup> As previously mentioned, HTA's acquisition of 11 zero-emissions buses makes the shift to increased public transit mode share an even more attractive option for reducing GHG emissions.<sup>80</sup> Consistent with the RTP, a majority of VMT reductions will come from land use changes and infrastructure improvement projects to aid the expansion of HTA services and prioritize neighboring city and rural interconnectivity improvement projects. To achieve these reductions, the rural areas will need to work collaboratively with the employment centers of the county to implement mutually beneficial projects found in the RTP.

In 2022, rural areas had a weighted average regional public transit mode share of 0.96 percent.<sup>81</sup> Urbanized areas have shown that increasing investment can significantly raise public mode transit mode share (See Measure TR-2 Urban for more information). As previously mentioned, key strategies employed by these cities include significant expansions of transit service lines, designated

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<sup>79</sup> For a full list of the projects please see the Connected 2050 plan. Accessed here: [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)

<sup>80</sup> Humboldt Transit Authority (HTA). 2024. Expanding Transit Services and Introducing Zero-Emission Fleets on the North Coast. Available at: <https://hta.org/projects-tircp/>

<sup>81</sup> US Census Bureau. 2022. ACS 5-Year Estimates Subject Tables. S0801|Commuting Characteristics by Sex. Accessed at: [https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476\\_06230\\_42\\_0625296](https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476_06230_42_0625296)

streets or lanes for bus lines to decrease headways, implementation of taxes to support transit, reduced parking availability, and user taxes.

While these core strategies typically result in increased public transit mode share, more rural areas may not experience comparably significant benefits. Rural communities make up 68 percent of road miles in the United States, these areas are often underfunded such that only 36 percent have access to airline, rail, and bus transportation services.<sup>82</sup> To increase rural mode shift to public transportation, access needs to be increased, and transit use must be more convenient. Effective communication, especially communication that takes advantage of new and emerging technologies to accurately and easily disseminate trip planning and real-time status information, is a strong factor in helping customers decide to use transit for business or leisure trips.<sup>83</sup> **Action TR-2a** focuses on supporting the implementation of infrastructure and technology improvements that would improve access and convenience to public transit for rural communities.

Strategies such as expansion of fixed-route systems, a core strategy for urban centers, may not pose the best solution on its own as compared to leaning on other solutions for public transit, such as on-demand or micro transit options.<sup>84,85</sup> Many cities in California and throughout the Country have been conducting micro-transit projects for several years and the number of projects is continuing to grow due to their success.<sup>86, 87</sup> Further, CAPCOA's Handbook found several studies that micro transit programs such as bike and scooter share can reduce VMT and improve access to public transit thereby increasing mode shift to public transit.<sup>88</sup> Recently HCAOG in collaboration with HTA and a community based partner received a grant for \$2.6 million to expand transit options throughout an unincorporated community of Humboldt, McKinleyville, by piloting an on-demand micro transit program that would offer in-town trips and connections to intercity buses. It is anticipated that this program may serve as a model for other areas in the region that have potential for infill but do not have the population density for a fixed-route transit.<sup>89</sup> **Action TR-2c** directs jurisdictions to work with HCAOG and HTA to conduct a feasibility study for implementing micro transit programs in other parts of the county, using information gained from the McKinleyville pilot program to inform effectiveness of such a program. Based on the feasibility study and if determined that micro transit could be a solution, jurisdictions would develop a micro-mobility policy through **Action TR-2d** that would establish the framework for implementing a micro-mobility program the community.

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<sup>82</sup> U.S. Department of Transportation. 2023. The Critical Role of Rural Communities in the U.S. Transportation System. Available at: <https://www.transportation.gov/rural/grant-toolkit/critical-role-rural-communities>

<sup>83</sup> <https://transitleadership.org/docs/TLS-WP-Improving-the-Customer-Experience.pdf>

<sup>84</sup> Cities Today. 2021. Public transit in rural communities is extremely inefficient — this data tells us how to change that. Available at: <https://cities-today.com/industry/public-transit-rural-communities-extremely-inefficient-data-change/>

<sup>85</sup> Smart Growth America. 2023. An Active Roadmap: Best Practices in Rural Mobility. Available at: [https://smartgrowthamerica.org/wp-content/uploads/2023/07/SGA-Rural-Transportation-Field-Scan\\_Final\\_7.27.pdf](https://smartgrowthamerica.org/wp-content/uploads/2023/07/SGA-Rural-Transportation-Field-Scan_Final_7.27.pdf)

<sup>86</sup> <https://www.apta.com/research-technical-resources/mobility-innovation-hub/microtransit/>

<sup>87</sup> <https://transweb.sjsu.edu/research/2249-Demand-Responsive-Transportation-Shared-Mobility>

<sup>88</sup> California Air Pollution Control Officers Association (CAPCOA). 2021. Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Accessed at: [https://www.airquality.org/ClimateChange/Documents/Final%20Handbook\\_AB434.pdf](https://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf)

<sup>89</sup> HCAOG. 2023. HCAOG and Partners Awarded \$2.6 million Grant for Community Based Housing and Transportation. Accessed at: <https://kymkemp.com/2023/10/18/hcaog-and-partners-awarded-2-6-million-grant-for-community-based-housing-and-transportation/>

In recognition of the need for varied transportation methods throughout the county, HCAOG’s VROOM 2022-2042 sets goals and projects for expanding on-demand and micro transit infrastructure in addition to public transit to meet the 30 percent mode alternative transit goal by 2030. Therefore, by aligning the Actions for Measure TR-2 Rural with the RTP and partnering with HCAOG, it is anticipated that rural regions will be able to meet the goal of 10 percent public transit mode share by 2030. An increase in public transportation mode share to 10 percent in rural areas equates to a 3 percent passenger VMT reduction. This is conservative compared with the VMT reduction target of 15 percent from baseline conditions used for the VMT Significance Threshold established by the County in compliance with SB 743. Table 23 shows the parameters and data sources that support the GHG emission reductions associated with reducing vehicle miles traveled through rural public transit mode share and Table 24 shows the calculations as outlined in Equations 8 through 8.2.

Public Transit Mode Share Equations

Equation 8  $CO_2e\ Reduction_{i,y} = VMT\ Reduced_{i,y} * VMT\ EF_{i,y}$

Equation 8.1  $VMT\ Reduced_{i,y} = ((VMT_{i,y} * Prop_j) - VMT_{active}) * TPM_{i,y} * TL_i * MS\ Increase_{public,y}$

Equation 8.2  $MS\ Increase_{public,y} = MS\ Target_{public,y} - MS_{public,by}$

Table 23 Public Transit Mode Share Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 8</b>				
$CO_2e\ Reduction_{i,y}$	VMT GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$VMT\ Reduced_{i,y}$	VMT reduced	See calculation table	miles	Calculated
$VMT\ EF_{i,y}$	VMT emission factor	See calculation table	MT CO <sub>2</sub> e/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<b>Equation 8.1</b>				
$VMT_{i,y}$	Forecasted VMT after active transportation reductions	See calculation table	miles	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Prop_j$	Proportion of total regional VMT	See calculation table	miles	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$VMT_{active,y}$	VMT reduction from active transportation targets	See calculation table	miles	Calculated (See Measures TR-1)
$TPM_{i,y}$	Forecasted trips per mile	See calculation table	trips/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$TL_i$	Average public transit trip length	3.8	miles	American Public Transportation Association’s Public Transportation Fact Book <sup>1,2</sup>
$MS\ Increase_{public,y}$	Public transit mode share increase	See calculation table	percentage	Calculated

Variable	Definition	Value	Unit	Data Source
<i>i</i>	VMT type	Passenger	–	–
<i>y</i>	Year	2030 or 2045	–	–
<i>j</i>	County subregion	Urban or Rural	–	–
<b>Equation 8.2</b>				
<i>MS Target<sub>Public,y</sub></i>	Public transit mode share target	–	percentage	–
<i>MS Target<sub>Public,2030</sub></i>	Public transit mode share target (2030)	10%	percentage	Based on rural strategies for public transportation <sup>3,4</sup> and alignment with regional RTP. <sup>5</sup>
<i>MS Target<sub>Public,2045</sub></i>	Public transit mode share target (2045)	15%	percentage	
<i>MS<sub>Public,by</sub></i>	Public transit mode share in baseline year	0.96%	percentage	US Census Bureau <sup>5,6</sup>
<i>by</i>	Baseline year	2022	year	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report

- Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows
- American Public Transportation Association. Public Transportation Fact Book (2018). Accessed at: <https://www.apta.com/wp-content/uploads/Resources/resources/statistics/Documents/FactBook/2018-APTA-Fact-Book.pdf>.
  - Note: Regular bus trip length was utilized to remain conservative.
  - Cities Today. 2021. Public transit in rural communities is extremely inefficient — this data tells us how to change that. Available at: <https://cities-today.com/industry/public-transit-rural-communities-extremely-inefficient-data-change/>
  - Smart Growth America. 2023. An Active Roadmap: Best Practices in Rural Mobility. Available at: [https://smartgrowthamerica.org/wp-content/uploads/2023/07/SGA-Rural-Transportation-Field-Scan\\_Final\\_7.27.pdf](https://smartgrowthamerica.org/wp-content/uploads/2023/07/SGA-Rural-Transportation-Field-Scan_Final_7.27.pdf)
  - Humboldt County Association of Governments (HCAOG). Regional Transportation Plan, VROOM 2022-2042. Available at: [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)
  - US Census Bureau. 2022: ACS 5-Year Estimates Subject Tables. S0801 | Commuting Characteristics by Sex. Accessed at: <https://data.census.gov/table/ACSST5Y2022.S0801?q=Humboldt%20County,%20California&t=Commuting&g=160XX00US0602476,0623042,0625296>
  - Weighted average public transit mode share estimated based on mode shares provided by U.S. Census data for Blue Lake, (2.6%), Ferndale (0.0%), Rio Dell (0.0%), Trinidad (0.0%), and Unincorporated Humboldt County (0.57%) and their respective VMT contributions as reported in the Humboldt Regional 2022 GHG Inventory.

Table 24 Public Transit Mode Share GHG Emission Reduction Calculations

Variable	Definition	Units	VMT Type	2030	2045
<b>Equation 8.2</b>					
<i>MS Target<sub>Public</sub></i>	Public transit mode share target	percentage	Passenger	10.00%	15.00%
<i>MS Increase<sub>Public</sub></i>	Public transit mode share increase	percentage	Passenger	9.04%	14.04%
<b>Equation 8.1</b>					
<i>VMT</i>	Forecasted VMT after active transportation reductions	miles	Passenger	2,308,368,699	2,532,201,389
<i>Prop<sub>urban</sub></i>	Proportion of total regional VMT	Percentage	Passenger	69.23%	69.23%
<i>VMT<sub>active</sub></i>	VMT reduction from active transportation targets	miles	Passenger	3,576,953	17,072,304
<i>TPM</i>	Forecasted trips per mile	trips/mile	Passenger	0.121980	0.124294
<i>VMT Reduced</i>	VMT reduced	miles	Passenger	66,822,406	115,129,048
<b>Equation 8</b>					
<i>VMT EF</i>	VMT emission factor	MT CO <sub>2</sub> e/mile	Passenger	0.000302	0.000258
<i>CO<sub>2</sub>e Reduction</i>	VMT GHG emission reductions	MT CO <sub>2</sub> e	Passenger	20,180	29,703

Measure TR-3: Reduce regional VMT by increasing promotion of mixed-use **development in infill priority areas in alignment with HCAOG's baseline** connectivity score included in the RTP.

Measure TR-3 aims to encourage mixed-use development in designated infill priority areas within incorporated cities, aligning with the baseline connectivity score identified in HCAOG's VROOM 2022-2042.<sup>90</sup> Promoting mixed-use development in infill areas supports efficient land use by combining residential, commercial, and recreational spaces, which can reduce traffic congestion, lower transportation-related emissions, and dissuade regional sprawl. Such efforts are already underway in the City of Arcata which recently approved a final draft of the Gateway Area Plan which establishes long-range planning for high-density housing and mixed-use developments.<sup>91</sup>

This measure enhances community livability by supporting the development of walkable neighborhoods with easy access to essential services and amenities. By aligning with the initiatives outlined in the RTP, the infill projects will be strategically planned to increase connectivity and accessibility. Though this measure will aid in reducing regional VMT and associated GHG emissions, reductions from this Measure are not quantified due to complex indirect impacts and high risk of double counting with other RCAP Measures (see Measures TR-1 and TR-2).

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<sup>90</sup> Humboldt County Association of Governments (HCAOG). Regional Transportation Plan, VROOM 2022-2042. Available at: [https://www.hcaog.net/sites/default/files/vroom\\_2022-2042\\_full\\_report\\_0.pdf](https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf)

<sup>91</sup> Lost Coast Outpost. 2024. 'This is a Major Milestone': Arcata Planning Commission Passes Final Draft of Gateway Area Plan. Available at: <https://lostcoastoutpost.com/2024/may/15/major-milestone-arcata-planners-pass-final-draft-g/>



Measure TR-4: Develop and implement regional mobility hubs and ZEV car-share programs to support mode shift from single occupancy vehicles.

Measure TR-4 focuses on creating regional mobility hubs and implementing ZEV car-share programs to encourage a shift away from single-occupancy vehicle use. This measure aims to enhance transportation options across urban and rural communities, making it easier for residents to choose sustainable and efficient modes of travel. Regional mobility hubs integrate various transportation services, such as public transit, bike-sharing, and car-sharing, in a single location to provide convenience and increase connections between different modes of travel.<sup>92,93</sup> The introduction of ZEV car-share programs further supports this initiative by offering clean transportation alternatives, reducing the reliance on fossil fuels. While the GHG emission reductions from this measure are not quantified in the RCAP due to the complexity of directly attributing these reductions and risk of double counting with other Measures in the RCAP, it plays a critical role in increasing access to alternative, more sustainable forms of transportation and reducing overall vehicle emissions.

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<sup>92</sup> Sacramento Area Council of Governments (SACOG). Mobility Hub Design Guidance. Available at: <https://www.sacog.org/planning/transportation/innovative-mobility-program/mobility-hubs>

<sup>93</sup> CoMoUK. Mobility Hubs Overview and benefits. Available at: <https://www.como.org.uk/mobility-hubs/overview-and-benefits>

Measure TR-5: Require commercial and industrial employers with 25 employees or more to develop a Transportation Demand Management plan.

Measure TR-5 commits jurisdictions, particularly high employment areas, to require that commercial and industrial employers with 25 or more employees create a Transportation Demand Management (TDM) plan. This measure aims to lower GHG emissions and better accommodate employees living far from their place of work by further incentivizing alternative commuting options through employer-based subsidies for alternative modes of travel, which can also reduce their commuting costs. TDM plans can include strategies such as promoting carpooling, offering public transit incentives, supporting telecommuting, and providing facilities for cycling and walking. Employer-based TDM plans with these types of strategies which combine incentives with improved commute alternatives can lead to a 25 percent reduction in employee trips.<sup>94</sup> By requiring these plans, Measure TR-5 encourages employers to actively participate in reducing their transportation footprint, improving air quality, and enhancing the overall efficiency of the transportation network. While the GHG emission reductions from this Measure are not quantified in the RCAP due to the challenges in measuring individual employer contributions, it has been included to support the RCAP goals as an effective means to reduce transportation sector emissions.

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<sup>94</sup> U.S. Department of Transportation. 2020. 10. Known Effectiveness of TDM Strategies. Available at: <https://ops.fhwa.dot.gov/publications/fhwahop12035/chap10.htm>

Measure TR-6: Decarbonize 15% of passenger vehicle miles traveled by 2030 and 100% by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.

Measure TR-6 aims to increase passenger zero-emission vehicle (ZEV) adoption across the county through increased ZEV adoption and implementation of hydrogen hubs as an alternative to electric ZEVs. The state has established a goal of putting 5 million ZEVs on the road by 2030 and, according to executive order N-79-20, 100 percent of passenger vehicle sales are to be zero emission by 2035. This new executive order puts the total number of ZEVs on the road by 2035 at approximately 15 million.<sup>95</sup> Based on the current number of vehicles registered in California and a 2% growth rate per year, 15 million ZEVs accounts for 35% of total passenger vehicles in 2035. Currently, the State is only anticipated to reach a 26 percent ZEV adoption rate by 2030,<sup>96,97</sup> Though jurisdictions in Humboldt are expected to aid in aligning regional ZEV adoption with state goals, Humboldt's electricity infrastructure<sup>98,99</sup> and rural nature poses challenges with matching the State's goals or anticipated ZEV market rate. In recognition of these challenges as well as the pressing need to decarbonize the transportation sector, Measure TR-6 sets a conservative goal of 15 percent ZEV adoption by 2030 and 100 percent by 2045. While Measure TR-6 focuses on ZEVs, hybrids also pose a viable option for interim GHG reduction of on-road transportation. However, legislative reductions from hybrid use are largely captured in the forecast of the RCAP, therefore it is more conservative to exclude hybrid-specific targets to avoid double-counting these reductions. Furthermore, California's manufacturing legislation will mean no fossil-fueled cars will be manufactured in the state after 2035, reinforcing the long-term focus on ZEVs. The primary Actions that are designed to drive these investments and enable this Measure include:

- **Action TR-6b** which commits the Regional Climate Committee to develop a streamlined EV infrastructure permitting process and ordinance which can be utilized as a template for jurisdictions to utilize and adopt;
- **Action TR-6c** which commits the Regional Climate Committee to working with local jurisdictions to modify the Municipal code to promote EV charger access in new developments, redevelopment and existing parking spaces;

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<sup>95</sup> Susan Carpenter. Spectrum News 1. October 2020. What it will take to get 100% EV sales in California. Accessed at: <https://spectrumnews1.com/ca/la-west/transportation/2020/10/05/what-it-will-take-to-sell-100-evs-in-california>

<sup>96</sup> Crisostomo, Noel et al. Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment: Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030. Accessed at: [Calmatters.org/environment/2023/03/california-electric-cars-demographics/?utm\\_id=91724&sfmc\\_id=4863450](https://calmatters.org/environment/2023/03/california-electric-cars-demographics/?utm_id=91724&sfmc_id=4863450).

<sup>97</sup> Based on the zero-emission vehicle goals for passenger vehicles established by Executive Order N-79-20, eight million zero-emission vehicles are anticipated statewide by 2030. Humboldt calculated that these eight million zero-emission vehicles represent 26 percent of the total passenger vehicles expected statewide by 2030 (based on statewide passenger car and light-duty truck counts in 2016 and population estimates for 2016 and 2030).

<sup>98</sup> According to the CEC's electric vehicle charger 2025 capacity planning tool, the regional capacity varies considerably across the county, with some areas anticipated to have negative capacity (aka the projected electric capacity is not anticipated to support the modeled EV load).

<sup>99</sup> California Energy Commission (CEC). 2024. EVSE Deployment and Grid Evaluation (EDGE) Tool (version 1.0). Available at: [https://experience.arcgis.com/experience/6aaadc11586447aaaeab2a473947ad07#data\\_s=id%3AdataSource\\_2-189e1db67fd-layer-3%3A39](https://experience.arcgis.com/experience/6aaadc11586447aaaeab2a473947ad07#data_s=id%3AdataSource_2-189e1db67fd-layer-3%3A39)

- **Action TR-6f** which establishes an EV Monthly Bill Discount Program with additional discount opportunities for low-income households aimed at reducing cost barriers to EV adoption;
- **Action TR-6g** which directs the Regional Climate Committee to work with RCEA to expand home and public ZEV fueling/charging infrastructure in alignment with goals established in RCEA’s REPower Humboldt Plan; and
- **Action TR-6j** which commits the Regional Climate Committee to lead the development of a Hydrogen Vehicle Infrastructure Implementation Plan for public access by 2030 in collaboration with HCAOG and the incorporated cities.

**Action TR-4g** directs the jurisdictions to work with RCEA to install publicly accessible EV chargers needed to support RCEA’s ZEV infrastructure goals. According to the REPower Plan, RCEA aims to install sufficient charging infrastructure to support 22,000 EVs by 2030.<sup>100</sup> This effort will be supported by RCEA’s goals to increase regional electricity capacity and infrastructure discussed in Measure BE-1, as well as State strategies to build new, and upgrade aging, transmission and distribution infrastructure to support the transition to renewable energy.<sup>101</sup> This Action focuses on public EV chargers because studies have consistently found that limited charging infrastructure is one of the primary barriers to electric vehicle adoption.<sup>102, 103</sup> Publicly accessible EV chargers make owning an electric vehicle convenient for all drivers—including those who cannot charge at home or drive daily distances longer than their electric vehicle battery range. According to a recent study on public charging infrastructure needs, it is expected that 20 percent of EV charging nationally will occur at publicly accessible chargers in 2030.<sup>104</sup> This Action’s quantification is based on the U.S. Department of Energy’s Electric Vehicle Infrastructure Projection Tool outputs for the State of California.<sup>105</sup> The tool is used to calculate the number of publicly accessible EV chargers needed in the region to support a 15 percent passenger ZEV adoption in 2030 and a 100 percent passenger ZEV adoption in 2045. Though Measure TR-6 seeks to establish a hydrogen industry in the region to support adoption of hydrogen fuel vehicles, further development needs to occur to develop infrastructure capacity targets before GHG reductions can be substantially quantified from hydrogen passenger vehicles. Currently, key components of this infrastructure in the region include the HTA hydrogen fueling station, contracted to supply fuel to the public but still awaiting construction,<sup>106</sup> and the hydrogen production facility to be constructed located in Red Bluff within the Redding

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<sup>100</sup> Redwood Coast Energy Authority (RCEA). 2019. REPower Humboldt (2019 Update). Available at: <https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>

<sup>101</sup> Governor Gavin Newsom. 2023. Building the Electricity Grid of the Future: California’s Clean Energy Transition Plan. Available at: <https://www.gov.ca.gov/wp-content/uploads/2023/05/CAEnergyTransitionPlan.pdf>

<sup>102</sup> Kumar, Rajeev Ranjan and Kumar Alok. Adoption of Electric Vehicle: A Literature Review and Prospects for Sustainability (2020). Accessed at: <https://www.sciencedirect.com/science/article/abs/pii/S095965261934781X>.

<sup>103</sup> Winjobi, Olumide and Kelly, Jarod. Used Plug-in Electric Vehicles as a Means of Transportation Equity in Low-Income Households (2021). Accessed at: <https://www.osti.gov/biblio/1658592>.

<sup>104</sup> Kampshoff, Philipp et al. Building the Electric-Vehicle Charging Infrastructure America Needs (2022). Accessed at: <https://www.mckinsey.com/industries/public-sector/our-insights/building-the-electric-vehicle-charging-infrastructure-america-needs>.

<sup>105</sup> U.S. Department of Energy. Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite. Accessed at: <https://afdc.energy.gov/evi-pro-lite>.

<sup>106</sup> Humboldt Transit Authority. 2024. Expanding Transit Services and Introducing Zero-Emission Fleets on the North Coast. Available at: <https://hta.org/projects-tircp/>

Rancheria.<sup>107</sup> Given these factors, the quantification assumes all ZEVs will be EVs to remain conservative.

Table 25 shows the parameters and data sources used to calculate the publicly accessible EV chargers needed in 2030 and 2045 with the Department of Energy’s Electric Vehicle Infrastructure Projection Tool and Table 26 shows the calculations as outlined in Equations 9 through 9.2.

Publicly Accessible Electric Vehicle Chargers Equation

Equation 9  $PEV\ Chargers_y = Region\ PEV\ Chargers_y * (EVs_y / (Region\ EVs_y)) - Existing\ PEV\ Chargers_{by}$

Equation 9.1  $EVs_y = Population_y * (Vehicles_{by} / Population_{by}) * EV\ Target_{Pass,y}$

Equation 9.2  $Region\ EVs_y = Region\ Vehicles_y * EV\ Target_{Pass,y}$

Table 25 Publicly Accessible Electric Vehicle Charger Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 9</b>				
<i>PEV Chargers<sub>y</sub></i>	New publicly accessible electric vehicle chargers needed in Humboldt	See calculation table	chargers	Calculated
<i>Region EV Chargers<sub>y</sub></i>	Regional electric vehicle chargers needed	See calculation table	electric vehicles	Estimated using the Electric Vehicle Infrastructure Projection Tool public charger outputs for the State with the <i>Region EVs<sub>2030</sub></i> value as the input. <sup>1</sup>
<i>EVs<sub>y</sub></i>	Electric vehicles targeted in Humboldt	See calculation table	electric vehicles	Calculated
<i>Region EVs<sub>y</sub></i>	Regional electric vehicles targeted	See calculation table	electric vehicles	Calculated
<i>Existing EV Chargers<sub>by</sub></i>	Existing publicly accessible electric vehicle chargers in Humboldt	127	chargers	PlugShare <sup>2</sup>
<i>y</i>	Year	2030 or 2045	year	–
<i>by</i>	Baseline year	2022	year	–
<b>Equation 9.1</b>				
<i>Population<sub>y</sub></i>	Forecasted population in region	See calculation table	people	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<i>Vehicles<sub>by</sub></i>	Vehicles in baseline year in region	109,772	vehicles	California Department of Motor Vehicles <sup>3</sup>

<sup>107</sup> KRRCR. 2024. Redding Rancheria to build green hydrogen facility off I-5. Available at: <https://krctrv.com/news/local/redding-rancheria-to-build-green-hydrogen-facility-off-i-5>

Variable	Definition	Value	Unit	Data Source
$Population_{by}$	Population in baseline year in Humboldt	136,132	people	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$EV Target_{Pass,y}$	Electric vehicle adoption target	See calculation table	percentage	Targeted zero-emission vehicle adoption for Measure TR-4.
<b>Equation 9.2</b>				
$Region Vehicles_y$	Regional vehicles	33,167,900	vehicles	Electric Vehicle Infrastructure Projection Tool value for the State <sup>1</sup>

- Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows
1. U.S. Department of Energy. Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite. Accessed at: <https://afdc.energy.gov/evi-pro-lite>.
  2. PlugShare. EV Charging in Pinole, CA. Accessed at: <https://www.plugshare.com/directory/us/california/pinole>.
  3. California Department of Motor Vehicles. 2022. Vehicles Registered By County. Accessed at: <https://www.dmv.ca.gov/portal/dmv-research-reports/research-development-data-dashboards/vehicles-registered-by-county/>

Table 26 Publicly Accessible Electric Vehicle Charger Parameters and Data Sources

Variable	Definition	Units	2030	2045
<b>Equation 9.2</b>				
$EV Target_{Pass,y}$	Zero-emission vehicle adoption target	percentage	15%	100%
$Region EVs_y$	Regional electric vehicles targeted	electric vehicles	4,975,185	33,167,900
<b>Equation 9.1</b>				
$Population_y$	Forecasted population in Humboldt	people	143,556	157,476
$EVs_y$	Electric vehicles targeted in Humboldt	electric vehicles	17,364	126,983
<b>Equation 9</b>				
$PEV Chargers_y$	New publicly accessible electric vehicle chargers needed in Humboldt	chargers	388	9,154

Through public-private funding and partnerships, the Humboldt jurisdictions will need to install a collective 388 publicly accessible EV chargers by 2030 and 9,154 publicly accessible EV chargers by 2045. This is estimated to support 17,364 EVs, a more conservative target installation compared to the goals defined by RCEA. These ZEVs will also be supported by private electric vehicle chargers in new developments and existing buildings.

While jurisdictions cannot require residents to buy and use ZEVs rather than gasoline or diesel-powered vehicles, the Regional Climate Committee will support each jurisdiction in the region of Humboldt to incentivize this behavior change and support this level of ZEV adoption. Providing 388 additional public electric vehicle chargers is in line with other counties in California, such as Alameda, Santa Clara, and Marin counties and consistent with state legislation assessing the gap to needed ZEV charging infrastructure.<sup>108</sup> Buildout of EV infrastructure will be further supported by Actions to identify and obtain funding for increasing publicly available charging stations and

<sup>108</sup> AB 2127 directs the CEC to assess needed charging infrastructure from which the number of chargers in the County was inferred. Accessed here: <https://www.energy.ca.gov/programs-and-topics/programs/electric-vehicle-charging-infrastructure-assessment-ab-2127>

infrastructure, expand incentive programs for at home electric vehicle chargers, and streamline the installation permitting process. These local actions along with new federal and state funding will help cover the upfront costs to purchasing an electric vehicle and installing the equipment or infrastructure upgrades needed to charge an electric vehicle at home as high costs are one of the barriers to electric vehicle adoption for low-income households.<sup>109</sup>

Table 27 shows the parameters and data sources that support GHG emission reductions from the zero-emission vehicle adoption and Table 28 shows the calculations as outlined in Equations 10 through 10.2.

#### Passenger Zero-emission Vehicle Adoption Equations

Equation 10  $CO_2e\ Reduction_{VMT,i,y} = (VMT\ Reduced_{ICE,i,y} * EF_{VMT,i,y}) - (Elec\ Converted_{i,y} * EF_{elec,i,y} * (1 + L_{T\&D}))$

Equation 10.1  $Elec\ Converted_{i,y} = VMT\ Reduced_{ICE,i,y} * EPM_{ZEV,i,y}$

Equation 10.2  $VMT\ Reduced_{ICE,i,y} = (VMT_{i,y} - VMT_{alt,i,y}) * (ZEV\ Adoption_{i,y} - ZEV\ Adoption\ Baseline_{i,y})$

Table 27 Passenger Zero-emission Vehicle Adoption Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 10</b>				
$CO_2e\ Reduction_{VMT,i,y}$	VMT GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$VMT\ Reduced_{ICE,i,y}$	Internal combustion engine VMT reduced	See calculation table	miles	Calculated
$EF_{VMT,i,y}$	Forecasted VMT emission factor	See calculation table	MT CO <sub>2</sub> e/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Elec\ Converted_{i,y}$	Electricity from zero-emission vehicle conversion	See calculation table	kWh	Calculated
$EF_{elec,i,y}$	Forecasted residential electricity emission factor	See calculation table	MT CO <sub>2</sub> e/kWh	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$L_{T\&D}$	Electricity transmission and distribution loss percentage	5.10%	Percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$i$	VMT type	Passenger	–	–
$y$	Year	2030 or 2045	–	–
<b>Equation 10.1</b>				
$EPM_{ZEV,i,y}$	Forecasted electricity usage per mile of zero-emission vehicles	See calculation table	kWh/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<b>Equation 10.2</b>				

<sup>109</sup> Gaillard, Isa. Ingredients for Equitable Electrification: Analyzing Equity in Statewide Electric Vehicle Rebate Programs (2022). Accessed at: <https://greenlining.org/wp-content/uploads/2022/10/Greenlining-Ingredients-Equitable-Transportation-WebFINAL.pdf>.

Variable	Definition	Value	Unit	Data Source
$VMT_{i,y}$	Forecasted total VMT	See calculation table	miles	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$VMT_{alt,i,y}$	VMT reduction from alternative transit methods	See calculation table	miles	See Measures TR-1 and TR-2
$ZEV\ Adoption_{i,y}$	Zero-emission vehicle adoption target	See calculation table	percentage	Conservative based on RCEA goals <sup>1</sup> and enabled by 388 new publicly accessible chargers (Table 26).
$ZEV\ Adoption\ Baseline_{i,y}$	Zero-emission vehicle adoption baseline	See calculation table	percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report

Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows

1. Redwood Coast Energy Authority (RCEA). 2019. REPower Humboldt (2019 Update). Available at: <https://redwoodenergy.org/wp-content/uploads/2020/06/RePower-2019-Update-FINAL-.pdf>

Table 28 Passenger Zero-emission Vehicle Adoption GHG Emission Reduction Calculations

Variable	Definition	Units	VMT Type	2030	2045
<b>Equation 10.2</b>					
$VMT_{i,y}$	Forecasted total VMT	miles	Passenger	2,308,368,699	2,532,201,389
$VMT_{alt,i,y}$	VMT reduction from alternative transit methods	miles	Passenger	133,982,460	244,898,141
$ZEV\ Adoption_{i,y}$	Zero-emission vehicle adoption target	percentage	Passenger	15.00%	100.00%
$ZEV\ Adoption\ Baseline_{i,y}$	Zero-emission vehicle adoption baseline	percentage	Passenger	6.31%	9.54%
$VMT\ Reduced_{ICE,i,y}$	Internal combustion engine VMT reduced	miles	Passenger	188,954,164	2,287,303,248
<b>Equation 10.1</b>					
$EPM_{ZEV,i,y}$	Forecasted electricity usage per mile of zero-emission vehicles	kWh/mile	Passenger	0.3684	0.3692
$Elec\ Converted_{i,y}$	Electricity from zero-emission vehicle conversion	kWh	Passenger	69,610,147	844,504,381
<b>Equation 10</b>					
$EF_{VMT,i,y}$	Forecasted VMT emission factor	MT CO <sub>2</sub> e/mile	Passenger	0.0003020	0.0002580
$EF_{elec,i,y}$	Forecasted electricity emission factor	MT CO <sub>2</sub> e/kWh	Passenger	0.0000183	0.0000000
$CO_2e\ Reduction_{VMT}$	VMT GHG emission reductions	MT CO <sub>2</sub> e	Passenger	55,726	590,124



Measure TR-7: Increase commercial zero-emission vehicle use and adoption to 10% by 2030 and 100% by 2045 through a regional charging network and development of hydrogen hubs.

Measure TR-7 aims to increase commercial ZEV adoption across the county through increased EV adoption and implementation of hydrogen hubs as an alternative to electric ZEVs. Commercial VMT includes medium- and heavy-duty (MDHD) vehicles and trucks. The primary Actions that are designed to drive these investments and enable this Measure include:

- **Action TR-7a** which directs the Regional Climate Committee to work with RCEA and Schatz Energy Research Center (SERC) to refine and implement the North Coast Medium-Duty/Heavy-Duty Zero Emission Vehicle Readiness Blueprint for Humboldt County;
- **Actions TR-7b** which involves engaging employers and business fleet owners regarding Advanced Clean Fleet requirements, funding opportunities, and identification of opportunities for accelerated conversion to ZEVs and ZEV infrastructure build-out; and
- **Action TR-7e** which will secure funding from state and federal sources to increase ZEV procurement as well as expand charging/fueling infrastructure.

As the forecast included in the RCAP incorporates impacts from the Innovative Clean Transit regulation which requires 100 percent zero emission bus fleets by 2040, consideration of public transit ZEV targets and HTA's acquisition of 11 ZEV buses is not included in this Measure to avoid double counting of emissions reductions. These commercial VMT targets are in line with the State's goals and regulations for MDHD vehicles. California is working towards achieving Executive Order (EO) N-79-20, which aims to reach a 100 percent zero-emission drayage truck population by 2035 and 100 percent zero-emission MDHD vehicle population by 2045. To reach these goals, CARB has adopted the Advanced Clean Trucks regulation which regulates the sale of MDHD vehicles in California and the Advanced Clean Fleets regulation which regulates the purchase and use of zero-emission MDHD vehicles in public and private fleets in California. These regulations have increasing requirements for zero-emission MDHD vehicle sales and use to mandate the phase-in of commercial ZEVs. For example, by 2030, the Advanced Clean Fleets regulation requires 10 percent of sleeper cab tractors and specialty vehicles, 25 percent of pickup trucks and day cab tractors, and 50 percent of box trucks, vans, and package delivery vehicles in a fleet to be zero-emission.

According to the North Coast Medium-Duty and Heavy-Duty ZEV Blueprint Plan<sup>110</sup> developed by RCEA in collaboration with SERC, the target 10 percent commercial fleet ZEV adoption aligns the region to comply with the State's goals, with primary method of replacement being based on estimated end-of life. As part of the Blueprint, the energy required to achieve the States mandates through either electric charging stations or hydrogen fueling stations was estimated. The Blueprint recognizes that a major barrier in Humboldt County is electricity infrastructure but has identified several strategies to work with the utility to overcome this barrier. Working with PG&E to determine the necessary infrastructure needs to support a fully built-out fleet and planning ahead with interconnection applications will be necessary to accelerate utility interconnection. Further, Highway 101 that runs through Humboldt is a proposed electric fuel corridor for Round 2 eligibility of California's National Electric Vehicle Infrastructure (NEVI) Funding Program, a program funded by the Infrastructure Investment and Jobs Act to advance ZEV infrastructure along interstates and

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<sup>110</sup> Redwood Coast Energy Authority (RCEA). 2023. North Coast Medium-Duty and Heavy-Duty ZEV Blueprint Plan. Provided by the County via SharePoint on March 15, 2023.

national highways.<sup>111</sup> If the portion of Highway that runs through Humboldt is eligible for California round 2 of NEVI funding, this would further support the transition of commercial vehicles to ZEVs in the region.

By also investing in hydrogen refueling infrastructure, the region is able to better diversify the fleets and continue to move towards fleet ZEV transition even with electricity infrastructure barriers. HTA is already working on building a new hydrogen fueling station that is expected to be operational in 2025.<sup>110</sup> To support this transition, Measure TR-7 includes Actions that focus on funding for, and education of, commercial ZEVs, workforce development, and engaging with fleet owners and business owners that are subject to the States regulations. Table 29 shows the parameters and data sources that support the GHG emission reductions associated with commercial ZEVs and Table 30 shows the calculations as outlined in Equations 11 through 11.2.

Commercial Zero-emission Vehicle Adoption Equations

Equation 11  $CO_2e\ Reduction_{VMT,i,y} = (VMT\ Reduced_{ICE,i,y} * EF_{VMT,i,y}) - (Elec\ Converted_{i,y} * EF_{elec,i,y} * (1 + L_{T\&D}))$

Equation 11.1  $Elec\ Converted_{i,y} = VMT\ Reduced_{ICE,i,y} * EPM_{ZEV,i,y}$

Equation 11.2  $VMT\ Reduced_{ICE,i,y} = VMT_{i,y} * (ZEV\ Adoption_{i,y} - ZEV\ Adoption\ Baseline_{i,y})$

Table 29 Commercial Zero-emission Vehicle Adoption Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 11</b>				
$CO_2e\ Reduction_{VMT,i,y}$	VMT GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$VMT\ Reduced_{ICE,i,y}$	Internal combustion engine VMT reduced	See calculation table	miles	Calculated
$EF_{VMT,i,y}$	Forecasted VMT emission factor	See calculation table	MT CO <sub>2</sub> e/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Elec\ Converted_{i,y}$	Electricity from zero-emission vehicle conversion	See calculation table	kWh	Calculated
$EF_{elec,i,y}$	Forecasted residential electricity emission factor	See calculation table	MT CO <sub>2</sub> e/kWh	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$L_{T\&D}$	Electricity transmission and distribution loss percentage	5.10%	Percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$i$	VMT type	Nonresidential	–	–
$y$	Year	2030 or 2045	–	–
<b>Equation 11.1</b>				

<sup>111</sup> CalTrans, CEC. 2023. California’s National Electric Vehicle Infrastructure (NEVI) Formula Program. Accessed at: <https://www.energy.ca.gov/programs-and-topics/programs/national-electric-vehicle-infrastructure-nevi-formula-program-0>

Variable	Definition	Value	Unit	Data Source
$EPM_{ZEV,i,y}$	Forecasted electricity usage per mile of zero-emission vehicles	See calculation table	kWh/mile	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<b>Equation 11.2</b>				
$VMT_{i,y}$	Forecasted total VMT	See calculation table	miles	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$ZEV\ Adoption_{i,y}$	Zero-emission vehicle adoption target	See calculation table	percentage	Targets that are consistent with state regulations and goals.
$ZEV\ Adoption\ Baseline_{i,y}$	Zero-emission vehicle adoption baseline	See calculation table	percentage	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report

Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows

Table 30 Commercial Zero-emission Vehicle Adoption GHG Emission Reduction Calculations

Variable	Definition	Units	VMT Type	2030	2045
<b>Equation 11.2</b>					
$VMT_{i,y}$	Forecasted total VMT	miles	Commercial	297,601,835	326,459,019
$ZEV\ Adoption_{i,y}$	Zero-emission vehicle adoption target	percentage	Commercial	10.00%	100.00%
$ZEV\ Adoption\ Baseline_{i,y}$	Zero-emission vehicle adoption baseline	percentage	Commercial	4.51%	28.46%
$VMT\ Reduced_{ICE,i,y}$	Internal combustion engine VMT reduced	miles	Commercial	16,338,341	326,459,019
<b>Equation 11.1</b>					
$EPM_{ZEV,i,y}$	Forecasted electricity usage per mile of zero-emission vehicles	kWh/mile	Commercial	1.1953	1.1264
$Elec\ Converted_{i,y}$	Electricity from zero-emission vehicle conversion	kWh	Commercial	19,529,660	367,727,356
<b>Equation 11</b>					
$EF_{VMT,i,y}$	Forecasted VMT emission factor	MT CO <sub>2</sub> e/mile	Commercial	0.0010910	0.0008570
$EF_{elec,i,y}$	Forecasted electricity emission factor	MT CO <sub>2</sub> e/kWh	Commercial	0.0000187	0.0000000
$CO_2e\ Reduction_{VMT}$	VMT GHG emission reductions	MT CO <sub>2</sub> e	Passenger	17,441	279,775

Measure TR-8: Electrify or otherwise decarbonize 12% of applicable SORE off-road equipment by 2030 and 100% by 2045 and replace fossil diesel consumption with renewable diesel in 55% of applicable large diesel in alignment with EO N-79-20 by 2030.

Measure TR-8 aims for the Humboldt region to decarbonize 12 percent of small off-road engine (SORE) use in the community by 2030 and 100 percent by 2045. Additionally, the Measure aims to replace 55 percent of fossil fuel consumption in large diesel off-road equipment with renewable diesel in alignment with recent CARB regulations. The primary Actions that enable this Measure are:

- **Action TR-8a** which commits the jurisdictions to align with and support CARB’s regulations requiring new sale small off-road equipment to be zero emission by 2024 in compliance with AB 1346, and phase 2 of the regulation affecting the manufacture and sale of larger scale equipment such as generators and pressure washers by 2028.
- **Action TR-8b** which directs the Regional Climate Committee to establish a regulatory pathway to enforce CARB’s In-Use Off-Road Diesel Fueled Fleets Regulation and Commercial Harbor Craft Regulation requiring that diesel vehicles over 25 horsepower to procure and only use R99 or R100 renewable diesel;
- **Action TR-8d** which commits the Regional Climate Committee to developing and managing an Off-road Equipment Replacement Program and Outreach Campaign that provides information and technical assistance on complying with the regulations and identifies funding sources to aid residents in replacing existing off-road equipment with zero emission alternatives;
- **Action TR-8f** which directs regional partners to develop private-public partnerships with renewable diesel producers and local fuel suppliers to bring more renewable diesel to the region to ensure there is enough fuel in the region to support compliance with the regulations.

The SORE regulation is phased such that it will impact the sale of most off-road vehicles and equipment with gasoline- and diesel-powered SOREs by no later than 2024. As defined by CARB, SORE are those equipment types with rated power at or below 19 kilowatts (i.e., 25 horsepower). Typical off-road vehicle and equipment types that use these engines include lawn and garden equipment, portable generators, and pressure washers.<sup>112</sup> In 2030, gasoline and diesel used by these SOREs will compromise over 12 percent of the off-road vehicle and equipment fuel used throughout Humboldt.<sup>113</sup> By promoting State regulations for limiting the sale of gasoline- and diesel-powered small off-road engines, and providing resources (i.e. information and incentives) for residents and businesses to replace their existing SORE equipment, the Actions have the potential to reduce approximately 12 percent of the community’s off-road fuel usage.

In 2022, CARB also approved amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation that incorporates new requirements to use renewable diesel. Beginning January 1, 2024, all California fleets subject to this regulation are required to procure and only use R99 or R100 renewable diesel fuel in all vehicles subject to the Off-Road Regulation, with some limited exceptions. This regulation applies to all self-propelled off-road diesel vehicles 25 horsepower or greater used in California and applies to vehicles that are rented or leased. Exceptions to the

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<sup>112</sup> California Air Resources Board (CARB). (2021) SORE Applicability Fact Sheet. Accessed at: <https://ww2.arb.ca.gov/resources/fact-sheets/sore-applicability-fact-sheet>.

<sup>113</sup> Humboldt region SORE fuel usage in 2030 was estimated based on attributions established in the Humboldt Regional 2022 GHG Inventory and by filtering CARB OFFROAD2021 model outputs for horsepower ratings less than or equal to 25. The results were divided by the total estimated off-road fuel usage in the Humboldt region in 2030 to estimate the share, or percentage, of fuel usage attributable to SOREs.

regulation include locomotives, commercial marine vessels, marine engines, recreational off-highway vehicles, combat and tactical support equipment, stationary equipment, portable engines, equipment used exclusively for agricultural operations, implements husbandry, and off-road diesel vehicles owned and operated by an individual for personal, non-commercial and non-governmental purposes.<sup>114</sup> Taking into account these exceptions, 72 percent of all diesel consumed in the county in 2030 and accounted for in the forecast as applicable equipment categories would be subject to the regulation. Further, amendments approved by CARB for the Commercial Harbor Craft Regulation in December of 2022 require that beginning in January 2023 all commercial harbor craft operated in the state must use R99 or R100 renewable diesel fuel.<sup>115</sup> Commercial harbor craft diesel consumption subject to this regulation is forecasted to make up approximately 7 percent of all diesel consumed in the county in 2030. In total, with full compliance, these two regulations would effectively replace 79 percent of fossil diesel consumption by off-road equipment with renewable diesel by 2030. Renewable diesel that meets the required standards has an emissions factor that is approximately 70 percent lower than fossil-fuel diesel.<sup>116</sup>

**Action TR-8b** directs the Regional Climate Committee to establish a pathway for enforcing and tracking regulatory compliance and developing a strategy to ensure resources in the region are adequate to allow fleets to be in compliance. Compliance with the regulations will be further supported by a communication and outreach program (**Action TR-8d**) and the development of public-private partnerships to bring more renewable diesel to the region to ensure local fuel suppliers are able to provide adequate amounts of renewable diesel to fleets subject to the regulation (**Action TR-8f**). The program will raise awareness of the regulations, provide information to community members and businesses regarding the benefits of electrifying equipment or using renewable diesel, identify funding opportunities for offroad decarbonization (e.g., CARB’s Clean Off-road Equipment Voucher Incentive Program), and provide information on local fuel suppliers with renewable diesel for sale.

Table 31 shows the parameters and data sources that support off-road ordinance GHG emission reductions and Table 32 shows the calculations as outlined in Equations 12 through 12.2.

#### Off-road Decarbonization Equations

Equation 12 
$$CO_2e\ Reduction_y = (Fuel\ Avoided_{SORE,y} * Weighted\ EF_y) + (Fuel\ Replaced_{Diesel,y} * (Weighted\ EF_{Diesel} - EF_{RDiesel}))$$

Equation 12.1 
$$Weighted\ EF_y = CO_2e\ Emissions_y / (Fuel_{Gas,y} + Fuel_{Diesel,y} + Fuel_{NG,y})$$

Equation 12.2 
$$Fuel\ Avoided_{SORE,y} = (Fuel_{Gas,y} + Fuel_{Diesel,y} + Fuel_{NG,y}) * Target_{SORE,y}$$

Equation 12.3 
$$Fuel\ Replaced_{Diesel,y} = (Fuel_{Diesel,y} * (1 - Target_{SORE,y})) * Target_{Diesel,y}$$

<sup>114</sup> California Air Resources Board (CARB). (2022). Final Regulation Order Amendments to Sections 2449, 2449.1, and 2449.2 Title 12, California Code of Regulations. Accessed at: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/off-roaddiesel/froa-1.pdf>

<sup>115</sup> California Air Resources Board (CARB). (2022) Commercial Harbor Craft Factsheet: Renewable Diesel (R100 or R99). Accessed at: <https://ww2.arb.ca.gov/resources/fact-sheets/chc-factsheet-renewable-diesel-r100-or-r99>

<sup>116</sup> CARB staff has reached out to several renewable diesel fuel producers and as of February 2023, is aware that renewable diesel produced by Neste meets the regulatory requirements and standards. Estimates in GHG emission reductions based on emission factors provided by Neste accessed at: <https://www.neste.com/en-us/products-and-innovation/neste-my-renewable-diesel/product-information>

Table 31 Off-road Decarbonization Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 12</b>				
$CO_2e$ $Reduction_{offroad,y}$	Offroad fuel GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$Fuel\ Avoided_{SORE,y}$	Off-road fuel avoided from applicable SORE equipment	See calculation table	gallons	Calculated
$Weighted\ EF_y$	Weighted emission factor for all off-road fuels	See calculation table	MT CO <sub>2</sub> e/gallon	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Fuel\ Replaced_{Diesel,y}$	Off-road diesel replaced from applicable diesel equipment >25 hp	See calculation table	gallons	Calculated
$EF_{RDiesel}$	Emissions factor of renewable diesel	0.00308	MT CO <sub>2</sub> e/gallon	Neste (as recommended by CARB) <sup>6</sup>
$Weighted\ EF_{Diesel}$	Emissions factor of fossil fuel diesel	0.01050	MT CO <sub>2</sub> e/gallon	Inventory
$y$	Year	2030 or 2045	–	–
<b>Equation 12.1</b>				
$CO_2e\ Emissions_y$	Forecasted off-road GHG emissions	See calculation table	MT CO <sub>2</sub> e	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Fuel_{Gas,y}$	Forecasted gasoline use	See calculation table	gallon	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Fuel_{Diesel,y}$	Forecasted diesel use	See calculation table	gallon	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Fuel_{NG,y}$	Forecasted natural gas use	See calculation table	gallon	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
<b>Equation 12.2</b>				
$Target_{SORE,y}$	Fuel use reduction target for all off-road fueles	See calculation table	percentage	–
$Target_{SORE,2030}$	Fuel use reduction target (2030)	12%	percentage	OFFROAD2021 <sup>1,2</sup> and direction of state goals (i.e., EO N-79-20). <sup>3</sup>
$Target_{SORE,2045}$	Fuel use reduction target (2045)	100%	percentage	Based on compliance with state goals established by EO N-79-20.
<b>Equation 12.3</b>				
$Target_{Diesel,y}$	Fuel replacement target for diesel off-road fuels	See calculation table	percentage	–
$Target_{Diesel,2030}$	Fuel replacement target (2030)	55%	percentage	OFFROAD2021 <sup>1,4</sup> and CARB applicable regulations requiring renewable diesel fuel use (i.e., In-Use Off-Road Diesel-Fueled Fleets Regulation and the

Variable	Definition	Value	Unit	Data Source
				Commercial harbor Craft Regulation) <sup>5,6</sup> and assuming 30% non-compliance
<i>Target<sup>Diesel,2045</sup></i>	Fuel replacement target (2045)	100%	percentage	Based on compliance with state goals established by EO N-79-20.

Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows

1. California Air Resources Board (CARB). 2024. Off-Road Emissions Inventory (OFFROAD2021). Available at: <https://arb.ca.gov/emfac/offroad/emissions-inventory/3f377c1f45fef7c154509eac6354b9086be9cdd9>
2. Humboldt region SORE fuel usage in 2030 was estimated based on attributions established in the Humboldt Regional 2022 GHG Inventory and by filtering CARB OFFROAD2021 model outputs for horsepower ratings less than or equal to 25. The results were divided by the total estimated off-road fuel usage in the Humboldt region in 2030 to estimate the share, or percentage, of fuel usage attributable to SOREs.
3. California Air Resources Board (CARB). SORE Applicability Fact Sheet (2021). Accessed at: <https://ww2.arb.ca.gov/resources/fact-sheets/sore-applicability-fact-sheet>.
4. Humboldt region diesel fuel usage in 2030 was estimated based on attributions established in the Humboldt Regional 2022 GHG Inventory and by filtering CARB OFFROAD2021 model outputs for horsepower ratings greater than or equal to 25 and for equipment categories subject to the In-Use Off-Road Diesel-Fueled Fleets Regulation. Commercial Harbor Craft was also included because it is also subject to renewable diesel usage under the Commercial Harbor Craft regulation. The results were divided by the total estimated off-road diesel usage in the Humboldt region in 2030 to estimate the share, or percentage, of fuel usage subject to the In-Use Off-Road Diesel-Fueled Fleets Regulation and Commercial Harbor Craft regulation which accounted for 79% of all diesel fuel use. It was assumed 30% non-compliance resulting in a target of 55%.
5. California Air Resources Board (CARB). (2022). Final Regulation Order Amendments to Sections 2449, 2449.1, and 2449.2 Title 12, California Code of Regulations. Accessed at: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/off-road-diesel/froa-1.pdf>
6. California Air Resources Board (CARB). (2022) Commercial Harbor Craft Factsheet: Renewable Diesel (R100 or R99). Accessed at: <https://ww2.arb.ca.gov/resources/fact-sheets/chc-factsheet-renewable-diesel-r100-or-r99>

Table 32 Off-road Decarbonization GHG Emission Reduction Calculations

Variable	Definition	Units	2030	2045
<b>Equation 12.1</b>				
<i>CO<sub>2</sub>e Emissions<sub>y</sub></i>	Forecasted off-road GHG emissions	MT CO <sub>2</sub> e	129,836	139,645
<i>Fuel<sub>Gas,y</sub></i>	Forecasted gasoline use	gallons	3,202,801	3,625,989
<i>Fuel<sub>Diesel,y</sub></i>	Forecasted diesel use	gallons	9,348,454	9,908,708
<i>Fuel<sub>NG,y</sub></i>	Forecasted natural gas use	gallons	418,808	430,298
<i>Weighted E<sub>Fy</sub></i>	Weighted fuel emission factor	MT CO <sub>2</sub> e/gallon	0.010010	0.010000
<b>Equation 12.2</b>				
<i>Target<sub>SORE,y</sub></i>	Fuel use reduction target for all off-road fuels	percentage	12%	100%
<i>Fuel Avoided<sub>SORE,y</sub></i>	Off-road fuel avoided from applicable SORE equipment	gallons	1,556,408	13,964,996
<b>Equation 12.3</b>				
<i>Target<sub>Diesel,y</sub></i>	Fuel use reduction target for all off-road fuels	percentage	55%	100%
<i>Fuel Replaced<sub>Diesel,y</sub></i>	Off-road fuel replaced from applicable diesel equipment >25 hp	gallons	4,524,652	0
<b>Equation 12</b>				
<i>CO<sub>2</sub>e Reduction<sub>Fuel</sub></i>	Fuel GHG emission reductions	MT CO <sub>2</sub> e	49,143	139,645

Measure TR-9: Establish Humboldt as a pilot program for the decarbonization of the transportation sector to help drive state and philanthropic investment throughout Humboldt.

Measure TR-9 aims to position the region as a pilot program for the decarbonization of rural transportation emissions by establishing a regional vision for rural transportation which incorporates relevant Measure efforts outlined in this report and attracting state<sup>117</sup> and philanthropic investment<sup>118,119</sup> to support this initiative. The decarbonization of rural transportation can pose a variety of challenges (e.g. longer average travel distances, more vehicles per household, lower average income, etc)<sup>120</sup> which are further exacerbated, or driven by, the long-term underinvestment in rural communities.<sup>121</sup> Establishing the region as a rural decarbonized transportation pilot program will drive increased investment in rural communities through a collaborative, county-wide approach to promote integrated solutions to Humboldt's transportation infrastructure. Furthermore, the pilot program would serve to position the Humboldt region as a leader in rural sustainability, attracting investments that can further enhance local and regional environmental efforts. As the parameters of the pilot program vision are not yet defined and would be based on other transportation Measures outlined in this report, GHG reductions are not quantified to avoid double counting of emissions.

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<sup>117</sup> U.S Department of Transportation. 2024. Rural and Tribal Assistance Pilot Program. Available at: <https://www.transportation.gov/buildamerica/RuralandTribalGrants>

<sup>118</sup> Bezos Earth Fund. 2024. Our Programs. Available at: <https://www.bezosearthfund.org/>

<sup>119</sup> Bill & Melinda Gates Foundation. 2024. North America. Available at: <https://www.gatesfoundation.org/our-work/places/north-america>

<sup>120</sup> Smart Growth America. 2023. An Active Roadmap: Best Practices in Rural Mobility. Available at: [https://smartgrowthamerica.org/wp-content/uploads/2023/07/SGA-Rural-Transportation-Field-Scan\\_Final\\_7.27.pdf](https://smartgrowthamerica.org/wp-content/uploads/2023/07/SGA-Rural-Transportation-Field-Scan_Final_7.27.pdf)

<sup>121</sup> U.S Department of Transportation. 2022. Building a Better America Fact Sheet for Rural Communities. Available at: <https://transportation.gov/briefing-room/building-better-america-fact-sheet-rural-communities>



Measure TR-10: Work with the state and biofuel industry to establish a biofuel network within Humboldt thereby funding new green industry and job growth to support the decarbonization of the transportation sector.

Measure TR-10 focuses on collaborating with the state and the biofuel industry (e.g. green hydrogen, renewable diesel, or renewable natural gas (RNG) production) to create a biofuel network within Humboldt to support transportation fuel decarbonization as well as fuel economic development. Humboldt faces significant challenges with electric infrastructure, limiting the region's ability to decarbonize through electricity as other parts of the state might. Biofuels serve as a transitional bridge, allowing the region to continue working towards its decarbonization goals despite challenges with electricity infrastructure. Bringing renewable diesel to the region is also a necessary step to support implementation of Measure T-8 and comply with a number of CARB's regulations on off-road equipment.

Moreover, the production of biofuels from biomass can help reduce wildfire risks by utilizing biomass that would otherwise fuel fires. Biofuels reduce emissions by substituting conventional fossil fuels with renewable organic materials which absorb CO<sub>2</sub> from the atmosphere during the growth phase of the organic material. Biogenic CO<sub>2</sub> refers to the carbon that was originally removed from the atmosphere by organic material and, under natural conditions, would eventually be released back into the atmosphere during degradation of the organic materials. When biofuels are combusted, the CO<sub>2</sub> released is considered biogenic, meaning it does not contribute to net atmospheric increase in carbon emissions. While biofuels do release other emissions that are not biogenic, these emissions are significantly lower compared to those from traditional fossil fuels. The production of biofuels can even facilitate carbon sequestration when paired with carbon capture technologies.<sup>122</sup> While the GHG emission reductions from this measure are not quantified in the RCAP due to the complexities in measuring industry-wide impacts, it is essential for driving alternative energy solutions and fostering economic growth.

This Measure primarily seeks to aid the development of hydrogen fuel in the region in support of Measures TR-6 and TR-7, particularly as an alternative solution for nonresidential vehicle decarbonization. Green hydrogen fuel provides a seamless, emissions free transition that can support a variety of light, medium, and heavy duty vehicle classes without needing to sacrifice travel range, an issue commonly faced by EVs in the nonresidential vehicle market.<sup>123</sup> For rural areas such as Humboldt County which experience greater travel distances on average compared to cities, hydrogen provides an attractive solution in addition to implementing EVs so that all travel needs are met in the community. Additionally, implementing a hydrogen network in Humboldt would serve to contribute to the State's goal to reach 200 hydrogen fueling stations by 2025.<sup>124</sup>

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<sup>122</sup> U.S. Department of Energy. 2022. Bioenergy: A Pathway to Decarbonization. Available at: <https://www.energy.gov/sites/default/files/2022-04/beto-decarbonizer-fs-04-2022.pdf>

<sup>123</sup> FASTECH. 2023. Hydrogen vs. Electric: An Analysis for Long-Haul Trucking. Available at: <https://www.fastechus.com/blog/hydrogen-vs-electric-for-trucking>

<sup>124</sup> CA.gov. 2024. Hydrogen. Available at: <https://business.ca.gov/industries/hydrogen/>

Measure TR-11: Lead by example and electrify or otherwise decarbonize 50% of **the municipal fleet by 2030 in alignment with the state's Advanced Clean Fleet Rule**

Measure TR-11 commits each jurisdiction to lead by example by electrifying or otherwise decarbonizing its municipal fleet in line with the State's Advanced Clean Fleet Rule. Under the rule 50% of vehicles added to fleets subject to the regulation from 2024-2026 must be ZEVs with 100% of vehicles added to the fleet 2027 and after must be ZEV. Alternatively, fleets may opt-in to the Milestones Option. If the Milestone Option is selected, fleet owners must continuously meet or exceed the ZEV Fleet Milestone percentage as defined by the regulation. Compliance reporting would be required annually and within 30 days of adding vehicles to the fleet. This Measure aims to exceed State requirements by decarbonizing 50% of the municipal fleets by 2030. This measure will reduce GHG emissions from municipal operations and demonstrate the feasibility and benefits of transitioning to clean transportation technologies. While the strategies to decarbonize fleet vehicles will reduce GHG emissions, these emissions are already included as a subset of transportation sector emissions within the Humboldt Regional GHG Inventory. This means the associated GHG emission reductions are included within the community mitigation Measures (i.e., TR-6 through TR-7). Thus, to avoid double counting, this municipal mitigation measure is not counted towards the 2030 and 2045 targets.

## 5 Strategy SW: Solid Waste

The regional Solid Waste Strategy for Humboldt focuses on increasing diversion to reduce the amount of resources sent to the landfill and effectively using those diverted resources across the community. Currently, waste produced in the region is sorted and trucked long distances to processing facilities which are outside of county boundaries. This not only limits the community’s influence over waste management, but also contributes to regional transportation emissions to haul waste outside of the county. The strategy aims to bolster regional infrastructure to allow for expanded organic and inorganic materials collection and separation services and providing local organic processing. In the landfill, organic waste decays without access to light or oxygen and produces methane (CH<sub>4</sub>) gas. Diverting organic waste from the landfill reduces the occurrence of this anaerobic decomposition, providing the region with an important opportunity to reduce solid waste GHG emissions. Diverted organic waste can be further processed and repurposed into an array of different types of products, such as compost or renewable natural gas, which can serve to sequester or offset carbon emissions. Thus, managing organic waste provides an important opportunity to employ circular economy methods to reduce GHG emissions and sequester carbon. While diverting inorganic waste from the landfill does not provide direct GHG emission reductions, it does support indirect GHG emission reduction benefits outside the Humboldt region’s jurisdiction.

Based on this solid waste strategy and current conditions of the region’s solid waste infrastructure, the RCAP’s Solid Waste Strategy consists of one primary Measure presented in Table 33. The following subsection details the substantial evidence and calculation methodology of the quantitative Measure.

Table 33 Strategy SW: Solid Waste GHG Emission Reduction Summary

Measure ID	Measure	2030 GHG Emission Reductions (MT CO <sub>2</sub> e)	2045 GHG Emission Reductions (MT CO <sub>2</sub> e)
SW-1	Establish a local waste separation facility and organics managements to be able to reduce waste sent to landfills by 75% by 2030. Reduce GHG emissions by limiting truck trips required to ship waste out of the county and import compost from out of the county.	29,689	32,568
<b>Total</b>		<b>29,689</b>	<b>32,568</b>

Measure SW-1: Establish a local waste separation facility and organics managements to be able to reduce waste sent to landfills by 75% by 2030. Reduce GHG emissions by limiting truck trips required to ship waste out of the county and import compost from out of the county.

Measure SW-1 aims for the region to meet SB 1383 requirements to recover 20 percent of disposed edible food for human consumption and reduce landfilled organic waste —and its associated GHG emissions— 75 percent by 2025. The primary Actions that enable this Measure include:

- **Action SW-1a** which directs the Regional Climate Committee in partnership with Humboldt Waste Management and Recology to conduct an assessment of waste diversion needs, current capacity, and land-use opportunities for developing local waste processing facilities;
- **Action SW-1b** which directs HWMA to pursue green bond funding opportunities for the purpose of constructing local waste processing facilities in accordance with the assessment completed in SW-1a;
- **Action SW-1d** which commits regional jurisdictions to implement SB 1383 requirements by establishing incorrect sorting fees, improving bin signage, promoting organic collection services, establishing local compost hubs, and providing public access organics and recycling collection as applicable;
- **Action SW-1e** which commits jurisdictions to adopt a food recovery ordinance in compliance with SB 1383 and to support implementation of the ordinance by identifying the necessary infrastructure to recover 20% of edible food disposed and obtain funding to establish an edible food recovery program;
- **Action SW-1f** which commits jurisdictions to continue partnering with HWMA and Recology to implement structural changes or expand services to currently under-serviced regions, as applicable, to comply with SB 1383;
- **Action SW-1i** which directs jurisdictions, with support from the Regional Climate Committee, to provide targeted, multilingual education and technical assistance to communities based on results of regional waste characterization studies and waste monitoring programs which cover topics such as reuse, sustainable purchasing, and reducing food waste ;

These Actions encompass the activities the California Department of Resources Recycling and Recovery (CalRecycle) requires jurisdictions to conduct to comply with SB 1383.<sup>125</sup> Humboldt faces challenges in solid waste management due to a lack of local processing infrastructure and solid waste management funding, hindering efficient diversion efforts. However, initiatives supported by green bonds have shown promise in promoting solid waste infrastructure and expansion in other regions, such as the Napa Solid Waste Project<sup>126</sup> and initiatives supported by RethinkWaste,<sup>127</sup> which have utilized green bonds to fund critical waste management infrastructure upgrades and expansions. Pursuing green bond funding and other applicable funding opportunities to allow

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<sup>125</sup> CalRecycle. SB 1383 Jurisdiction Responsibilities. Accessed at: <https://www2.calrecycle.ca.gov/Docs/Web/119160#:~:text=Beginning%20in%202022%2C%20SB%201383,is%20automatically%20provide%20the%20service.>

<sup>126</sup> NHA Advisors. 2016. Napa Solid Waste Project/Green Bond Designation. Available at: <https://nhaadvisors.com/portfolio-items/napa-solid-waste-project-green-bond-designation/>

<sup>127</sup> ReThink Waste. 2019. RethinkWaste Issues almost \$50 million in Green Bonds for environmental upgrades to reduce greenhouse gases, reduce waste and improve recycling revenue at the Shoreway Environmental Center. Available at: [https://rethinkwaste.org/wp-content/uploads/legacy\\_media/070119-rethinkwaste-green-bonds-final.original.pdf](https://rethinkwaste.org/wp-content/uploads/legacy_media/070119-rethinkwaste-green-bonds-final.original.pdf)

Humboldt to build out the necessary infrastructure for local waste processing is considered a key first step to the region being able to achieve compliance with SB 1383.

With adequate infrastructure for local waste processing in place, then, continuing and completing the activities that meet SB 1383 compliance obligations, like the establishment of an edible food recovery program and ensuring adequate organic waste collection services on a jurisdictional level can be expected to achieve the levels of diversion needed to reduce Humboldt’s landfilled organic waste 75 percent by 2030. This level of landfilled organic waste reduction is expected to directly reduce solid waste disposal GHG emissions by 75 percent because nearly all GHG emissions from the natural decay of solid waste in landfills come from organic waste.<sup>128</sup> This Measure also includes several Actions focused on education and outreach campaigns to influence consumer behavior to produce less waste to begin with and to promote reuse, repair, and composting when possible to further divert waste from the landfill. For the region to comply with SB 1383, it will take partnerships and obtaining funding to build out the necessary infrastructure, jurisdictional support to develop programs and policies that support waste diversion, and community engagement to change consumer behavior.

Table 34 shows the parameters and data sources that support the landfilled organic waste reduction GHG emission reductions and Table 35 shows the calculations as outlined in Equation 17.

#### Landfilled Organic Waste Reduction Equations

Equation 13 
$$CO_2e\ Reduction_{LOW,y} = CO_2e\ Emissions_y * Reduction\ Target_{LOW,y}$$

Table 34 Landfilled Organics Reduction Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 13</b>				
$CO_2e\ Reduction_{LOW,y}$	Landfilled organic waste GHG emission reductions	See calculation table	MT CO <sub>2</sub> e	Calculated
$CO_2e\ Emissions_y$	Landfilled organic waste GHG emissions	See calculation table	MT CO <sub>2</sub> e	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Reduction\ Target_{LOW,y}$	Landfilled organic waste reduction percent	75	percentage	Estimated based on compliance with CalRecycle’s required activities for SB 1383 compliance and GHG emission factors for solid waste. <sup>1, 2</sup>
y	Year	2030 or 2045	–	–

Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows

1. CalRecycle. SB 1383 Jurisdiction Responsibilities. Accessed at: <https://www2.calrecycle.ca.gov/Docs/Web/119160#:~:text=Beginning%20in%202022%2C%20SB%201383,is%20automatically%20provided%20the%20service>
2. According to the ICLEI U.S. Community Protocol, Appendix E, GHG emissions are generated by non-biologic wastes only if they are combusted.

<sup>128</sup> According to the Local Governments for Sustainability (ICLEI) U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Appendix E – Solid Waste Emission Activities and Sources, GHG emissions are generated by non-biologic wastes only if they are combusted.

Table 35 Landfilled Organics Reduction GHG Emission Reduction Calculations

Variable	Definition	Units	2030	2045
<b>Equation 13</b>				
<i>CO<sub>2</sub>e Emissions</i>	Landfilled organic waste GHG emissions	MT CO <sub>2</sub> e	39,585	43,424
<i>Reduction Target<sub>LOW, y</sub></i>	Landfilled organic waste reduction percent	percentage	75%	75%
<i>CO<sub>2</sub>e Reduction<sub>LOW</sub></i>	Landfilled organic waste GHG emission reductions	MT CO <sub>2</sub> e	29,689	32,568

## 6 Strategy WW: Water and Wastewater

The Humboldt Regional Water and Wastewater Strategy aims to identify and establish decarbonization technologies suitable to the region’s varied wastewater management systems. In addition to decarbonizing the wastewater sector, the strategy aims to prioritize co-benefits of potential wastewater processing technologies, such as the production of renewable fuels. Although wastewater contributed just 1 percent of the community's regional GHG emissions in 2022, the ongoing decarbonization of other sectors will increase the need to address emissions from sectors like wastewater. Therefore, the Water and Wastewater Strategy aims to set the region up for success by identifying viable alternatives in this phase of RCAP implementation.

Based on this strategy, the RCAP’s strategy to manage wastewater systems is presented in Table 36. The table also indicates that the Measure is supportive as it does not directly result in GHG reductions at this stage. The following subsections provide further information on the benefits of the wastewater strategy.

Table 36 Strategy WW: Water and Wastewater GHG Emissions Reduction Summary

Measure ID	Measure	2030 GHG Emission Reductions (MT CO <sub>2</sub> e)	2045 GHG Emission Reductions (MT CO <sub>2</sub> e)
WW-1	Expand regional opportunities for implementation of wastewater decarbonization technologies such as anaerobic digesters to reduce GHG and produce renewable fuel sources.	Supportive	Supportive
WW-2	Reduce per capita potable water consumption by 15% by 2030.	Supportive	Supportive
<b>Total</b>		<b>0</b>	<b>0</b>

Notes:

Measure WW-1: Expand regional opportunities for implementation of wastewater decarbonization technologies such as anaerobic digesters to reduce GHG and produce renewable fuel sources.

Measure WW-1 focuses on expanding regional opportunities for the implementation of wastewater decarbonization technologies, including anaerobic digesters, throughout the Humboldt region. This measure aims to reduce GHG emissions from wastewater treatment processes and generate renewable fuel sources that can be used to decarbonize wastewater facility building energy or provide a supply of decarbonized energy to the community. It also investigates opportunities for expanding wastewater treatment capabilities to process organic waste that would otherwise go to landfill, supporting solid waste diversion and GHG reduction efforts. As this measure seeks to scope and assess viable options for the variety of wastewater facilities throughout the county, GHG emissions reductions are not quantified in the RCAP. However, this Measure will aid the jurisdictions in identifying and implementing future solutions for reducing GHG emissions from wastewater in future RCAP updates.



Measure WW-2: Reduce per capita potable water consumption by 15% by 2030.

Measure WW-2 focuses on promoting water conservation by reducing per capita potable water consumption and increasing access to and use of recycled water. The State is currently finalizing the Making Water Conservation a Way of Life regulation, which will set water conservation standards and objectives for certain categories with targets set for each urban water retailer. This measure's primary focus is providing support to water retailers in the region to align with the regulation as well as providing educational and outreach materials to promote water conservation in the community and from large water users. Additionally, the Measure encourages local water providers and wastewater services to work together to identify opportunities for expanding the recycled water network in the region. While the region does not currently have issues with accessing water, continued climate conditions strain water resources in the state. Expanding recycled water resources allow for water reuse for certain applications such as agricultural land irrigation or for wildfires rather than potable water. All water providers for the region operate fully in county-boundaries and therefore GHG emissions associated with water conveyance are incorporated into the building energy sector under regional electricity use. As such, to avoid double counting of emission reductions associated with electricity use in the region, GHG emissions reductions associated with this Measure are not quantified in the RCAP.

## 7 Strategy CS: Carbon Sequestration

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The Regional Carbon Sequestration Strategy aims to increase both nature-based and industrial carbon sequestration within the community. While most of the Humboldt region’s mitigation strategies focus on reducing GHG emissions, the Carbon Sequestration Strategy capitalizes on Humboldt’s strengths and opportunities, particularly its ample forested areas and natural working lands. This strategy supports the statewide objectives, as described in the 2022 Scoping Plan, to leverage natural working lands (NWL) to reduce potential carbon losses and support sequestration of GHG emissions. The State recognizes that while on-the-ground action for local carbon sequestration and NWL management will largely be executed and managed by the local government, state agencies must support these communities to implement such actions which includes providing resources, developing implementation frameworks, and providing the increased capacity and technical assistance to the local and regional partners. The State plans to support local governments and partners through various initiatives, including the development of funding programs such as the Regional Forest and Fire Capacity Program. This program provides funding to local and regional groups to enhance their organizational capacity, enabling them to plan and implement wildfire and forest management projects based on their local expertise.<sup>129</sup>

The Carbon Sequestration Strategy emphasizes the identification and funding of both industrial and nature based physical removal of carbon from the atmosphere to store it in long-term forms, playing a crucial role in achieving carbon neutrality by 2045. It focuses on obtaining resource support from the State to obtain NWL objectives and developing private partnerships to explore alternative solutions for carbon sequestration, such as direct air carbon capture and sequestration.

While the region will reduce GHG emissions across all sectors to achieve as close to zero GHG emissions as possible, some GHG emissions are expected to remain under each jurisdiction’s control in 2045. These GHG emissions are expected to be from hard-to-decarbonize sectors, such as long-haul transportation, which have technological limitations or are costly to decarbonize. They can also be expected from sectors that require significant behavior change to decarbonize, such as VMT reduction, because it takes time to normalize new behaviors. Carbon sequestration will offset these remaining GHG emissions to help Humboldt achieve carbon neutrality. While most of these strategies are not quantified in this RCAP, they are important to implement now to begin setting the foundation and building the capacity for the Humboldt region to sequester carbon for long-term carbon neutrality. Based on this approach, the RCAP’s Carbon Sequestration Strategy consists of the Measures presented in Table 37. Each Measure is supportive due to data limitations. The following subsections detail the role of these supportive Measures.

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<sup>129</sup> California Air and Resources Board (CARB). 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Available at: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

Table 37 Strategy CS: Carbon Sequestration GHG Emissions Reduction Summary

Measure ID	Measure	2030 GHG Emission Reductions (MT CO <sub>2</sub> e)	2045 GHG Emission Reductions (MT CO <sub>2</sub> e)
CS-1	Research and implement feasible carbon sequestration technology opportunities to support growth and expansion of green jobs industry within the region.	Supportive	Supportive
CS-2	Offset fossil-based emissions and increase carbon sequestration in the community by achieving SB 1383 procurement requirements (0.08 tons recovered organic waste per person) by 2030.	1,532	1,681
CS-3	Develop a County-wide Natural and Working Lands GHG Inventory baseline by 2027 to better understand the existing and future GHG sequestration and help obtain resources to protect and increase natural carbon sequestration occurring in the region as well as promote biodiverse forests and wetlands resistant to wildfire.	Supportive	Supportive
<b>Total</b>		<b>1,532</b>	<b>1,681</b>
Notes:			

Measure CS-1: Research and implement feasible carbon sequestration technology opportunities to support growth and expansion of green jobs industry within the region.

In 2022, the State updated GHG emissions reduction targets such that 15 percent of the State’s GHG inventory would be addressed through man-made carbon sequestration solutions in order to reach carbon neutrality.<sup>130</sup> In alignment with the State objective, Measure CS-1 directs the Regional Climate Committee to research the viability of carbon sequestration technologies for future regional development to aid in the reduction of GHG emissions and stimulate the growth of the green jobs industry in the area, such as utilizing the Eel River Basin as a CO<sub>2</sub> sequestration site.<sup>131</sup> Artificial (i.e. non-biological processes) carbon capture and sequestration technologies typically capture CO<sub>2</sub> from the atmosphere, or from point source emissions, and store the captured CO<sub>2</sub> in the natural environment.<sup>132</sup> However, with advancing need for solutions, other methods of carbon capture have begun to emerge, such as CO<sub>2</sub> capture from seawater.<sup>133</sup>

By assessing the feasibility of the carbon capture technologies available, the region will set the groundwork for later implementation of technologies which suit the areas and the community’s needs. While this Measure does not lead to direct GHG emissions reductions at this stage, it sets Humboldt on a path to successfully meeting, or exceeding, 2045 GHG reductions targets.

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<sup>130</sup> LegiScan. 2022. California Assembly Bill 1279. Available at: <https://legiscan.com/CA/text/AB1279/id/2606946>

<sup>131</sup> California Geological Survey. 2006. An Overview of Geological Carbon Sequestration Potential in California. Available at: [https://www.conservation.ca.gov/cgs/Documents/Publications/Special-Reports/SR\\_183-Carbon-Report.pdf](https://www.conservation.ca.gov/cgs/Documents/Publications/Special-Reports/SR_183-Carbon-Report.pdf)

<sup>132</sup> Nationalgrid. 2024. Carbon capture technology and how it works. Available at: <https://www.nationalgrid.com/stories/energy-explained/carbon-capture-technology-and-how-it-works>

<sup>133</sup> Massachusetts Institute of Technology. 2023. How to pull carbon dioxide out of seawater. Available at: <https://news.mit.edu/2023/carbon-dioxide-out-seawater-ocean-decarbonization-0216>

Measure CS-2: Offset fossil-based emissions and increase carbon sequestration in the community by achieving SB 1383 procurement requirements (0.08 tons recovered organic waste per person) by 2030.

Measure CS-2 puts the region on a path to meeting the SB 1383 procurement targets by 2030 and maintain it thereafter. SB 1383 requires each jurisdiction in California to procure recovered organics waste products to meet annual procurement targets developed by CalRecycle.<sup>134</sup> Recovered organic waste products include compost, mulch, renewable energy generated from anaerobic digestion (e.g., transportation fuel, electricity, and gas for heating), and electricity generated from biomass conversion. While a jurisdiction has the option to procure any combination of recovered organic waste products to fulfill 100 percent of its procurement target, jurisdictions in Humboldt currently aim to meet their procurement targets primarily through sourcing of compost to leverage the carbon sequestration benefits it provides when applied to community lands. However, local jurisdictions have expressed interest in potentially expanding procurement options, though more research must be conducted before committing to alternative options. The primary Actions that enable this Measure include:

- **Action CS-2a** which commits applicable jurisdictions to enforce compliance with SB 1383 by establishing a minimum level of compost application per year;
- **Action CS-2b** which directs jurisdictions, with support from the Regional Climate Committee, central to the regional agriculture industry to establish a compost broker program which provides incentives to aid procurement and distribution of compost.
- **Action CS-2d** which commits all jurisdictions to provide free compost procurement services to low-income households and small businesses.
- **Action CS-2f** which directs a collaborative research effort to identify regionally viable opportunities for sourcing non-compost organics options to meet SB 1383 procurement requirements, such as renewable natural gas or use of organics to produce green hydrogen.

These Actions will allow the jurisdictions to establish the supply and procurement of recovered organic products to meet their annual procurement targets. These actions and the region's organics infrastructure limitations will be further supported by the funding and construction of local waste and organic processing infrastructure discussed in Measure SW-1. Table 38 shows the parameters and data sources that support the annual procurement targets and landfilled organic waste reduction GHG emission reductions, assuming 100 percent SB 1383 compliance through compost, associated with this Measure. Table 39 shows the calculations as outlined in Equation 14 through 14.1.

#### Compost Procurement Equations

$$\text{Equation 14} \quad CO_2e \text{ Sequestration}_y = (Compost_y * CSF_{Compost}) * Compliance \text{ Target}_y$$

$$\text{Equation 14.1} \quad Compost_y = Population_y * (Ratio_{procure} * CF_{compost})$$

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<sup>134</sup> CalRecycle. Procurement Targets and Recovered Organic Waste Products. Accessed at: <https://calrecycle.ca.gov/organics/slcp/procurement/recoveredorganicwasteproducts/>.

Table 38 Compost Procurement Parameters and Data Sources

Variable	Definition	Value	Unit	Data Source
<b>Equation 14</b>				
$CO_2e\ Sequestration_y$	Carbon sequestered from compost procurement and application	See calculation table	MT CO <sub>2</sub> e	Calculated
$Compost_y$	Compost procurement required to meet organic waste procurement target	See calculation table	compost tons	Calculated
$CSF_{compost}$	Carbon sequestration factor for mixed organic compost application	0.23	MT CO <sub>2</sub> e/ feedstock ton	CARB <sup>1</sup>
$Compliance\ Target_y$	Compliance target with procurement requirement	100%	percentage	State required compliance with SB 1383 <sup>2</sup>
$y$	Year	2030 or 2045	–	–
<b>Equation 14.1</b>				
$Population_y$	Forecasted population	See calculation table	persons	See references in Appendix GHG Inventory, Forecast, and Targets Technical Report
$Ratio_{procure}$	Organic waste procurement required per capita	0.08	feedstock tons/person	CalRecycle’s Procurement Calculator Tool <sup>3</sup>
$CF_{compost}$	Conversion factor of organics to compost tons	0.58	compost tons/organic waste tons	CalRecycle’s Procurement Calculator Tool <sup>3</sup>
Notes: “-” means either reference not applicable or see references for disaggregated parameter in the following table rows				
1. CARB. Method for Estimating Greenhouse Gas Emission Reductions from Diversion Of Organic Waste from Landfills to Compost Facilities (2017). Accessed at: <a href="https://ww2.arb.ca.gov/sites/default/files/classic/cc/waste/cerffinal.pdf">https://ww2.arb.ca.gov/sites/default/files/classic/cc/waste/cerffinal.pdf</a> .				
2. CalRecycle. Procurement Targets and Recovered Organic Waste Products. Accessed at: <a href="https://calrecycle.ca.gov/organics/slcp/procurement/recoveredorganicwasteproducts/">https://calrecycle.ca.gov/organics/slcp/procurement/recoveredorganicwasteproducts/</a> .				
3. CalRecycle. Procurement Calculator Tool. Accessed at: <a href="https://calrecycle.ca.gov/organics/slcp/reporting/">https://calrecycle.ca.gov/organics/slcp/reporting/</a> .				

Table 39 Landfilled Organics Reduction GHG Emission Reduction Calculations

<b>Variable</b>	<b>Definition</b>	<b>Units</b>	<b>2030</b>	<b>2045</b>
<b>Equation 14.1</b>				
<i>Population<sub>y</sub></i>	Forecasted population	persons	143,556	157,476
<i>Ratio<sub>procure</sub></i>	Organic waste procurement required per capita		0.08	0.08
<i>CF<sub>compost</sub></i>	Conversion factor of organics to compost tons		0.58	0.58
<i>Compost<sub>y</sub></i>	Compost procurement required to meet organic waste procurement target	tons	6,661	7,307
<b>Equation 14</b>				
<i>Compliance Target<sub>y</sub></i>	Compliance target with procurement requirement	percentage	100%	100%
<i>CSF<sub>compost</sub></i>	Carbon sequestration factor for mixed organic compost application	MT CO <sub>2</sub> e/ feedstock ton	0.23	0.23
<i>CO<sub>2</sub>e Sequestration<sub>y</sub></i>	Carbon sequestered from compost procurement and application	MT CO <sub>2</sub> e	1,532	1,681

Measure CS-3: Develop a County-wide Natural and Working Lands GHG Inventory baseline by 2027 to better understand the existing and future GHG sequestration and help obtain resources to protect and increase natural carbon sequestration occurring in the region as well as promote biodiverse forests and wetlands resistant to wildfire.

Measure CS-3 directs the County to build off of North Coast Resource Partnership's 2017 Northern California regional natural working lands study to establish an updated County-wide Natural and Working Lands GHG Inventory baseline by 2027. This initiative seeks to provide a comprehensive understanding of current and future potential GHG sequestration within the county's natural and working lands. The Natural and Working Lands inventory baseline will be folded into future RCAP updates and used to establish GHG sequestration tracking metrics and monitor resiliency efforts. Further this measure includes strengthening the partnership with the North Coast Resource Partnership (NCRP) that received a \$13.5 million grant from the Regional Forest and Fire Capacity Program to refine and implement the North Coast Resilience Plan.<sup>135</sup> Developing and strengthening this partnership may provide opportunities for the region to better implement and track projects maintaining and improving regional carbon stock.

Developing this Natural and Working Lands inventory will identify key areas where natural carbon sequestration is occurring and highlight opportunities to protect and expand these areas. By promoting biodiverse forests and wetlands that are resilient to wildfire, Measure CS-3 supports the dual goals of enhancing carbon sequestration and mitigating climate risks. This measure will help the region obtain funding and resources necessary for conservation and restoration projects, ultimately contributing to long-term climate resilience, biodiversity, and the health of natural ecosystems. With a baseline established, carbon sequestration can be effectively tracked and reflected in updates to the RCAP's GHG reduction measures. The region is anticipated to contribute significantly to the State's carbon sequestration efforts and may even serve as a larger sink than contributor, but this cannot be verified without a comprehensive inventory of carbon stocks in the region. Through this comprehensive approach, Humboldt can better manage its natural resources to maximize GHG sequestration and safeguard against environmental threats.

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<sup>135</sup> North Coast Resource Partnership (NCRP). 2023. A Vision for North Coast Resilience. Available at: [https://northcoastresourcepartnership.org/resilience-plan/wp-content/uploads/2023/04/NorthCoastVision\\_2023.03.11.pdf](https://northcoastresourcepartnership.org/resilience-plan/wp-content/uploads/2023/04/NorthCoastVision_2023.03.11.pdf)



## **Attachment 3**

### **Regional CAP Public Meeting Presentation**

# RINCON CONSULTANTS, INC.

Environmental Scientists | Planners | Engineers



Humboldt Waste Management Authority



REDWOOD COAST EnergyAuthority

## Humboldt Draft Regional Climate Action Plan Public Meeting

September 10, 2024

# Agenda

- I. Introduction and Background
- II. Regional Climate Action Plan (RCAP) Overview
- III. Summary of GHG Analyses
- IV. RCAP Strategy Development
- V. RCAP Environmental Review

# I. Introduction and Background

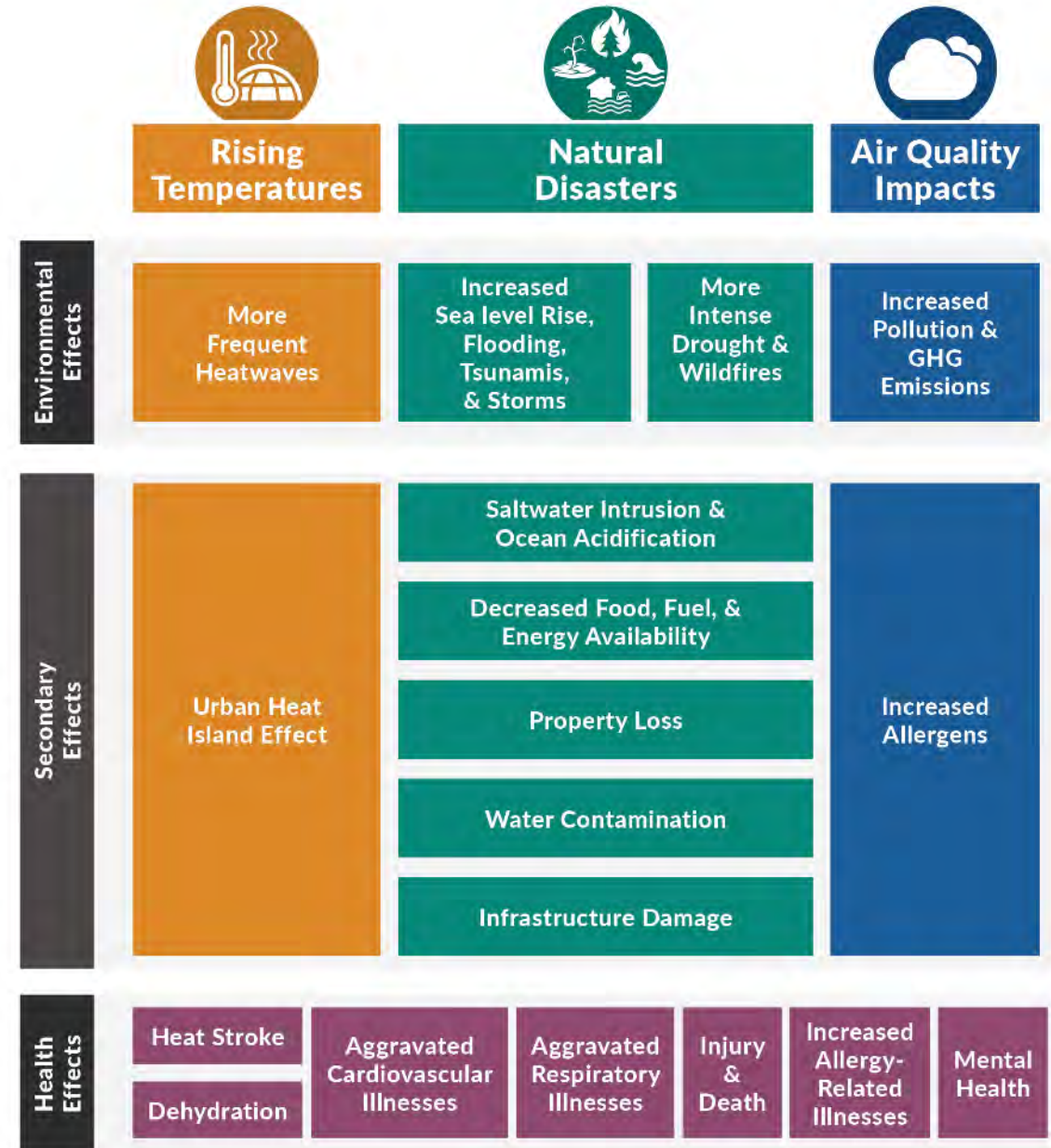
- Climate Change and Impacts
- Regulatory Policies





# Climate Change and Impacts

- Increase in GHG emissions due to human activities (i.e. burning fossil fuels) have enhanced GHG effect and caused increase in earth temperature (i.e. climate change)
- Change in climate has caused increased frequency and intensity of storms, drought, heat events, and sea level rise each causing secondary impacts
- Humboldt has experienced the highest rate of sea level rise on west coast and is at an increased risk for wildfires



# Regulatory Policies

- **CA Senate Bill (SB) 32** was adopted in 2016 and mandates a reduction of GHG emissions by **40% from 1990 levels by 2030** and in 2017 CARB published the SB 32 Scoping Plan Update.
- **Advanced Clean Cars II Regulations** requires all new passenger vehicles sold in California to be zero emissions by 2035.
- **CA Senate Bill 100**, adopted 2018, requires renewable energy and zero-carbon resources supply **100 percent of electric retail sales to end-use customers by 2045**.
- **CA Senate Bill 1383**, adopted in 2016, requires jurisdictions to **divert 75% of organics from landfills by 2025** compared with 2014 baseline.
- **CA Assembly Bill 1279**, adopted in 2022, codifies the GHG emissions reduction goals of achieving **carbon neutrality by 2045** and expands upon this goal to define carbon neutrality as reducing emissions **85 percent below 1990 levels**.

## II. RCAP Overview

- Purpose of RCAP
- Regional constraints and opportunities
- RCAP Process





# RCAP Purpose



- Develop Climate Action Plan for the Humboldt region to mitigate GHG emissions in alignment with State goals
  - SB 32: Reduce GHG emissions 40% below 1990 levels
  - AB 1279: 85% below 1990 by 2045 + carbon neutrality
- Streamlining of CEQA GHG analysis for future Humboldt region projects/plans



## Constraints

- Geographic Isolation and Accessibility
- Limited Infrastructure
- Economic Dependence
- Limited Resources

## Opportunities

- Partnerships and Collaboration
- Green Economic Growth
- Funding Opportunities
- Abundant Renewable Energy Resources

# Climate Action Planning Process



- Iterative process involving feedback from County, incorporated cities, and regional partners including:
  - Humboldt County Association of Governments
  - Humboldt Transit Authority
  - Redwood Coast Energy Authority
  - Humboldt Waste Management Authority

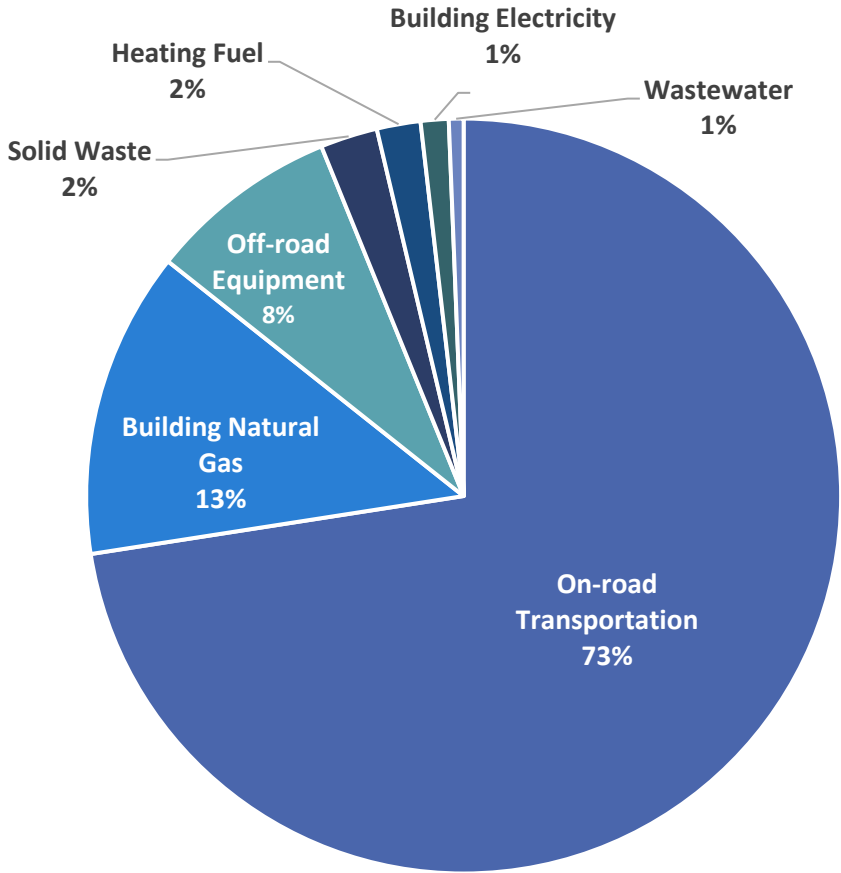


# III. Summary of GHG Analyses

- 2022 Community Inventory (baseline)
- Forecasting
- Target Setting



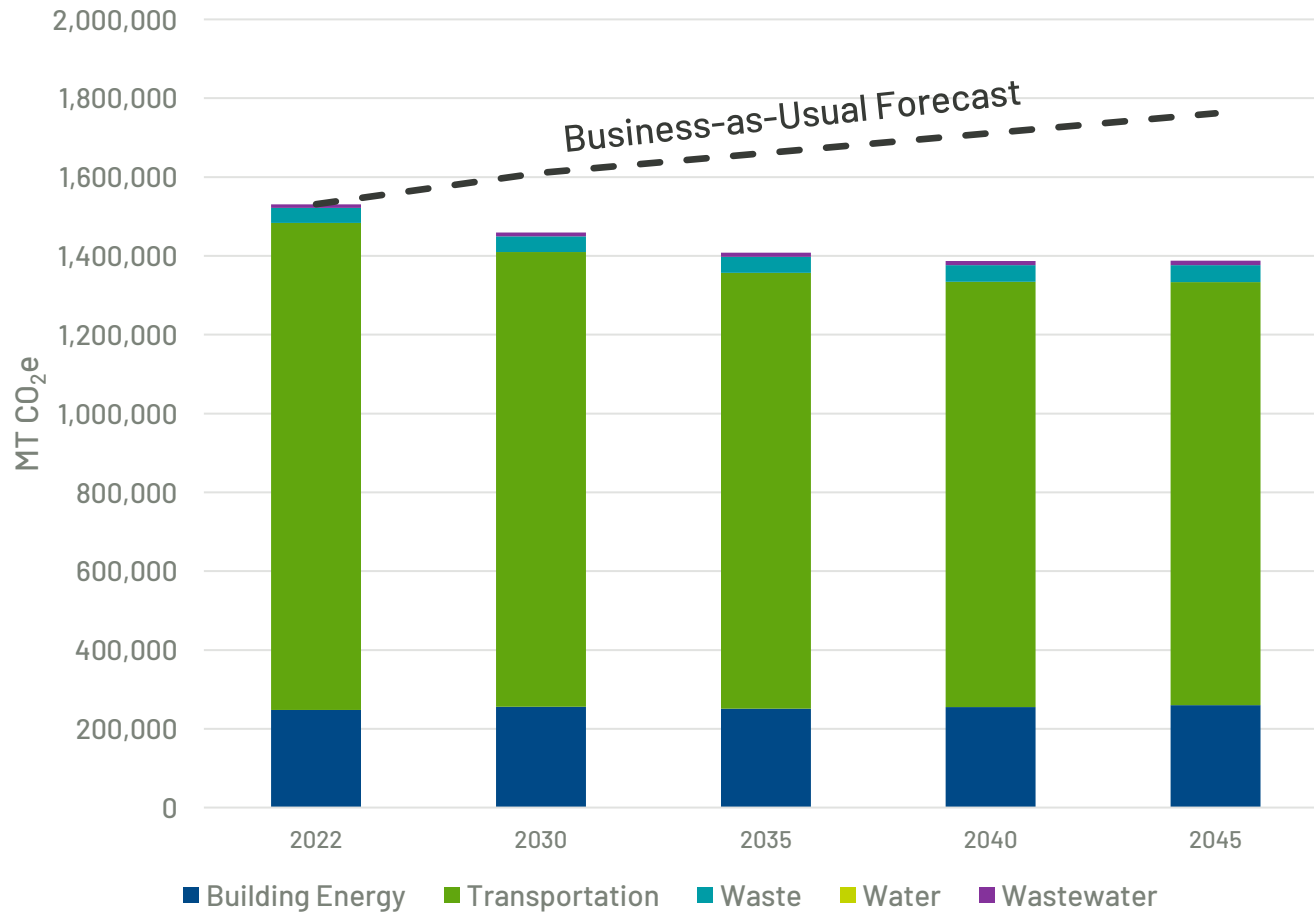
# Humboldt Regional 2022 GHG Inventory (Step #1)



Total = 1,531,167 MT CO<sub>2</sub>e

- Regional community-wide activities within Humboldt County geographic boundary over which local government *has jurisdictional control or influence*
- Primary GHG emissions contributors are on-road transportation and building energy associated with natural gas use

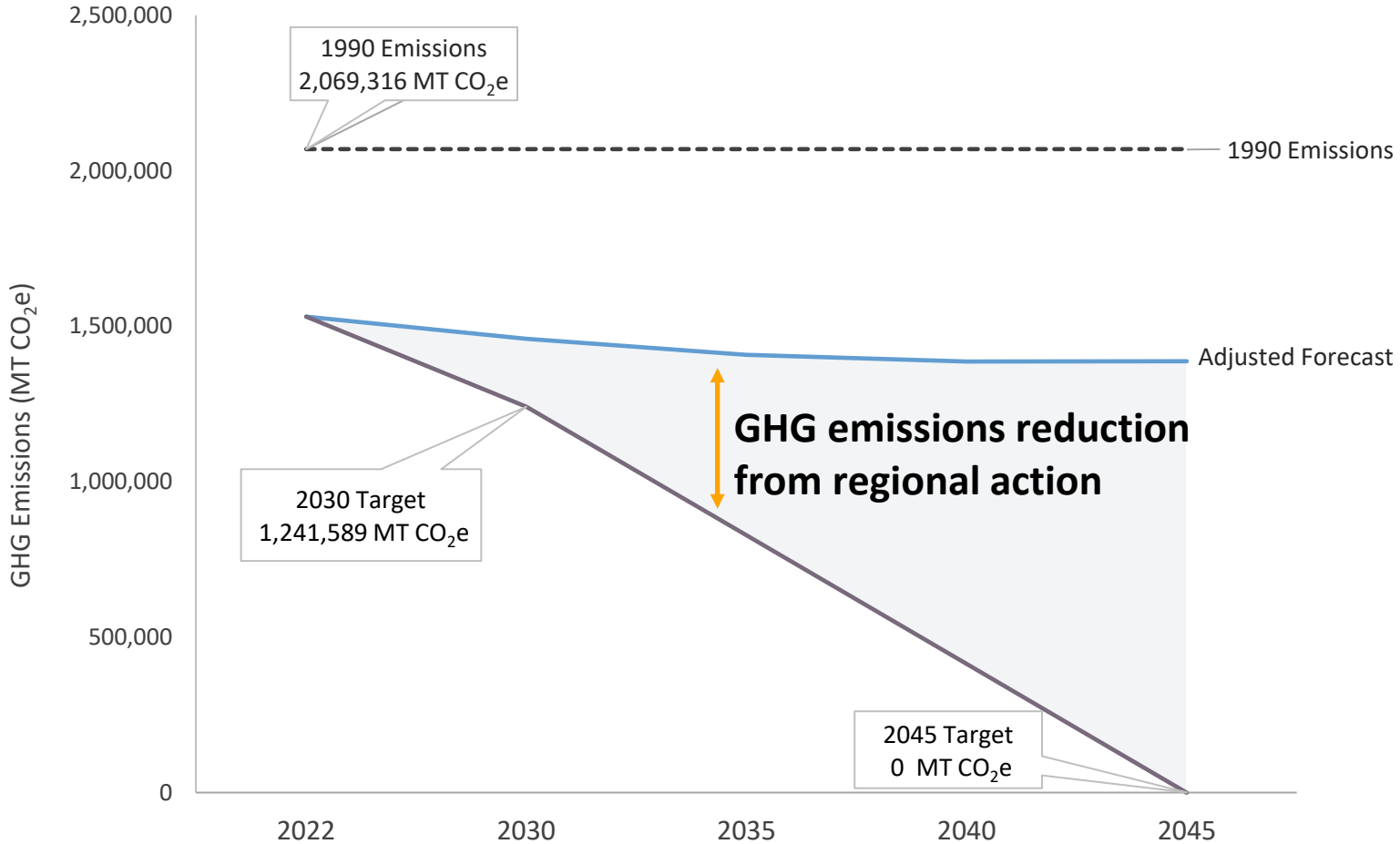
# Humboldt RCAP GHG Forecast



- Forecast projects future GHG emissions based on estimated population and employment changes in region
- Adjusted Forecast accounts for currently adopted State legislation that will contribute to regional GHG emission reductions:
  - California Renewable Portfolio Standard
  - Title 24 energy efficiency
  - Transportation legislation
- On-road transportation estimated to remain largest source of emissions through 2045 followed by building energy



# Humboldt RCAP GHG Targets



- 2030 target set in comparison to 1990 levels
- 1990 emissions estimated using State-level emissions change metric and accounting for regional changes such as carbon-free electricity from RCEA
- Emissions to be reduced by 2030 by regional action = 218,088 MT CO<sub>2</sub>e

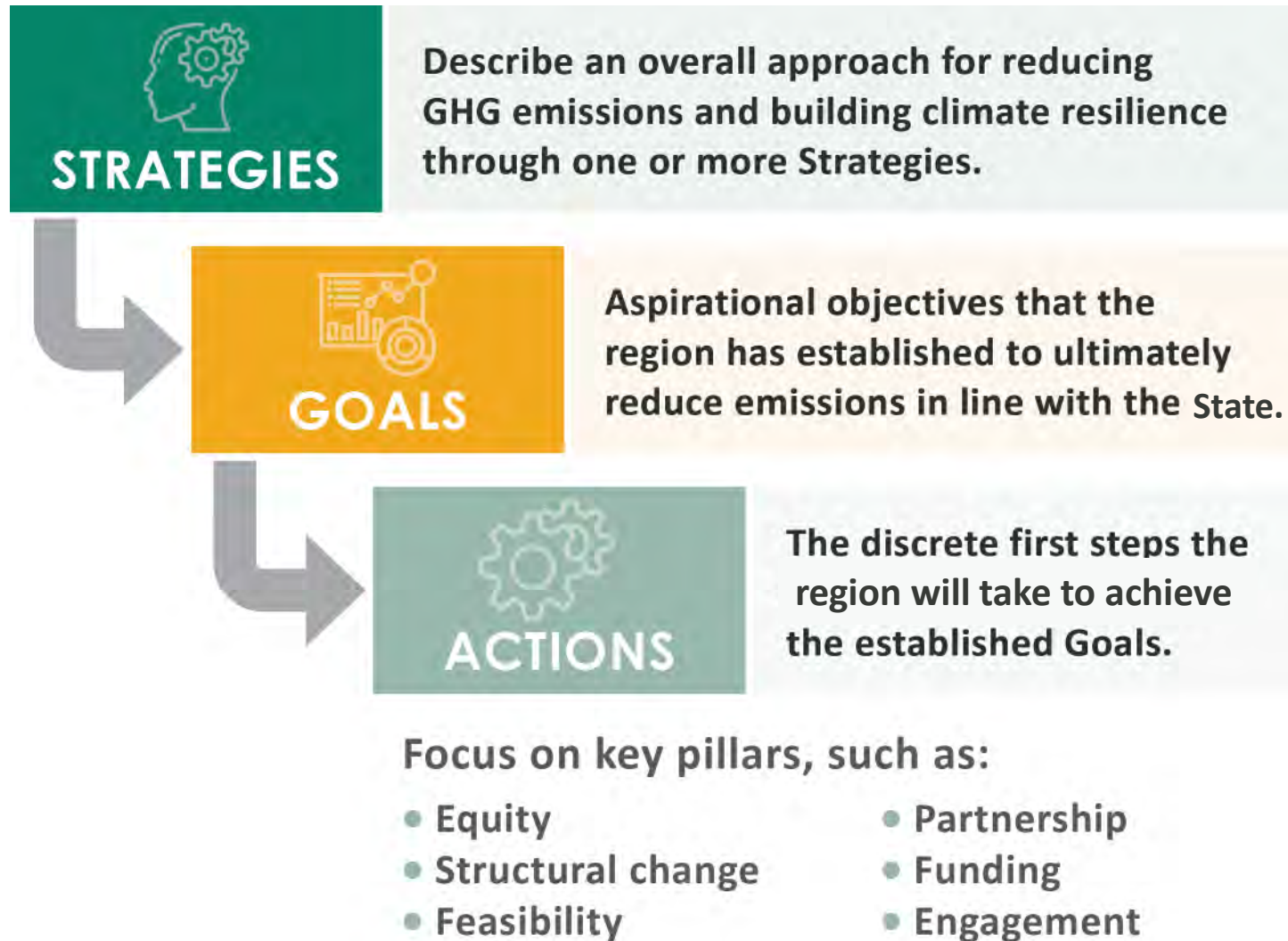
# IV. RCAP Strategy Development

- Structure of RCAP Measures
- Key Strategy Areas
- RCAP Measures



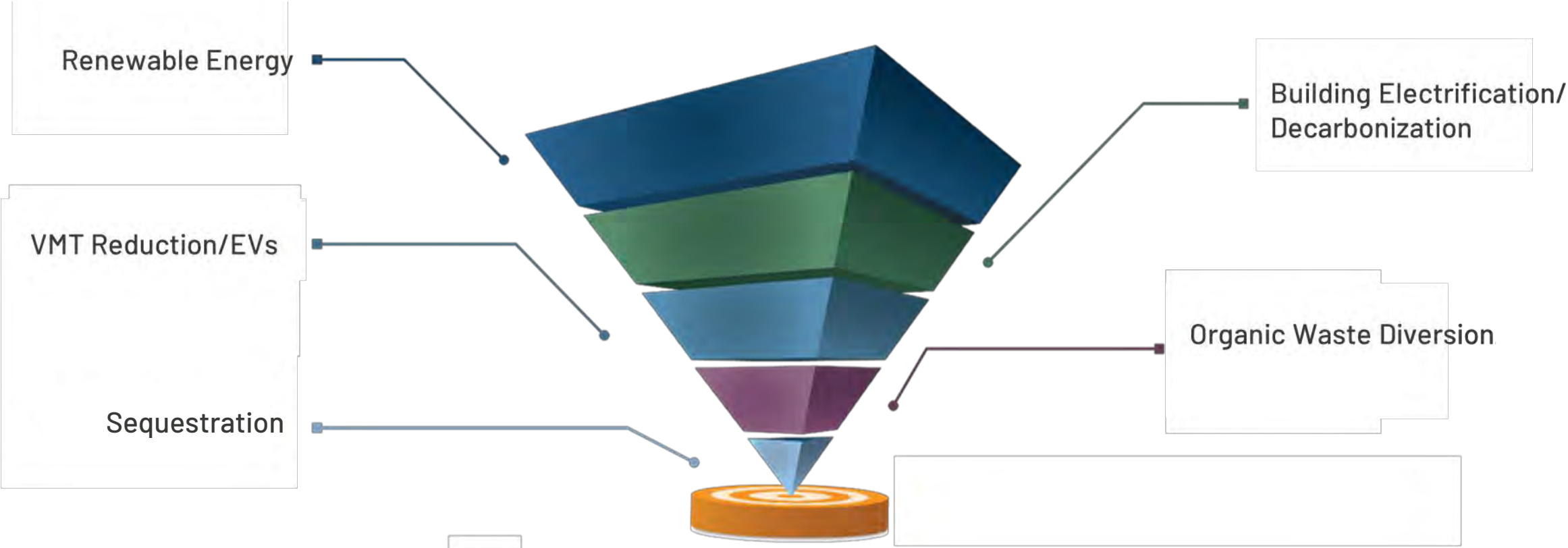


# Structure of RCAP Strategies










# Key Strategy Areas



*\*Target approaches to account for different characteristics of rural vs municipal areas of County*

# RCAP Co-Benefits

-  Natural Resource Enhancement
-  Resource Efficiency
-  Public Health and Equity
-  Increased Resilience
-  Green Jobs

# RCAP Measures

Measure ID	Measure Text	GHG Emission Reduction Potential (MT CO <sub>2</sub> e)
Measure C-1	Establish a Regional Climate Committee comprised of elected officials from each jurisdiction, HTA, HCAOG, HWMA, and RCEA.	Supportive/Critical
Measure BE-1	By 2030, source 90% of grid-supplied electricity from renewable and carbon-free sources.	2030: 15,403 2045: 0
Measure BE-2	Increase the development of micro-grids and storage across the region to support RCEA's RePower Humboldt goals of enhancing grid capacity and facilitating the electrification of buildings and transportation.	Supportive
Measure BE-3 Urban	Reduce existing residential building natural gas consumption by 4% by 2030 and 74% by 2045.	2030: 2,603 2045: 55,866
Measure BE-3 Rural	Reduce existing residential fossil-fuel consumption in households not connected to natural gas infrastructure by 2% by 2030.	Supportive
Measure BE-4	Reduce existing nonresidential building natural gas consumption by 5% by 2030 and 79% by 2045.	2030: 3,821 2045: 42,887
Measure BE-5	Decarbonize 95% of new residential building construction by 2027.	2030: 2,252 2045: 13,907
Measure BE-6	Decarbonize 95% of new nonresidential building construction by 2027.	2030: 1,374 2045: 8,492
Measure BE-7	Decarbonize 30% municipal buildings and facilities by 2030.	Supportive
Measure BE-8	Lobby Off-shore Wind developers and PG&E to build electrical infrastructure to supply Humboldt with energy produced by the off-shore wind project which will increase supply and resilience.	Supportive

# RCAP Measures (cont)

Measure ID	Measure Text	GHG Emission Reduction Potential (MT CO <sub>2</sub> e)
Measure TR-1 Urban	Implement programs, such as those identified in HCAOG's RTP, to increase the mode share of active transportation in urbanized areas from 9% to 12% by 2030, thereby achieving a regional active transportation mode share of 8%.	2030: 1,147 2045: 2,594
Measure TR-1 Rural	Implement programs, such as those identified in HCAOG's RTP, that increase access to safe active transportation, to increase the mode share of active transportation in rural areas from 5% to 6% by 2030 thereby achieving a regional active transportation mode share of 9%.	2030: 1,080 2045: 4,405
Measure TR-2 Urban	Expand the public transit network in support of HCAOG's Regional Transportation Plan to increase public transit mode share from 2% to 20% public transit mode share in urbanized areas to achieve a regional 13% public transit mode share by 2030.	2030: 18,055 2045: 26,482
Measure TR-2 Rural	Develop a robust public transit network in support of HCAOG's Regional Transportation Plan to increase public transit mode share from 1% to 10% in rural areas and achieve a regional 13% public transit mode share by 2030.	2030: 20,180 2045: 29,703
Measure TR-3	Reduce regional VMT by increasing promotion of mixed-use development in infill priority areas in alignment with HCAOG's baseline connectivity score included in the RTP.	Supportive
Measure TR-4	Develop and implement regional mobility hubs and ZEV car-share programs to support mode shift from single occupancy vehicles.	Supportive
Measure TR-5	Require commercial and industrial employers with 25 employees or more to develop a Transportation Demand Management plan.	Supportive
Measure TR-6	Decarbonize 15% of passenger vehicle miles traveled by 2030 and 100% by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.	2030: 55,726 2045: 590,124
Measure TR-7	Increase commercial zero-emission vehicle use and adoption to 10% by 2030 and 100% by 2045 through a regional charging network and development of hydrogen hubs.	2030: 17,441 2045: 279,775
Measure TR-8	Electrify or otherwise decarbonize 12% of applicable SORE off-road equipment by 2030 and 100% by 2045 and replace fossil diesel consumption with renewable diesel in 55% of applicable large diesel in alignment with EO N-79-20 by 2030.	2030: 49,143 2045: 139,645

# RCAP Measures (cont)

Measure ID	Measure Text	GHG Emission Reduction Potential (MT CO <sub>2</sub> e)
Measure TR-9	Establish Humboldt as a pilot program for the decarbonization of the transportation sector to help drive state and philanthropic investment throughout Humboldt.	Supportive
Measure TR-10	Work with the state and biofuel industry to establish a biofuel network within Humboldt thereby funding new green industry and job growth to support the decarbonization of the transportation sector.	Supportive
Measure TR-11	Lead by example and electrify or otherwise decarbonize 50% of the municipal fleet by 2030 in alignment with the state's Advanced Clean Fleet Rule.	Supportive
Measure SW-1	Establish a local waste separation facility and organics management to be able to reduce waste sent to landfills by 75% by 2030. Reduce GHG emissions by limiting truck trips required to ship waste out of the county and import compost from out of the county.	2030: 29,689 2045: 32,568
Measure WW-1	Expand regional opportunities for implementation of wastewater decarbonization technologies such as anaerobic digesters to reduce GHG and produce renewable fuel sources.	Supportive
Measure WW-2	Reduce per capita potable water consumption by 15% by 2030.	Supportive
Measure CS-1	Research and implement feasible carbon sequestration technology opportunities to support growth and expansion of green jobs industry within the region.	Supportive
Measure CS-2	Offset fossil-based emissions and increase carbon sequestration in the community by achieving SB 1383 procurement requirements (0.08 tons recovered organic waste per person) by 2030.	2030: 1,532 2045: 1,681
Measure CS-3	Develop a County-wide Natural and Working Lands GHG Inventory baseline by 2027 to better understand the existing and future GHG sequestration and help obtain resources to protect and increase natural carbon sequestration occurring in the region as well as promote biodiverse forests and wetlands resistant to wildfire.	Supportive



# RCAP Implementation

Target/Forecast	2030 GHG Emissions (MT CO <sub>2</sub> e)	2045 GHG Emissions (MT CO <sub>2</sub> e)
Adjusted Forecast	1,459,598	1,387,943
Reductions from Full Implementation of Measures	219,446	1,228,128
GHG Emissions after Measure Reductions	1,240,151	159,815
Climate Action Targets	1,241,589	0
Target Anticipated to be Met?	Yes	Substantial progress demonstrated

- Key focus on leveraging Regional Climate Committee to efficiently use limited resources to implement RCAP
- Implementation in phases with bi-annual progress reports and inventories to track progress
- If off-track, additional or revised actions to be developed to meet 2030 RCAP targets

# RCAP Public Review Period

- Draft RCAP Public Review Period
  - from Aug 14, 2024 through Sep 20, 2024
  - Send written Draft RCAP comments by 5pm on Sep 20, 2024 to:

Megan Acevedo, Associate Planner

[macevedo@co.humboldt.ca.us](mailto:macevedo@co.humboldt.ca.us) & [planningclerk@co.Humboldt.ca.us](mailto:planningclerk@co.Humboldt.ca.us)

Humboldt County Planning and Building Department

Long Range Planning Division

3015 H Street

Eureka, California 95501



# V. Regional CAP Environmental Review

- Environmental Review under CEQA
- Environmental Impact Report (EIR)  
Scoping Period
- Estimated EIR Timeline





# Environmental Review under CEQA

- What is Environmental Review under the California Environmental Quality Act (CEQA) and why is it required?
  - State law guiding and determining what a “project” is and how to analyze what the environmental impacts could be if we were to physically implement the “project”
  - Provides additional public input opportunities
  - Necessary for decision-making and approval ability of plans/projects

## CEQA-qualified CAP

- What is a CEQA-qualified CAP?
  - includes a baseline GHG emissions inventory and related forecasts through State-identified timelines
  - would help jurisdiction(s) achieve State GHG emissions targets by identified dates
  - includes GHG emissions tracking and monitoring table and/or other mechanisms
  - has undergone environmental review pursuant to CEQA and the CEQA Guidelines (in this case will be the RCAP EIR)

- EIR Scoping Period
  - from Aug 30, 2024 through Sep 30, 2024
  - Send written EIR scoping comments by 5pm on Sep 30, 2024 to:

Megan Acevedo, Associate Planner

[macevedo@co.humboldt.ca.us](mailto:macevedo@co.humboldt.ca.us)

Humboldt County Planning and Building Department

Long Range Planning Division

3015 H Street

Eureka, California 95501

# EIR Estimated Timeline

- Estimated EIR Timeline
  - EIR Scoping Period currently in effect through September 30, 2024
  - Draft EIR Public Review Period – Spring 2025
  - Final EIR available – June 2025
  - CAP EIR certification and CAP adoption estimate – June 2025

# Overall Humboldt RCAP and EIR Estimated Timeline

- **Aug 14 – Sep 13, 2024**  
30-day RCAP Public Review Period
- **Aug 30– Sep 30, 2024**  
30-day RCAP EIR Scoping Comment Period
- **September 10, 2024**  
Draft RCAP Public Meeting
- **Spring 2025 (exact dates TBD)**  
45-day Draft EIR Public Review Period
- **June 2025**  
Certify RCAP EIR and Adopt RCAP

Thank you! Questions?



# Climate Strategy Development: Measure

**MEASURE GOAL**  
Identifies specific objective to achieve

**Measure TR-9:** Establish Humboldt as a pilot program for the decarbonization of the transportation sector to help drive State and philanthropic investment throughout Humboldt.

Measure TR-9 aims to establish the region as a pilot program for decarbonizing rural transportation emissions by developing a comprehensive vision that integrates relevant measures outlined in this plan and by attracting State and philanthropic investments. Decarbonizing rural transportation faces unique challenges such as longer travel distances, higher individual vehicle use, and lower average incomes, exacerbated by historical underinvestment in rural areas. By positioning Humboldt as a pioneer in rural decarbonization, this initiative seeks to foster county-wide collaboration for integrated transportation solutions. This pilot program not only aims to attract investments to enhance local infrastructure but also positions the region as a leader in rural sustainability, driving climate mitigation efforts at both local and regional levels. Actions, co-benefits, key performance indicator, and specific quantitative GHG emissions reductions associated with implementation of Measure TR-9 are included in Table 23.

**Table 23 Measure TR-9 Actions**

Action ID	Attribute	Action
T-9a	Feasibility	The Regional Climate Committee will develop and promote a vision and strategy for the regional community foundation to serve as a first mover/pilot in the State in the decarbonization of America's rural transportation systems.
T-9b	Funding	As a first mover in rural America, the Regional Climate Committee will pursue investment on behalf of the jurisdictions from philanthropy, the State, private businesses, etc. to fund the development of a Humboldt decarbonized rural transportation system.
T-9c	Equity/Engagement	With the support of the Regional Climate Committee, jurisdictions will directly engage members of disadvantaged and vulnerable communities in the development of the vision and strategy that aims to benefit all members of rural communities.

2030 GHG Emissions Reduction: Supportive  
 2045 GHG Emissions Reduction: Supportive  
 Co-Benefits: Natural Resource Enhancement, Resource Efficiency, Public Health and Equity, Green Jobs  
 KPI: Funding received through philanthropies

**MEASURE DESCRIPTION**  
Summary of measure and provides background information and implementation considerations associated with measure.

**ACTION INFORMATION**  
Identifies and defines what the region will do and what pillar the action supports.

**IMPLEMENTATION INFORMATION**  
Identifies the expected GHG reductions from full measure implementation, co-benefits associated with measure, and the KPIs to track progress.