Redwood Region RISE

California's Redwood Region

Tribal Lands, Del Norte, Humboldt, Lake, and Mendocino Counties

Regional Plan Part 1: Regional Summary & SWOT Analysis

Draft Version

CCRP California Center for Rural Policy

Cal Poly Humboldt

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The California Center for Rural Policy at Cal Poly Humboldt is a research and policy center committed to informing policy, building community, and promoting the health and well-being of rural people and environments.

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Executive Summary

Redwood Region RISE Core Values

First and foremost, the Redwood Region RISE Collaborative (the "Collaborative") wants to recognize the strengths, wisdom, resilience, and cultural wealth present in those communities that are centered in this effort. Per the State's definition, the entire Redwood Region—Del Norte, Humboldt, Lake, Mendocino counties and Tribal Lands—is considered "disinvested." To identify and address disparities in economic opportunity in the Region, the Collaborative set out to target resources and interventions to the communities that need them most—many of which have rarely participated in (let alone benefitted from) economic development processes such as these.

Rather than bounding "disinvestment" in terms of geography, the Collaborative believes it is more useful and accurate to consider the people and communities who have been marginalized by traditional planning efforts and institutions. One can think of "disinvested communities" as people who face a confluence of relatively severe and often interconnected hardships, including, but not limited to, poverty, disability, lack of access to household or community resources, and lack of economic or educational opportunities. Redwood Region RISE recognizes the experiences of BIPOC (Black, Indigenous, and people of color) communities, of Indian Country (including non-federally recognized Tribes), New Americans communities, and youth and the elderly who are generally underinvested in. The Redwood Region RISE Collaborative acknowledges the profound impact that trauma and disability have on the regional workforce.

To center the experiences of these communities in the work, the Convening Team, coordinated by Outreach & Engagement partners North Coast Opportunities (NCO) and True North Organizing Network (TNON), have built their strategy around conversations with:

- advocates for the populations listed above,
- community organizations that support people to rise above their struggles, and
- individuals with lived experiences.

While rural and urban areas may share similar struggles, it is important to recognize and understand that these issues are often greatly compounded for rural areas. The Collaborative is eager and excited to create mechanisms that channel investment and resources where they are needed the most. To that end, all participating members on the Collaborative have agreed to the following Core Values:

- Equitable Inclusion of Priority Partners and Communities
- Respect for Diverse Perspectives

- Cooperation and Collaboration
- Transparency and Accountability
- Adherence to the Collaborative Decision Model

Overview: Key Findings

The Region's Strengths, Weaknesses, Opportunities, and Threats

Strengths	**Weaknesses**
● The remaining stands of globally significant old growth redwood forest are predominantly located in their namesake region–sequestering millions of tons of carbon while drawing over a million visitors to the region each year. ● The original inhabitants of the region are still here on their ancestral lands, keeping alive thousands of years of traditional knowledge and best ecological practice with respect to land and forest management. ● Land ethic: the region's unique social history continues to foster a culture of deep connection and reverence for its lands and waters. The region excels at eco-innovation and has a strong sustainability ethos. ● The region possesses two- and four-year universities who are proactively engaged in creating pathways for young residents to realize career aspirations, as well as re-training initiatives.	● An economy composed largely of non-tradable sectors, not driven by major, globally competitive industries (yet). Historic reliance on sale of primary commodities. ● Small private sector (esp. Del Norte). ● Low diversification means the region is vulnerable to boom-and-bust cycles. ● Prevalence of historic and childhood trauma, high incidence of mental health issues and related disabilities, insufficient care facilities and behavioral health workforce. Social isolation and alienation; remote and disconnected communities. Poor mental health outcomes disproportionately impacting several disinvested communities. ● High attrition from the workforce at prime age, high disability rates at prime age, likely related to the above. ● The region experiences high levels of poverty, driven in part by low labor force participation and lower wages. Poverty is exacerbated by the region's high cost of living and scarcity of critical enabling services (e.g., healthcare and housing). High rates of poverty disproportionately impact disinvested communities including people of color, people with disabilities, and LGBTQAI+ individuals. ● Institutions have chronic low capacity, lack of key institutional partners to

	advance economic development initiatives, nascent or absent collaboration on key issues facing the region due to lack of capacity. ● Aging, obsolete infrastructure creates vulnerability in water delivery, transportation, energy, communications, and other crucial systems. Degraded waste sites jeopardize drinking water and fisheries. ● The housing crisis is severe on the North Coast. Outdated stock is associated with high incidences of lead poisoning in children.
Opportunities ● Restoring forest health is a major job-creation opportunity for the region, climate adaptation opportunity for the state, and carbon sequestration opportunity for the world. Natural resource and ecosystem restoration careers are a major opportunity. ● Three call areas along the Redwood Region were found in a recent feasibility study to be viable for offshore wind development–this is already underway in Humboldt Bay. ● Regionally, unified focus on four key areas for economic development and diversification: Health and Caregiving, Working Lands and Blue Economy, Renewable and Resilient Energy, and Arts, Culture, and Tourism. Construction needs in these sectors coupled with urgent needs for infrastructure updates and housing development drive the promise of building and trades-based industries in the priority clusters. ● Region's need for medical professionals presents an economic development opportunity with the promise to deliver	**Threats** ● Catastrophic wildfires have enormous economic, health, and social impacts, with impacted inland jurisdictions perpetually in "recovery mode." Wildfires play a major role in greenhouse gas emissions in the region and are potentially the leading regional source. ● Sea level rise puts key coastal assets at risk. Extreme heat events are predicted to become more frequent and severe in inland areas. The area's fog belt may decline. ● Natural disasters: communities in the region are also frequently recovering from earthquakes and tsunamis. Flooding is an issue. ● Rising cost of essentials pushes young people and skilled workers out of the Region. Rising incomes in urban areas pulls them away. ● A shifting regulatory environment and burdensome regulations hinder infrastructure development; public funding opportunities are delivered inaccessibly, perpetuating cycles of disinvestment. ● Artificial intelligence and automation put

thriving wage careers for Redwood Region residents.	lower wage workers in fields such as customer service at risk of displacement.

Despite challenges, there are strong indicators for economic development opportunities in several industries, including those identified by the Collaborative as target industries. Industries within *Arts, Culture, and Tourism; Health and Caregiving; Renewable and Resilient Energy*; and *Working Lands and Blue Economy* show signs of regional competitive advantage and hold promise for development of high wage jobs.

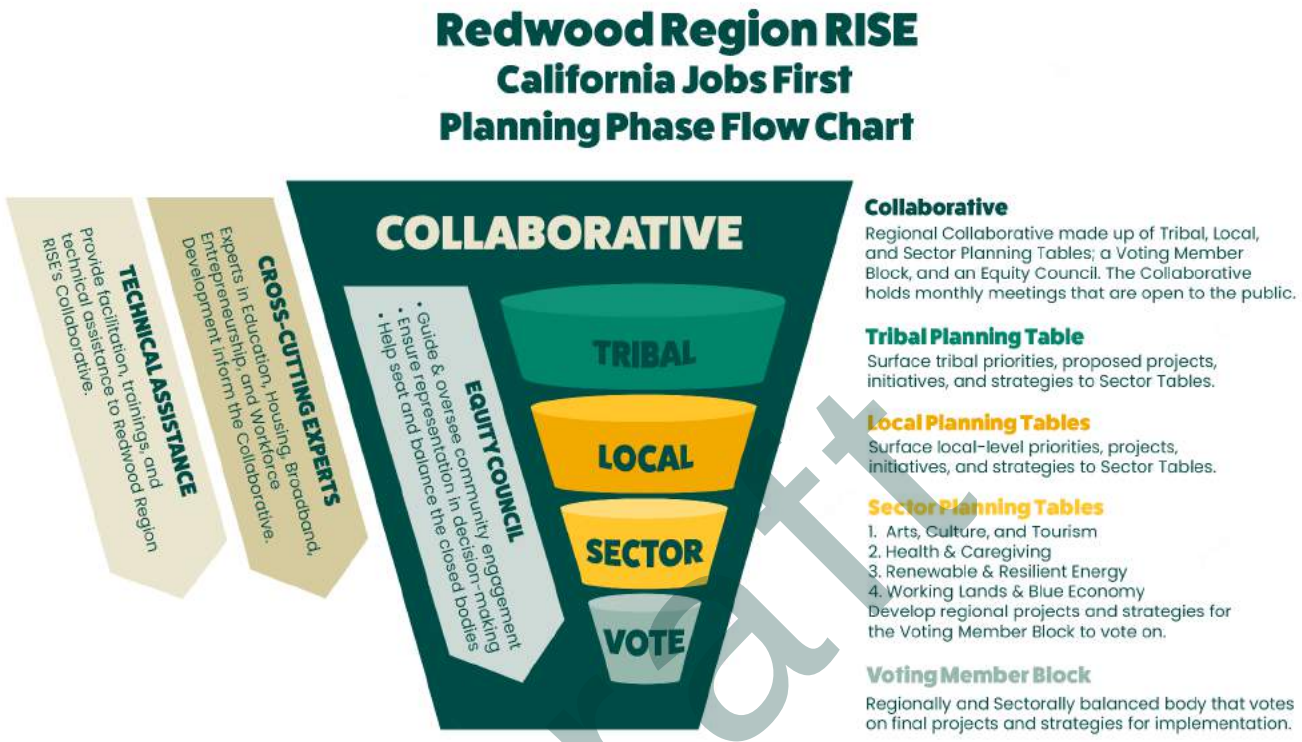
Redwood Region RISE

Planning Process and Community Engagement

In January 2023, the Redwood Region Convening Team finalized their contract with the State and officially joined the statewide "California Jobs First" (formerly the Community Economic Resilience Fund, CERF) initiative. The Region—Del Norte, Humboldt, Lake, Mendocino counties, and Tribal Lands—includes large areas that are not located on the Pacific Coast. Therefore, the Collaborative decided early on to call themselves the more inclusive "Redwood Region RISE " (Resilient Inclusive Sustainable Economy), or RRRISE. After officially onboarding the CA Jobs First initiative, RRRISE hosted the first official Collaborative meeting in February 2023. This kick-off meeting (with 113 participants) focused on introducing the initiative and the RRRISE Convening Team, and setting the stage for regional cooperation. The Collaborative agreed to lead an inclusive, diverse, transparent, and accountable regional planning process, in which the community voices that do not always participate in or benefit from economic development planning processes are both centered and honored. Through active participation of citizens and representatives from community partners, four counties, and 32 Tribal Nations (federally and non-federally recognized), the Collaborative aims to develop a regional strategy and recommend investments to grow sustainable industries, diversify regional economies, and increase access to high-quality jobs in the Region.

Since the kick-off meeting, the Collaborative has met monthly to share updates, discuss progress, and learn from each other. A staple at these meetings was the team's senior researcher and other experts' "Data Walks." These presentations of qualitative and quantitative data and key findings guided the Collaborative's understanding of the Region, helped ground-truth the findings, encouraged community dialogue, and informed strategic regional thinking within, and beyond CA Jobs First. In May, the initial governance structure (see the Flow Chart on the next page) was shared, which the Taskforce and broader Collaborative helped refine in the subsequent months. Important developments included 1) the creation of the "Cross-Cutting Experts" body to uplift

key intersecting topics such as education, housing, broadband, entrepreneurship, and workforce development in the Region; 2) establishing a Tribal Planning Table; and 3) ensuring all Tribal Citizens are eligible to serve on the Voting Member Block.



Between April and December 2023, the Convening Team conducted 124 Listening Sessions and Empathy Interviews with a wide range of community members and representatives. These conversations allowed the team to gain a wide perspective on people's lived experiences and the needs within the Region, provided valuable insights for the qualitative data section of the Regional Plans, and have proven to be a great way to further engage folks in RRRISE's efforts.

Overview Of Listening Campaign Participants (1)							
County + Tribal Land	Health and Caregiving	Arts, Culture, and Tourism	Blue Economy	Business/ Workforce Partners	Community-Based Orgs	Economic Development Agencies	Environmental Justice Orgs
Del Norte	1	1	2		4	2	
Humboldt	2	1	6	3	5	4	1
Lake	1	1		1	4	2	
Mendocino		1			4		
Regional			2	1	1	2	4

Overview Of Listening Campaign Participants (2)							
County + Tribal Land	Government	Labor	Other	Philanthropy	Priority Communities and Community Members	Training/ Education	Tribes
Del Norte	2		1		28	1	
Humboldt	3		2	1	4	3	2
Lake	2		1		4		
Mendocino	5				4		3
Regional		1				1	

In June and July, the Equity Council took shape through a community nomination process. Twenty-two individuals representing our Region's priority communities joined this important governing body to 1) guide and oversee the community engagement process; 2) ensure meaningful representation in decision-making; and 3) help seat and balance the Collaborative's "closed" bodies. After submitting a draft of the Region Plan Part 1 in August, the Collaborative's attention turned to seating the Voting Member Block and the four Sector Planning Tables. The communities were asked to help identify and endorse the organizations and businesses they believed should be represented on these closed bodies. All representatives on these two bodies

were required to sign the official Partnership Agreement Letter and Data Collection Payment Form to finalize their onboarding process.

In September, around 50 representatives of the Sector Tables and Voting Members met in person for the first time in Ukiah (Mendocino County) for the formal launch of the Collaborative. A further 70 community members and representatives joined the hybrid event online to take part in a training on centering equity in economic development planning. All participants provided valuable input for the Region's Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis. Since the formal launch of the Collaborative, monthly meetings center around updates, report-outs from the Collaborative's Tables, and the Voting Member's discussions and votes. Of course, the entire Collaborative is still highly encouraged to join, and at the end of every meeting the public has an opportunity to ask questions and raise specific issues.

Between late September and early December, the first couple of public Local Planning Table meetings took place in the four counties and Tribal Lands, in addition to an informational webinar in October to onboard newcomers. Early December marked the first Tribal Planning Table gathering, and with the onboarding of the Sector Table Coordinators, the four Sector Tables are eager to start formally meeting in the new year. Several informal, community-organized sector meetings have already taken place. In the final weeks of 2023, the Collaborative has helped review and refine information presented in this Regional Plan Part 1, and looks forward to further exploring the findings through "Data Walks" in localized formats in the new year.

In the next phase of the planning process, January-June of 2024, the Collaborative will craft regional strategies to grow sustainable industries and diversify the economy, and increase access to high-quality jobs for communities in the Region. The Collaborative has started to catalog CA Jobs First-aligned projects and initiatives in the Region through the Project Inventory Form. These projects will be workshopped by the Sector Tables—with feedback from Local and Tribal Tables—after which shortlisted projects are sent to the Voting Member Block to put forward 3-5 projects for implementation funding, using a collectively crafted "project scoring rubric." A key priority remains ensuring these projects will be ready to receive implementation funding, a process the Collaborative strives to accelerate through the Catalyst's pre-development funds.

Disinvested Communities

The Redwood Region as a whole qualifies as a "disinvested community" by the state's definition:

- Census tracts identified as "disadvantaged" by the California Environmental Protection Agency16.

- Census tracts with median household incomes at or below 80 percent of the statewide median income or with the median household incomes at or below the threshold designated as low income by the Department of Housing and Community Development's list of state income limits adopted pursuant to Section 50093 of the California Health and Safety Code.
- "High poverty area" and "High unemployment area" as designated by the California Governor's Office of Business and Economic Development California Competes Tax Credit Program; California Native American Tribes as defined by the Native American Heritage Commission (NAHC) Tribal Consultation Policy.

The repercussions of this disinvestment are not felt equally by groups in the Region. Consequently, the Collaborative characterizes disinvested communities as individuals residing in areas meeting the state's criteria, and those connected by common ancestry, ethnicity, belief, affinity, and shared experiences, who may be negatively affected by social, political, and economic exclusion.

As the *Partner Mapping* Assessment makes clear:

Residents of the Redwood Region, especially those belonging to priority communities, rank among the state's poorest based on conventional indicators of economic well-being. They face an elevated risk of experiencing disproportionately adverse health outcomes related to substance use, behavioral health issues, disability, and delayed or inadequate access to health and behavioral healthcare. Additionally, they are susceptible to climate impacts due to factors such as age, disability, health, and income statuses. Their annual income is predominantly allocated to essential expenses like healthcare, housing, transportation, and childcare, surpassing state averages.

Through CA Jobs First, Redwood Region RISE is deeply committed to convene representatives from various community groups to the planning table, bringing their perspectives, expertise, and input. The Convening Team has been collaborating to build a robust contact list inclusive of the Region, representing a diverse range of interests and backgrounds. Members of the Convening Team have worked with many of the Tribal partners previously and are actively inviting them to join the efforts.

Redwood Region RISE strives to center the voices of and seeks input and participation from community members representing or advocating for the following Priority Communities:

- Advocates for People of Color (e.g., Black Lives Matter, Asian Americans Advancing Justice, New Hmong Rising Association, etc.)
- Communities of Color
- Immigrants with Documentation (e.g., work visas)
- Individuals that live in extremely remote/rural areas of the Redwood Region (Redwood Region RISE)
- Individuals who were Formerly Incarcerated
- Individuals that are Deaf or Hard of Hearing (HoH)
- Individuals with Intellectual Developmental Disabilities
- Individuals with Learning Disabilities
- Individuals with Physical Disabilities
- Individuals with Vision Impairment
- Individuals without Broadband Access
- Individuals without Documentation
- Lesbian, Gay, Bisexual, Transgender, Queer, Asexual, Intersex + (LGBTQAI+)
- Members of religions and ethnic minority communities
- Monolingual Hmong-Speakers
- Monolingual Spanish Speakers
- New Citizens
- Non-federally Recognized Tribal Nations
- Seniors
- Tribal Citizens
- Tribal Governments
- Unions
- Workers
- Youth

The Redwood Region RISE Collaborative's efforts to engage with residents in all aspects of the CA Jobs First planning process have been and will continue to be critical to ensure that all unseen needs are surfaced, to take all concerns into account, and to ensure transparency and equity. Through local and regional meetings, a Listening Campaign (including Empathy Interviews), and data collection, the Collaborative's Convening Team has worked to gather qualitative and quantitative data, and to disaggregate both by race, gender, and other factors where possible to better identify and address disparities in economic opportunity in the Redwood Region. While this will ultimately make it easier to target resources and interventions to the communities that need them most, it still requires the participation and involvement of those who "own" the data and the narrative the data tells. It also requires that the input of disinvested communities (see list above) be appropriately translated into actionable goals that accurately reflect their needs and values, not those of outside economic development policymakers.

Redwood Region RISE Target Industries

After reviewing county and tribal community economic development plans and surveying Collaborate participants, the Redwood Region RISE Collaborative has identified the following key industry groupings, known as 'Sector Planning Tables,' to explore regional economic development opportunities:

1. *Arts, Culture, and Tourism*
2. *Health and Caregiving*
3. *Renewable and Resilient Energy*
4. *Working Lands and Blue Economy*

Overview of Regional Summary and SWOT Analysis

These *Regional Summary* and *Strengths, Weaknesses, Opportunities, and Threats (SWOT)* documents both constitute high-level summaries and *syntheses* of a number of reports produced by CCRP in collaboration with their partners. These foundational reports—collectively referred to as *primary* documents—reflect a diverse array of issues, methods, styles, perspectives, and expertise too sizable to be compiled into a single document that is simultaneously useful, detailed, and approachable to the community. The aim of these *synthesis* documents is to condense this broad information into a concise, useful, and community-friendly report, as well as to explore the interrelated nature of the issues. Those seeking in-depth information on topics such as climate or health should consult these primary sources.

The following table summarizes where additional information can be found.

Primary Documents

Analysis	Report Name	Prepared By	Material Covered
Regional Plan Part 1: ***- Regional Summary*** ***- SWOT Analysis***	*Redwood Region Regional Plan Part 1: Regional Summary and SWOT Analysis*	California Center for Rural Policy (CCRP)	Regional Summary and SWOT Analysis for the Redwood Region

Appendix	*Supplementary Data and Figures*		Supplemental demographics, economic and environmental data, and analysis.
Stakeholder Analysis	*Redwood Region Partnership Mapping Report*	Bischoff Consulting	Organizations, partnerships, and networks. Data and narrative on the strength of partnerships, capacity of organizations, and opportunities for partnerships and collaboration.
Industry Cluster and Labor Market Analysis	*Regional Economic Analysis North State, Eastern Sierra, and Redwood Coast*	Economic Forensics & Analytics (EFA)	Industry Cluster Analysis and Labor Market Analysis Identification of industries with competitive advantage. Workers at-risk of displacement.
Public Health Analysis	*Exploring the Roots of Health Disparities in the Redwood Region*	California Center for Rural Policy (CCRP)	A comprehensive report covering health outcomes as they pertain to demographic, social determinants of health, and environmental factors.
Climate Analysis	*Redwood Coast Climate & Environment*	Sierra Business Council	Climate projection, sources of greenhouse gas, and environmental data and narrative.
Opportunities Report (Supplemental Material)	*Collaborative Planning Support Document: Economic Summary*	California Center for Rural Policy (CCRP)	A narrative report exploring economic development opportunities, development disparities, and the impacts of shocks and shifts.
Indicators Report (Supplemental Material)	*Redwood Region, California Indicators Report*	The National Economic Education Delegation (NEED)	Demographic, economic, industry, and housing data.

A Word on Data Limitations

While each report uses a variety of disparate data sources, there are certain data limitations that are general among data sources for rural areas. Low sample sizes produce higher levels of statistical uncertainty— a challenge that is exacerbated when looking at subsets of populations such as disinvested communities.[1] It is critical to understand that a failure to detect disparity between two groups in rural data sources with high uncertainty does not provide evidence for lack of disparity.

There is potential for differences in populations that complete surveys and those who do not complete surveys (i.e., non-respondent bias). There are methodological approaches to correct for this potential bias (the Census Bureau applies such methods), however, these methods are imperfect and in extreme cases estimates can become unreliable. For instance, during the pandemic in 2020, factors such as socioeconomic status were found to significantly influence the probability of non-response in the American Community Survey leading the Census Bureau to withhold one-year 2020 data. It is not difficult to imagine how lack of broadband access may also influence non-response among a wide range of survey instruments. It is therefore also critical to understand that publicly available data sources may have blind spots or distortions that result in estimates that do not accurately or fully reflect the reality on the ground in disinvested areas.

The Redwood Region

Consisting of some of the most rural and remote areas in California, the Redwood Region, beginning just under 100 miles north of San Francisco and extending to the Oregon border, comprises four counties (Mendocino, Lake, Humboldt, and Del Norte) and Tribal Lands situated in the northwestern corner of the state, and is home to 323,952 residents–accounting for less than one percent of the state's total population (U.S Census Bureau, n.d.).

The Redwood Region is the ancestral land of several Indigenous cultures, including (but not limited to) Hoopa, Karuk, Miwok, Pomo, Tolowa, Wappo, Wiyot, and Yurok. In the early 1850s, European settlers arriving for the California Gold Rush carried out policies resulting in displacement, genocide, and forced acculturation, among other atrocities. The legacy of this period is still felt by the Region’s 33 tribes. Shortly after, commercial logging industries began on the Redwood Coast.

[1] In many of the data visualizations throughout the body of this report and appendices, this statistical uncertainty is represented by horizontal bars (i.e., confidence intervals) that represent the level of confidence associated with a statistical estimate. Larger confidence intervals indicate higher uncertainty about an estimate. Estimates that describe populations that represent a smaller share of the overall population generally have lower levels of confidence.

By the mid-to-late 19th century, the Region had several financially successful industries that remained viable well into the late 20th Century, with some still being major industries in the region today. The timber and logging industries were prominent in much of the region, particularly in Mendocino, Humboldt, and Del Norte counties, thanks to the abundance of redwoods, or "red gold," in the area (California State Parks, n.d.; Del Norte County Historical Society, 2021b; Humboldt County Historical Society, n.d.). Commercial fishing and canneries were established in coastal areas and rivers in Humboldt, Del Norte, and Mendocino counties (Del Norte County Historical Society, 2021b; Humboldt County Historical Society, n.d.; Pomeroy et al., 2010). Agricultural industries were established soon after settlers had arrived during the Gold Rush. Wine making was successful in Lake County (Lake County, California, 2020), while dairy and livestock industries were especially prosperous in Humboldt County (Humboldt County Historical Society, n.d.). Even tourism was a prominent industry in the region at the time (Humboldt County Historical Society, n.d.; Lake County, California, 2020; Lake County, California, 2022).

By the mid-20th century, industries focused on resource extraction (e.g., timber and fishing) had diminished considerably due to depletion (Del Norte County Historical Society, 2021b; Pomeroy, et al.). Due to the post World War housing boom and subsequent destruction of over 90% of the region's Redwood forests, logging and timber industries went into decline. At this time, the region experienced an influx of newcomers motivated by countercultural views. This migration is known as the "Back to the Land" movement. These newcomers introduced a novel agricultural industry into the region–cannabis cultivation. Illicit cannabis cultivation was a lucrative business, becoming the new major industry in much of the region, though not without concerted (albeit vain) efforts to thwart cannabis operations by state and federal authorities (University of Oxford, 2019). Nonetheless, cannabis cultivation and sale for medicinal use was legalized in 1996 *(California Proposition 215, Medical Marijuana Initiative (1996) - Ballotpedia, n.d.)*, with recreational business and use being legalized in 2016 statewide *(Proposition 64: The Adult Use of Marijuana Act - Criminal_Justice_Prop-64, n.d.)*. Once anticipated to generate an annual revenue of 3.5 billion, this industry is now in decline.

Other agricultural industries (e.g., vineyards and wine, fruit, dairy, cattle ranching) also make up a large part of the region's current economy (Lake County, 2020). Tourism, hospitality, and recreation industries are abundant across the region as well (California Employment Development Department (EDD), n.d).; California EDD, Labor Market Information Division (n.d.); Del Norte County Historical Society, 2021b; Stenger, 2018; Submitted, 2022). The region's economy continues to diversify, implementing economic strategies to include industries such as renewable energy (Redwood Coast Energy Authority, 2023), niche manufacturing, and innovation services (California EDD, Labor Market Information Division (n.d.). Over time, the regional economy has transitioned from extractive industries to productive sectors like

agriculture and, more recently, consumptive industries. There is an increasing emphasis on tourism, conservation, and recreation (Kelly et al., 2016).

Given the region's reliance on land-based commodities and the associated boom-and-bust cycles, community leaders express concern that local economies need to diversify for increased resilience. Previous economic development efforts primarily focused on attracting businesses and investments without effectively leveraging existing and emerging industry clusters. Additionally, there has been a tendency to group the rural northern CA counties with those in the greater San Francisco area, neglecting their unique needs and characteristics.

Since the economic downturn of 1998-2000, there has been increased effort to form partnerships and enact policies better suited to the region's comparative advantages. These initiatives aim to diversify services and types of firms within industries that already have a strong foundation in the region. Despite these efforts, organizations working with disinvested communities in the region highlight challenges such as a lack of adequate workforce development initiatives, insufficient technical support for entrepreneurs—particularly for new Americans and entrepreneurs of color—lack of regional coordination on economic strategies, rising costs, missed opportunities to grow firms capable of accessing lucrative markets in nearby urban areas, and a failure to adapt to changing regulations and market conditions for key sectors.

The Redwood Region Today

Today, the region’s population is predominantly white, non-Hispanic individuals (67.7%). Hispanic or Latino individuals make up 19% of the region’s population, while the American Indian and Alaska Native (AIAN) population represents approximately 2.4% of the region’s total population, higher than the statewide proportion of AIAN residents (see Appendix).

The Redwood Region is older compared to the statewide average, primarily due to the large proportion of older residents (i.e., 55 to 75 years). The median age ranges from 39.1 to 44.6, significantly higher than the state median of 37.0.

Poverty rates in the region are sharply higher compared to the state rate, particularly among youth, people of color, and Hispanic or Latino populations. High school graduation rates are adequate, though four-year degree attainment rates lag behind the state average. High mortality rates and out-migration have resulted in declining population counts, and this trend is expected to continue in the coming years. Life expectancy, mortality rates, health conditions (e.g., diabetes, heart disease), disability rates, and proximate risk factors are all challenges within the region (Kirsch, 2023).

Today, agriculture and natural resource-based industries remain key to the region's economy. However, with the aging population and relative decline of natural resource-based industries,

healthcare and government jobs are becoming more prominent. Combined healthcare and government employment constitute nearly one-third of the region's workforce.

The Collaborative's Vision

As the Redwood Region Resilient Inclusive Sustainable Economy (RISE) Collaborative moves into the next phase, the Collaborative is dedicated to exploring and pursuing economic development opportunities that align with its core values and respond to the diverse needs and values of the communities within the Redwood Region. A primary objective of the Regional Plan Part 1 is to thoroughly examine and identify the challenges and potential threats facing the region. Concurrently, it aims to identify existing strengths and uncover new opportunities, with a focus on fostering economic development that propels the region forward toward a more prosperous and equitable future.

*"To overcome barriers, we need a **unified vision of what kind of regional economy we want** to build in the 21st Century. If we are unified, we can mobilize our common resources to accomplish our economic objectives."*

Economic Development and Well-Being Summary

Broad Trends in Economic Development

Much of California's rural and northernmost counties have had an economic trajectory wholly distinct from that of the state. As shown below, since 2001 statewide economic output per capita[2] has increased by an average of $23,986 on inflation-adjusted terms. Much of this growth is concentrated in three Bay Area counties– San Francisco, San Mateo, and Santa Clara– each of which experienced a doubling of economic output in the past two decades, far exceeding the growth experienced by any other county. Statewide, output in counties other than these three increased by $19,307 on average, indicating that strong economic growth was also widespread across the state during these decades.

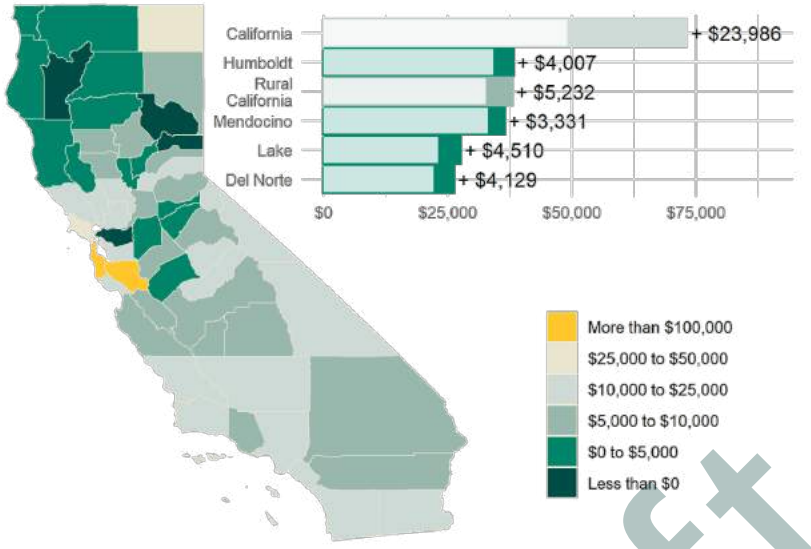
California's most rural counties,[3] on the other hand, have experienced much slower growth on average, increasing by just $5,232 since 2001. Among these, the Redwood Region experienced growth on par with other rural California counties, ranging from an increase of $4,510 in Lake to $3,331 in Mendocino. On average, per capita output in the Redwood Region was 62% of the statewide average in 2001 and is now 47% of the statewide average, indicating that the region has fallen farther behind in recent decades.

[2] Economic output is the total market value of all goods and services produced in a region during a period of time.

[3] These counties are defined with an Index of Relative Rurality (IRR) greater than 0.5. This includes the four Redwood Region counties and 14 other counties.

Figure 1

Change in Economic Output (Real Gross Domestic Product [GDP]) per Capita from 2001 to 2021.



Note. Population estimates for 2021 and 2001 were sourced from the California Department of Finance, Table E-2.[4]

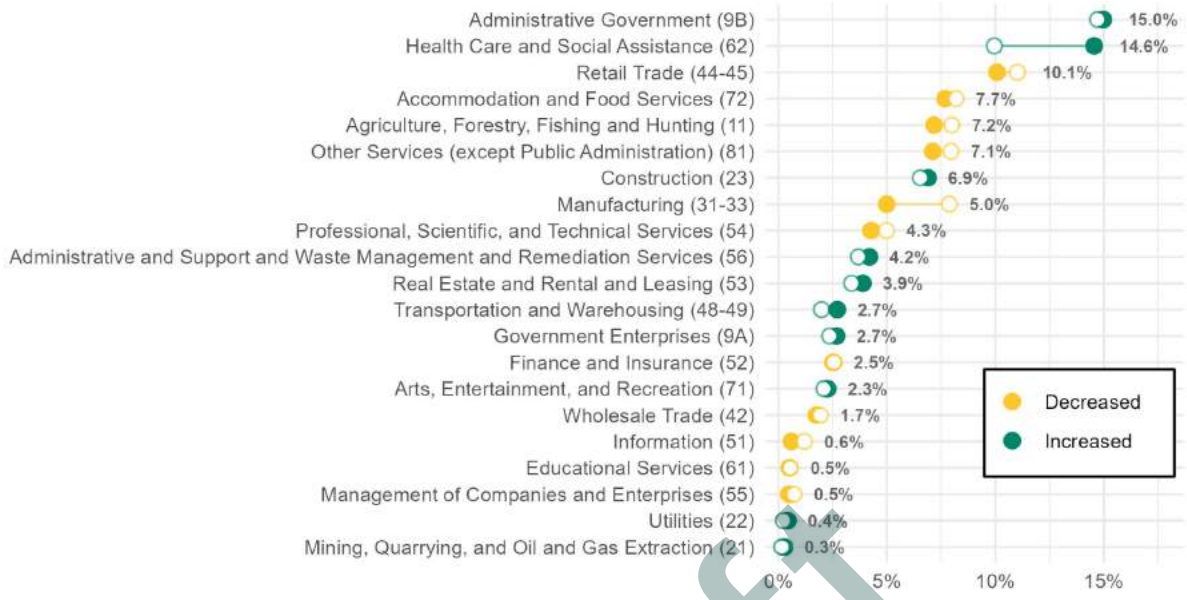
Industry Composition and Trends

As shown in Figures 2 and 3 below, the two largest industries by employment include *Administrative Government* and *Health Care and Social Assistance*. These two sectors employ nearly one-third of Redwood Region workers and both of which represent a much larger share of regional employment compared to the state averages.

[4] Values represent real gross domestic product divided by the population estimates for 2001 and 2021. Data is in 2012 dollars. Rural California counties are defined as counties with an Index of Relative Rurality greater than 0.5. No counties experienced growth between $50,000 and $100,000.

Figure 2

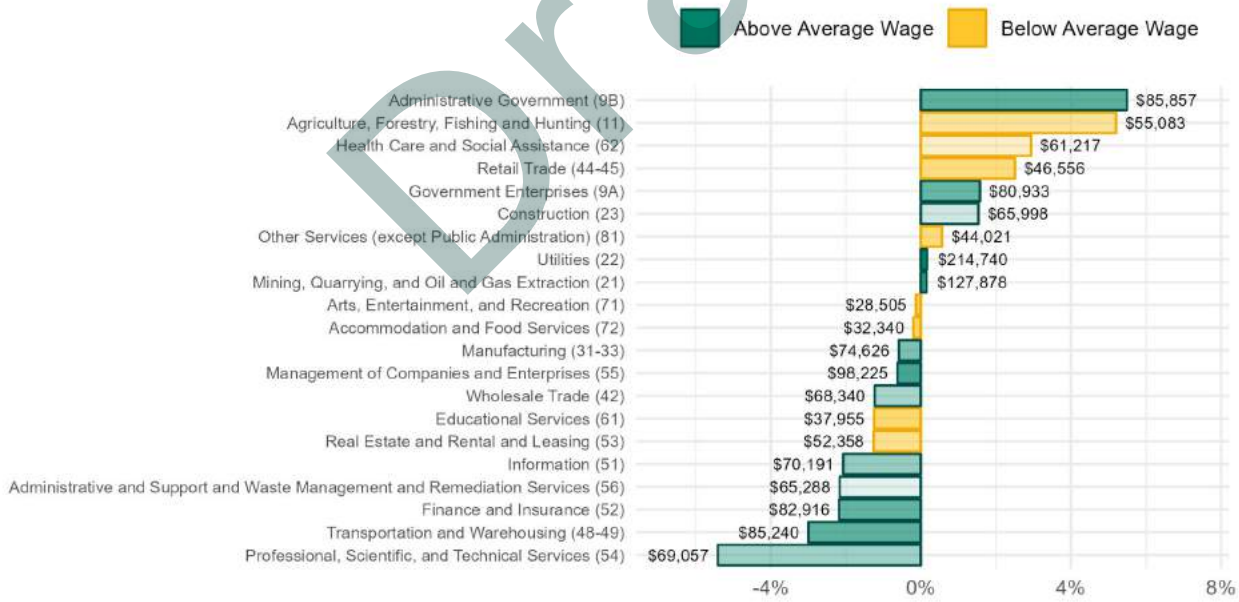
Industry Employment Concentration and Change Since 2001 (2001, 2022)



Note. Data sourced from IMPLAN[5].

Figure 3

Difference in Industry Employment Concentration with Average Compensation (2022)



Note. Data sourced from IMPLAN[6].

[5] Average total compensation including value of benefits. North American Industry Classification System (NAICS#) code in parentheses. Solid points indicate current value.

[6] Differences compared to state averages. Average total Redwood Region compensation including value of benefits. NAICS code in parentheses. The average compensation in this dataset is $64,128.

The region's leading sector (by employment) *Administrative Government* (9B) along with *Government Enterprises* (9A[7]) both pay higher-than-average wages and employ much larger proportions of the region's workforce compared to the state level trends. Except for Construction, no other sectors have these qualities, highlighting the importance of government employment in supporting the region's wages. Moreover, other high wage industries are sharply underrepresented by employment in the Redwood Region.

Two sectors exhibit dramatic shifts since 2001. Employment in the *Health Care and Social Assistance* sector (a lower-than-average wage industry) has risen sharply while employment in manufacturing (a higher-than-average wage industry) has fallen sharply. Thus, the relative rise of a lower wage industry and relative decline of a higher wage industry has likely contributed to lower average wages in the region.

However, as discussed below,[8] adverse wage gaps are evident among almost all occupations across industries and are sharpest among high-skilled workers and occupations. Depressed wages are a general problem, applying to most industries and occupations in the region.

Economic Well-Being and Cost of Living

As shown below, multiple indicators demonstrate that Redwood Region households are much less prosperous compared to statewide averages. Lower prosperity is a region-wide challenge. Not one Census tract in the Redwood Region has a median household income significantly higher than the state average. Median full-time earnings[9] are significantly and substantially lower than the state average across the region, suggesting that lower wages are a key factor behind the region's lower household prosperity. However, as discussed below, prime age[10] labor force participation is also significantly lower than the statewide average, suggesting that barriers to employment are also contributing factors (see Appendix).

[7] The distinction arises in part from the source of funding. Administrative Government is funded largely by the taxpayer, while Government Enterprises are partially or fully self-sufficient covering their operating costs by selling goods and services (IMPLAN, 2020).

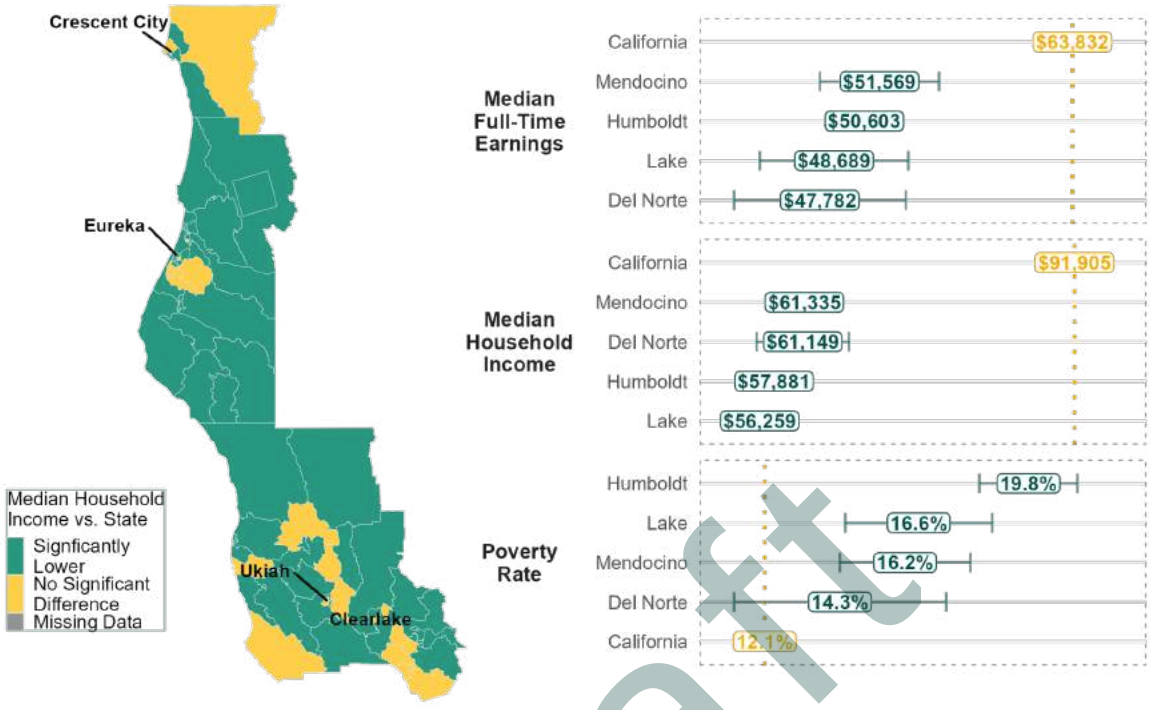
[8] Also see Appendix.

[9] Earnings among those with full-time employment.

[10] While there may be some intergenerational deliberation about which age ranges are prime, for the purposes of economic analysis "prime age" adults are defined as 25-54.

Figure 4

Indicators of Economic Well-being (2018 - 2022)



Note. Data sourced from the American Community Survey.

Cost of Living

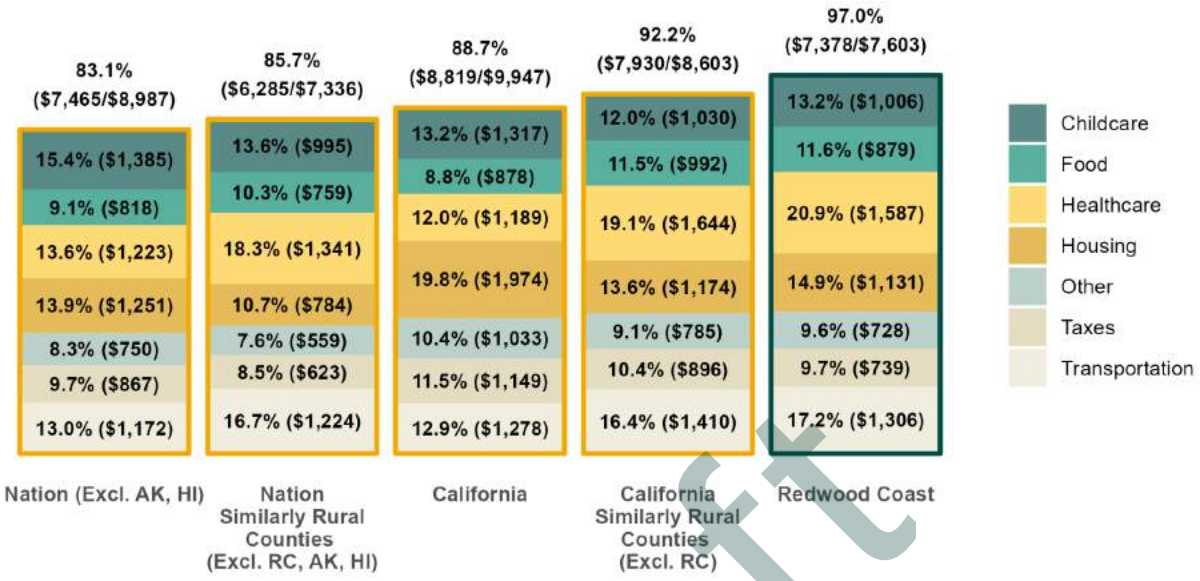
Redwood Region households have earnings typical of similar rural areas throughout the United States, but at a substantially higher cost of living. Even among households with two full-time earners, data suggests that Redwood Region households are in a precarious financial position. The figure below shows the ratio of estimated household expenditures to income for a hypothetical family of two full-time working adults[11] and two children. In the Redwood Region, this hypothetical family— let's call them the "Medians"— has a monthly income of $7,603 and total estimated expenses of $7,378, amounting to 97.0% of their income. This leaves the Medians with very little income for wealth accumulation or unexpected expenses.

Compared to similar families in other rural areas of the country, the Medians spend a much more substantial proportion of their income on food, healthcare, housing, taxes, and transportation. If the Medians were to pick up and move to a typical United States county that has a similar level of rurality as the Redwood Region (see "Nation Similarly Rural Counties" below) their income would fall slightly from $7,603 to $7,336, but their estimated cost of living would decline substantially from $7,378 to $6,285.

[11] Total household income assumes two median full-time incomes and no other cash or in-kind income.

Figure 5

Monthly Cost of Living for a Family of Two Full-Time Working Adults and Two Children (2017 - 2021), Expressed as a Ratio of Labor Income



Note. Data sourced from Economic Policy Institute's Family Budget Calculator, the American Community Survey, and the Index of Relative Rurality (IRR). See footnote for methodology.[12]

Shortages in an Isolated Context

Contributing to the region's higher cost of living are critical shortages in essential goods and services including housing and healthcare. While these challenges are not unique to the Redwood Region, they are uniquely challenging to Redwood Region households. Unlike many other region's classified as "rural" by various methodologies, the Redwood Region is both rural in the sense that it has a low population density, but it is rural in the more consequential sense that it is geographically isolated. For instance, both Humboldt County and Colusa County are Health Provider Shortage Areas (HPSAs, see *Public Health Analysis*) and have a similar level of rurality,[13] however many Colusa residents are within a one hour drive to downtown Sacramento.[14] By comparison, residents in the Humboldt Bay area may need to travel as far as

[12] The Index of Relative Rurality (IRR) ranks all counties in the United States from 0 (most least rural) to 1 (most rural). Rural comparison regions "Nation Similarly Rural Counties" and "California Similarly Rural Counties" include counties in the nation or state that have an IRR that is at least as high as the lowest IRR and no higher than the maximum IRR in the Redwood Region. Regional averages were calculated as a population-weighted average of the county-level data using American Community Survey's (ACS) five-year estimates (2017 - 2021). Median full-time earnings sourced from ACS five-year estimates. Rurality measured by the Index of Relative Rurality (IRR). "California $0.5 \leq$ IRR ≤ 0.53" includes Amador, Calaveras, Glenn, San Benito, Tehama, and Tuolumne counties. Five counties were not included in the national estimates due to missing data.
"Other" is short for "Other Necessities."

[13] As indicated by the Index of Relative Rurality (IRR).

[14] Or a little more than 2 hours in the northeastern most corner of the county.

Santa Rosa (a nearly four-hour drive) or San Francisco (five or more hours) when needed care is locally unavailable. It is particularly important to consider how these shortages in a context of an isolated rural community impact those with lower incomes.

Disparities in Economic Conditions and Access to Critical Services

While depressed economic conditions is a region-wide challenge, some communities are more impacted by the region's challenges to prosperity than others. Poverty rates, which reflect the combined impact of various factors including labor force participation, fewer hours worked, lower wages, and household structure, are especially high among children, those with lower levels of education, among people of color, among women, those without full-time employment (see Figure 6 below), and among LGBTQAI+ individuals and individuals with disabilities (see Figure 15). Communities impacted by higher rates of poverty are less able to contend with the region's high cost of living and shortages of essential resources.

Figure 6

Disaggregated Poverty Rates (2018 - 2022)

	CA	Humboldt	Mendocino	Lake	Del Norte	
Black	19%	41%	33%	32%	50%	Race/Ethnicity
AIAN	16%	29%	24%	43%	17%	
Hispanic or Latino	15%	24%	22%	17%	20%	
Two or more races	12%	22%	21%	19%	19%	
Asian	10%	34%	15%	9%	~14%	
White, not Hispanic or Latino	9%	18%	13%	15%	12%	
Female	13%	21%	17%	18%	16%	Sex
Male	11%	19%	16%	15%	13%	
Under 5 years	16%	20%	28%	20%	16%	Age Range
Under 18 years	16%	20%	21%	21%	17%	
18 to 34 years	13%	30%	19%	18%	16%	
5 to 17 years	16%	21%	18%	21%	18%	
35 to 64 years	10%	17%	14%	18%	15%	
65 years and over	11%	12%	13%	10%	9%	
Less than high school	20%	34%	25%	26%	17%	Educational Attainment (25+)
High school or equivalent	13%	20%	18%	20%	16%	
Some college	10%	17%	13%	14%	11%	
BA or higher	5%	9%	8%	5%	8%	
Unemployed	24%	34%	33%	30%	11%	Work (16+)
Did not work	21%	29%	25%	24%	24%	
Worked part-time	13%	25%	14%	16%	11%	
Worked full-time	2%	4%	3%	2%	2%	

> 3X CA Avg. > 2X CA Avg. > CA Avg. ≤ CA Avg.

Note. Data sourced from the American Community Survey (ACS). (~) denotes statistically unstable estimates.[15]

[15] For these data, an estimate is determined to be statistically unstable if it is not significantly higher than 0 or significantly lower than 100%.

Housing

Clean, safe housing is important for people to fully function in society and participate in the workforce, however many communities in the Redwood Region lack an adequate supply of housing. Rental vacancy rates are much lower than the state average, indicating more competitive conditions for renters (see Appendix). Such competitive conditions may push those with lower incomes into substandard or inadequate housing, or even homelessness. In many areas of the region, the housing stock is aging and dilapidated, resulting in health impacts including elevated blood lead levels in young children. Rates of homelessness are among the highest in the state, and public-school children are more likely to experience homelessness compared to state averages (see *Public Health Analysis*).

Catastrophic wildfires, a problem expected to worsen in the coming decades, have destroyed hundreds of housing units in the region in recent years, further diminishing the supply of housing as well as increasing cost of home insurance (See *Public Health Analysis* and *Climate Analysis*). Those with low income will be least able to adapt to these higher costs.

Healthcare

The Redwood Region's shortage of healthcare providers disproportionately impacts those with low incomes. People with incomes below the poverty line in the Redwood Region are more likely to have recently delayed healthcare or filling a prescription (see the *Public Health Analysis*). Moreover, people with incomes below the poverty line are more likely to exhibit or experience health factors (e.g., smoking and suicide ideation) associated with the region's adverse health outcomes.

Food

Rural poverty is closely linked to food insecurity.[16] "Food deserts" in the Redwood Region increase food insecurity, and represent an additional inequitable barrier to economic participation that directly impacts health and well-being. Food insecurity can lead to malnutrition, stunted growth, cognitive development issues, and increased vulnerability to diseases, and other health problems, particularly among children. These conditions further strain already stretched healthcare systems in the Redwood Region. As shown in the *Public Health Analysis*, people with incomes below poverty are far less likely to be able to access fresh produce in their neighborhoods compared to those with higher incomes in the Redwood Region.

Broadband

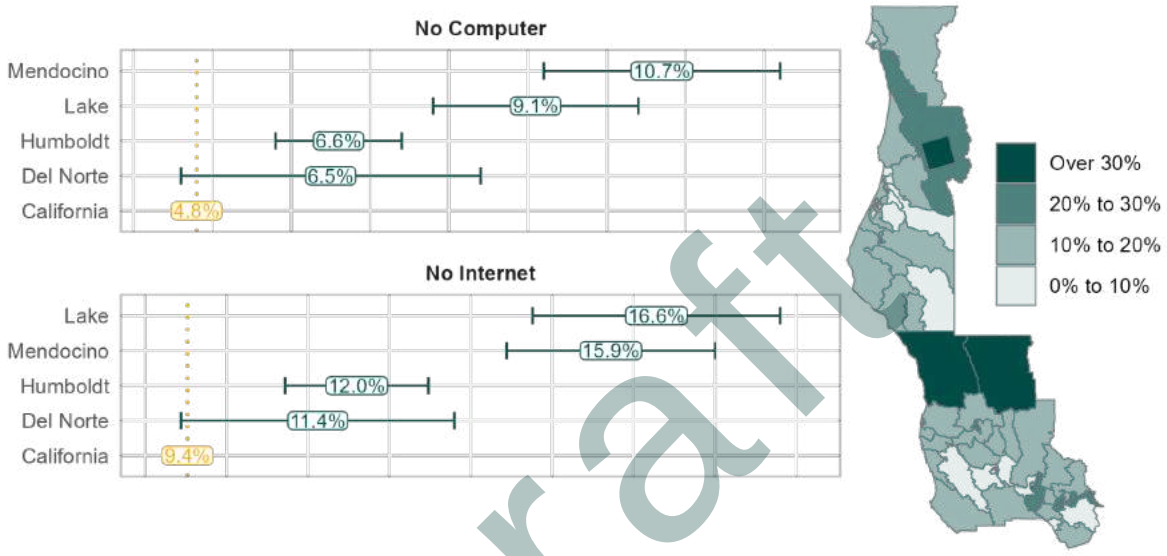
As shown below, significantly more households in the Redwood Region lack internet access in the home. In some communities, particularly among the most remote areas of the region (e.g., Hoopa), about one-third of households lack any access to home internet. Across the U.S., only 65

[16] Food insecurity (either chronic or a result of disruptions to food supply chains) means there is inconsistent access to enough food to meet nutritional needs.

percent of tribal populations have broadband access, compared to 98 percent in urban areas (UCLA, 2022). Broadband services can be critical to the health, wellbeing, and economic development of communities, and a lack of equitable access presents a serious basic human rights issue. Of particular importance for tribal communities in the Redwood Region is access to telehealth services, a much more time- and cost-effective way for people living in more remote areas to see a healthcare professional, especially in non-emergent circumstances.

Figure 7

Householders without Internet Access (2017 - 2021)



Note. Data sourced from the American Community Survey (ACS). Map indicates percentage of households lacking any form of internet subscription.

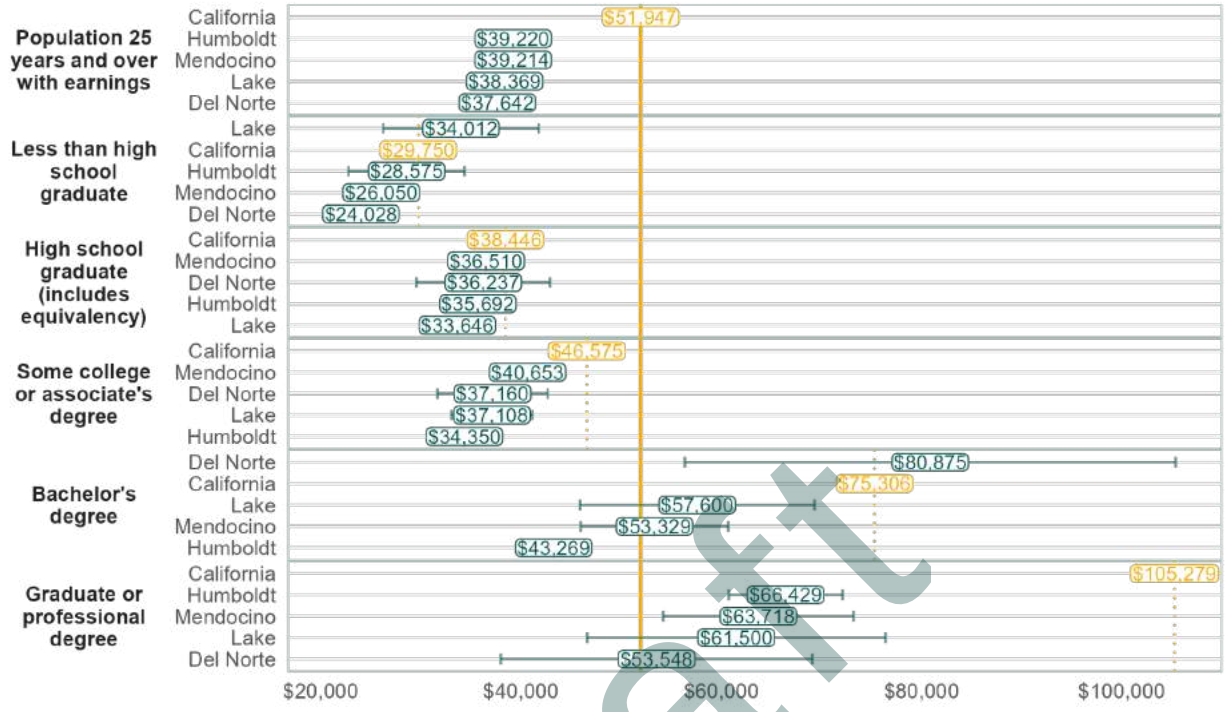
Labor Market Trends

Regional Wage Disparities

Comparing earnings region-wide to state averages reveals clear differences particularly among highly educated workers and among higher wage occupations. Workers with lower levels of education or working in low wage occupations are offered wages similar to what they would earn in other regions of the state. Conversely, those with higher levels of education and those working in high wage occupations, experience sharply lower wages compared to workers with similar education or occupations statewide. For instance, as shown below, a worker with a graduate degree in the Redwood Region earns approximately 60% of the average graduate degree holder statewide while a worker with a high school diploma has earnings much closer to the state average (roughly 87 to 95%).

Figure 8

Median Earnings by Education, Population 25 Years and Older with Earnings (2018 - 2022)

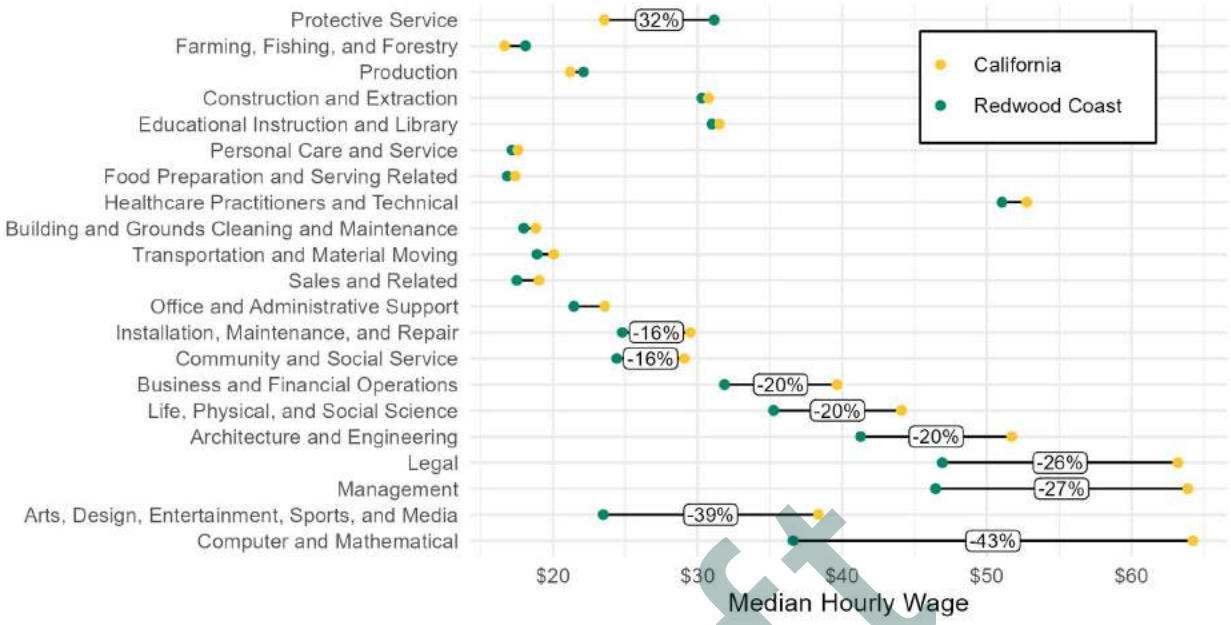


Note. Data sourced the American Community Survey. Bars indicate 95% confidence intervals.

Similarly, as shown below, occupation wage gaps between the Redwood Region are *proportionately* greatest among high wage occupations including STEM, legal, finance, and business-related occupations.

Figure 9

Gaps in Median Hourly Wage by Major Occupation Category (2022)



Note. Data sourced from California Employment Development Department. Standard Occupation Classification (SOC) code major groups.

Intraregional Wage Disparities

While median earnings are typically lower in the Redwood Region compared to the state median, median earnings among women and communities of color in some areas of the Redwood Region are particularly depressed (see below[17]). While these statistical estimates have high levels of uncertainty, tribal communities have estimated median earnings as low as $15,313 per worker.

[17] These estimates are subject to a high degree of statistical uncertainty.

Figure 10

Median Earnings by Sex, Race, or Ethnicity (2018 - 2022)

Note. Data sourced from the American Community Survey. Bars represent 95% confidence intervals.

Impacts of Wage Disparities

Wage disparities have many negative impacts on economies like the Redwood Region including (Thiede et al., 2020):

- Reduced productivity as workers paid less are often less productive (low wages can lead to stress, anxiety, and discouragement/disengagement)
- Increased turnover as low wages can lead to higher turnover as workers quit, find other employment, or move out of the area
- Reduced economic growth as workers earning less have less money to spend, so demand for goods and services is decreased along with economic growth (a downward spiral)
- Worker unrest, as workers who feel they are not being paid fairly may strike or quit

Lastly, another evident and critical impact of wage gaps in the Redwood Region is the loss of highly skilled labor to other regions. Redwood Region workers with advanced education, STEM, legal, financial, or business acumen could potentially experience *proportionately* greater income gains compared to those working in lower paid occupations from relocating to other areas of the state compared to those with lower levels of education or different skill sets. Such incentives may be a contributing factor to the region's out-migration, particularly among high skilled workers. As shown in the *Indicators* analysis,[18] there is a net out-migration of higher income individuals and individuals with graduate or professional degrees while there is a neutral or net inflow of lower income individuals to the region.[19]

However, there are signs that the region is attractive to highly compensated workers when geographic location does not limit their economic opportunities. Starting during the pandemic in 2020 when the proportion of the working population that worked from home doubled to 11.1%, the region experienced an influx of high-income workers from other regions of the state (even while total migration was negative due to residents leaving for other states[20]).

Barriers to Employment

While wages are generally lower, the unemployment rate region-wide is just 5.2%[21] (see *Industry Cluster and Labor Market Analysis*) and out-of-work individuals are much less likely to cite lack of employment opportunities as a reason for being out of work compared to state averages (see Appendix). This suggests that factors other than wage gaps or lack of employment opportunities contribute to the region's elevated poverty rates relative to state averages. However, factors such as barriers to employment or lack of *full-time* employment may be critical. As shown in the Appendix, labor force participation rates (including among prime age adults) are lower than state averages. In Mendocino County, for example, 74% of 35- to 44-year-olds are either employed or looking for work compared to 82% for the same age group statewide.

[18] See *Indicators Report*

[19] See Figures 43 through 45 in *Redwood Region, California Indicators Report*. The region has experienced a net inflow of residents with low income ($25,000 or lower), roughly net zero inflow of residents with moderate incomes ($25,000 to $75,000) and a net outflow of higher income residents in recent years.

[20] The out migration among higher income residents is partially offset by in migration of higher income residents from other parts of the state that began during COVID-19. During this same time, the proportion of the working population in California that worked from home doubled to 11.1% (see Figure 39 in the *Indicators Report*). Therefore, perhaps much of this trend can be attributed to remote workers relocated to relatively more affordable or more desirable areas such as the Redwood Region.

[21] An unemployment rate of 5.0% is generally considered to be "full employment" or to be even more baroque near the Non-Accelerating Inflation Rate of Unemployment (NAIRU) by economists. For the layperson, an unemployment rate around 5% is generally thought to be the sweet spot. Achieving 0% unemployment is not thought to be possible due to labor market friction— some proportion of the workforce is always shifting between jobs or places in a dynamic economy. A sustained unemployment rate below the NAIRU is thought to contribute to inflation.

In the Redwood Region, barriers to employment appear to be a critical factor contributing to economic hardship and poverty. For instance, rates of disability are sharply elevated across most age ranges[22] in the Redwood Region and those without work between the ages of 25 and 54 are twice as likely (24% vs. 12% statewide[23]) to cite disability as the reason for being out of the workforce while significantly less likely to cite that they could not find a job (see Appendix).

Lack of Full-Time Employment

Workers in the Redwood Region are less likely to work full-time and throughout the year compared to the statewide workforce. Region-wide, 68.0% of workers aged 16 to 64 work more than 35 hours per week, while the comparable figure statewide is 76.5%. Similarly, 32.0% of Redwood Region workers in this age range worked fewer than 50 weeks out of the year while the comparable figure statewide is 22.7%.[24] However, it is not clear to what extent lower full-time employment is due to fewer full-time employment opportunities, workforce barriers to full-time employment, or other structural trends in the economy or demographics that result in more part-time work such as the college student population.

Many barriers exist that restrict equitable access to employment, including provision of public services such as transportation in smaller towns and more remote rural areas in the Redwood Region. As noted by participants who contributed to the Region's Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis participants, programs that provide support services such as childcare or transportation may be needed to provide access for workers for smaller, more remote tribal and nontribal communities. In regional Comprehensive Economic Development Strategy (CEDS) documents, investments in transportation (among other areas) were seen as essential for increasing business opportunities, jobs, development projects, and for generally building greater capacity and resilience.

Occupation Projections and Opportunities

While wages are generally low, there are clear opportunities for growth in select high wage occupations. As shown below, significant demand is expected among several high wage occupational groups, particularly in **management** and **skilled healthcare.**[25] Demand for education, construction, business and finance, and law enforcement, and Science, Technology, Engineering and Mathematics (STEM) occupations is also expected to be strong.[26] Among all

[22] All except 75 years and older.

[23] This estimate only applies to Humboldt, Mendocino, and Lakes counties as Del Norte county data is not available in the CHIS.

[24] Sourced from American Community Survey, Table S2303 2018 - 2022 five-year estimates. Author's calculations.

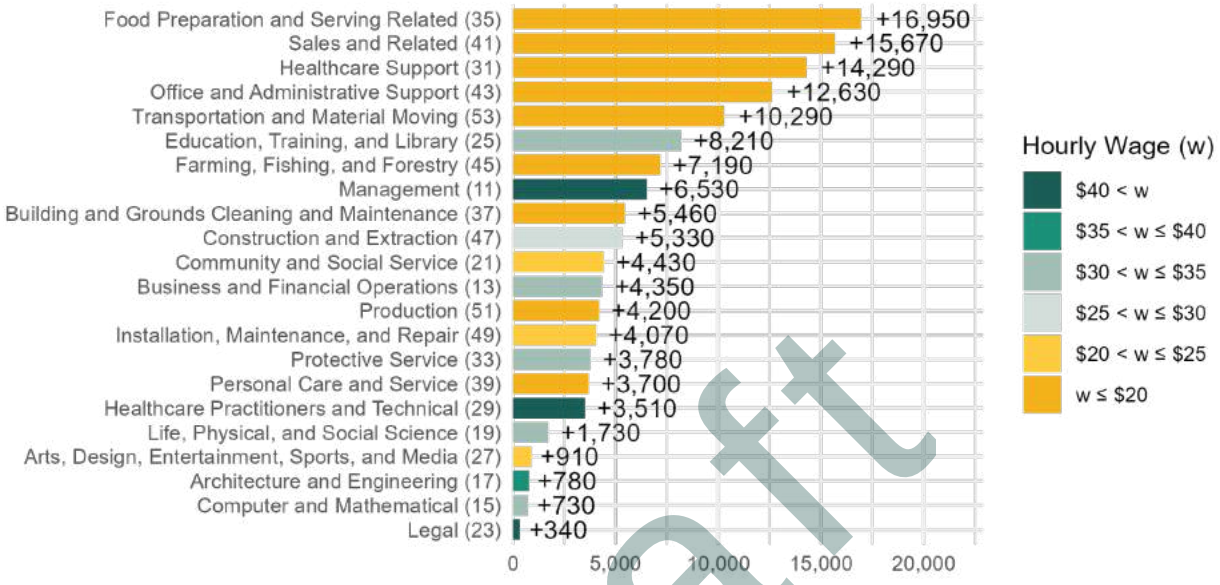
[25] See SOC 11 and 29.

[26] See SOC 25, 47, 13, 33, 19,17, and 15.

occupations paying more than $25, the top three occupations by projected job openings are **General and Operational Managers**, **Registered Nurses**, and **Carpenters**, each of which is expected to have at least one thousand job openings between 2020 and 2030 (see Appendix).

Figure 11

Total Projected Job Openings 2020-2030 by Major Occupation Group (2022)



Note. Data sourced from California Employment Development Department (EDD). Standard Occupation Classification (SOC) code major groups in parentheses.

Displacement Risks and At-Risk Workers

As discussed in the *Industry Cluster and Labor Market Analysis*, workers in low wage occupations such as in **food services**, **customer service**, and **office support fields** are particularly vulnerable to artificial intelligence (AI) and automation. Conversely, workers in fields such as healthcare, construction, and management are expected to be less vulnerable to Artificial Intelligence (AI) while also experiencing strong labor demand.[27]

[27] For example, since the pandemic, many hotels have shifted toward more automated check-in and check-out procedures, reducing the number of staff required. This change, for instance, may have important implications for employment dynamics in the *Arts, Culture, and Tourism* target sector.

Competitive Advantages and Potential Growth Industries

Regional Assets

As discussed in the *Industry Cluster and Labor Market Analysis*, the region's abundance of natural resources is one of its key assets. Agriculture assets support **dairy**, **cannabis**, **wineries,** and forest-products industries. The region's marine and water resources support **scientific research** and **fishing industries**, while the region's unique natural landscapes and cultural attractions support **tourism and hospitality.** Natural and marine resources may also provide significant untapped potential for **renewable energy production** through **biomass** and **wind energy**.

These conclusions are largely congruent with the Collaborative's participatory research activities (see *Strengths, Weaknesses, Opportunities, and Threats* section). The natural beauty and abundant natural resources of the Redwood Region were mentioned often as regional assets and as a source of many economic development opportunities, particularly in the *Working Lands and Blue Economy* sector.[28]

Industries with Competitive Advantage

As discussed in the *Industry Cluster and Labor Market Analysis*,[29] the following industries are identified as potentially having **competitive advantage.** These industries were ranked and selected using multiple factors including indicators of relative economic performance, environmental impact, as well as available infrastructure and workforce resources.[30] As shown below, generally these industries employ a larger proportion of the Redwood Region workforce compared to statewide averages, as indicated by Location Quotients (LQ) greater than one[31] while most are high wage industries. Another key trend is the higher greenhouse gas emissions

[28] Participants noted a high potential for innovation in the Working Lands and Blue Economy sector, for example, including nurturing the region's ecosystem and microbiome assets that open diverse opportunities for emerging industries such as regenerative agriculture. So too, these land-based assets are often tied to the region's cultural assets and the region's original inhabitants and stewards of the land, bringing great potential to apply practices based on traditional ecological knowledge to land, forest, and river management (Tribal governments and nations in the Redwood Region are well known for their work to protect regional assets such as lands, forests, and rivers.) For example, there is significant potential for economic development in river-restoration activities and an expected increase in salmon populations resulting from dam removal on the Klamath River.

[29] *CERF Report Regional Economic Analysis North State, Eastern Sierra, and Redwood Coast*

[30] Factors used to assess competitive advantage included; forecasted employment growth, relative wages, multiplier effects on employment in other industries, productivity, environmental impact, infrastructure support, and workforce readiness.

[31] Location Quotients (LQ), in this case, are calculated by taking the ratio of employment concentration (the percentage of the total workforce in a given industry) in the Redwood Region divided by the state employment concentration in a given industry. For instance, if 10% of the Redwood Region workforce works in Industry A, while 5% of the California workforce works in Industry A, then the Redwood Region LQ for Industry A is two. LQs greater than one indicates regional specialization in an industry and may be an indicator of competitive advantage.

per $1 million of valued added economic activity (indicated by GHG below) among *Working Lands and Blue Economy* industries.

Figure 12

Industries with Competitive Advantage, Redwood Region (2022)

NAICS	Sector Table	Industry	Employment	LQ	Wages	GHG
487	Arts, Culture, Tourism	Scenic and Sightseeing Transportation	379	0.46	$58,610	85,138
712	Arts, Culture, Tourism	Museums, Historical Sites, and Similar Institutions	114	1.24	$41,170	91,028
622	Health & Caregiving	Hospitals	3,999	1.57	$112,027	38,315
623	Health & Caregiving	Nursing and Residential Care Facilities	2,247	1.13	$60,465	15,302
624	Health & Caregiving	Social Assistance	10,739	1.63	$29,034	22,469
23	Renewable & Resilient Energy, Cross Cutting	Construction	10,827	1.29	$65,998	416,669
811	Renewable & Resilient Energy, Cross Cutting	Repair and Maintenance	3,143	1.06	$61,233	2,608
112	Working Lands & Blue Economy	Animal Production and Aquaculture	1,429	7.52	$46,821	3,876,715
113	Working Lands & Blue Economy	Forestry and Logging	931	21.81	$75,548	1,212,313
115	Working Lands & Blue Economy	Support Activities for Agriculture and Forestry	2,743	1.71	$58,921	121,811
311	Working Lands & Blue Economy	Food Manufacturing	1,438	1.05	$50,909	12,391,568

Note. Industry competitive advantage determined by methodology described in *Industry Cluster and Labor Market Analysis*. Greenhouse Gases (GHG) figures were also sourced from this report. Additional data sourced from IMPLAN.[32]

Key Economic Trends

- Region-wide elevated rates of poverty driven by factors such as lower labor force participation and lower wages. Poverty disproportionately impacts disinvested communities.
- Elevated cost of living that is not commensurate with regional wages.
- Lower earnings region-wide, primarily driven by wage gaps in high-skilled higher wage occupations.
- Lower labor force participation, particularly among prime age adults. Barriers to employment are dynamically different from statewide trends, with disability being a strong potential factor.
- There are strong opportunities for high wage occupation growth in skilled healthcare and management occupations, while workers in lower wage customer service occupations are at risk of displacement due to automation.
- Independent analysis supports the Collaborative's emphasis on target sectors[33] as economic development opportunities.

[32] Calculations of location quotients (LQ) and Sector Table classifications performed by CCRP.

[33] See Sector Tables in Figure 12.

Public Health Summary

The following presents a high-level summary of the accompanying report presented in the *Public Health Analysis*.[34] Please see the full report for a comprehensive public health statistics and analysis.

Causes of Health Disparities Across the Region

The Redwood Region experiences significant health disparities when compared to California as a whole. These disparities include elevated premature death rates, disability rates, and behavioral risk factors. Key determinants contributing to these disparities are high rates of **tobacco use,**[35] **substance abuse,**[36] and **mental health challenges,**[37] leading to consequences such as lung cancer, respiratory diseases, motor vehicle deaths, drug-induced[38] and liver diseases, and suicides (see figure below).

[34] *California's Redwood Region: Exploring the Roots of Health Disparities*

[35] Tobacco use in the Redwood Region is nearly twice as high as the state rate among adults 18 to 54 (20% compared to 11%). Twice as many high school juniors in the Redwood Region have recently smoked compared to the state average (4.2% compared to 2.0%).

[36] Multiple indicators reveal higher levels of substance use from indicators of use (e.g., heavy drinking) to indicators of outcomes of use (e.g., liver disease). See *Public Health Analysis*.

[37] In the Humboldt, Mendocino, and Lake counties, 22% of adults 18 to 54 have seriously considered suicide compared to 14% statewide.

[38] Fentanyl overdose deaths are particularly severe having risen from four deaths in 2018 to 141 in 2022. Fentanyl deaths account for more than half of all drug overdose deaths in the Redwood Region in 2022.

Figure 13

Age-Adjusted Mortality Rates per 100,000 (2019 - 2021)

	Lake	Del Norte	Humboldt	Mendocino	CA
Accidents (Unintentional Injuries)	135*	78*	74*	106*	43
All Cancers	170*	182*	173*	160*	125
Drug Induced Deaths	78*	30	37*	56*	21
Chronic Lower Respiratory Disease	49*	57*	45*	32	26
Lung Cancer	41*	48*	33*	31*	22
Chronic Liver Disease and Cirrhosis	54*	31*	25*	17	14
Suicide	24*	26*	20*	24*	10
Motor Vehicle Traffic Crashes	30*	19	16*	29*	11
Coronary Heart Disease	112*	66	98*	98*	79
Prostate Cancer	19	35*	29*	24	18
Firearm Related Deaths	12	17*	14*	14*	8
Female Breast Cancer	20	21	26*	19	18
Colorectal Cancer	14	15	13	16*	12
Cerebrovascular Disease (Stroke)	32	41	98*	35	37
Homicide	7	7	8	9	6
Influenza and Pneumonia	11	22*	8*	12	12
Diabetes	15*	43*	22	20	23
Alzheimer's Disease	15*	14*	14*	13*	37

Difference from State (X)

- 90 < X
- 60 < X ≤ 90
- 30 < X ≤ 60
- 5 < X ≤ 30
- 0 < X ≤ 5
- X ≤0

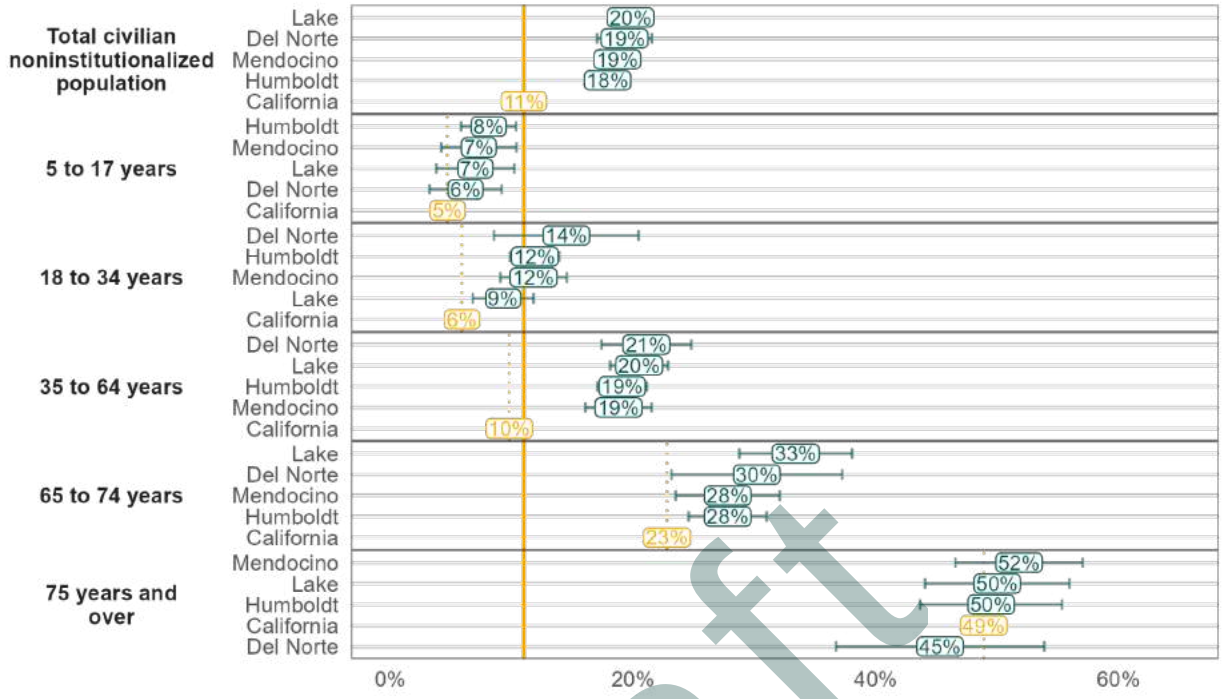
Note. Data sourced from the California Department of Public Health and the California Conference of Local Health's *County Health Status Profiles* report data.[39]

Disability rates are significantly higher than state averages, even among young adults aged 18 to 34. Among young adults 34 years and younger, **mental health and substance use**-related issues are the leading cause of years lived with disability (National Center for Complementary and Integrative Health). Moreover, as discussed previously, disability appears to be a critical barrier to labor market participation in the Redwood Region.

[39] The color scale denotes differences (X) between the region's mortality rate and the corresponding state rate. Gold and yellow indicate higher mortality rates compared to the state. Asterisks (*) denote a statistically significant difference compared to the state rate. None of these causes include deaths where COVID-19 is the underlying cause of death. According to the California Department of Public Health (CDPH), "Deaths where COVID-19 was coded as the underlying cause of death are only included for all causes of death and are not included in any of the specific mortality health indicators. However, deaths where COVID-19 was listed as a significant condition contributing to death but not the underlying cause of death may be included for these health indicators" (2022).

Figure 14

Disability Rates by Age Range (2018 - 2022)



Note. Data sourced from the American Community Survey.

Social Determinants of Health

The region experiences adverse disparities in social determinants associated with tobacco use, substance abuse, and mental health challenges including high rates of poverty, homelessness, loneliness and isolation, adverse childhood experiences, and lower educational attainment and lower access to healthcare. As discussed previously, rates of poverty and homelessness are higher than state trends, while higher educational attainment is lower. As shown in the *Public Health Analysis*, more adults live alone (18% compared to 12%) have had multiple Adverse Childhood Experiences (ACEs[40]) (33% compared to 22%). Populations impacted by these social determinants are at higher risk of mental and behavioral health challenges. For instance, nearly half (45%) of the Redwood Region adult population with four or more Adverse Childhood Experiences (ACEs) has seriously considered suicide and over one quarter (27%) of people living below the poverty line are current smokers.

[40] As discussed in the *Public Health Analysis*, Adverse Childhood Experiences (ACEs) include abuse and neglect as well as dysfunction in the household including mental illness, problematic substance use, violence against mothers, or imprisonment of a household member.

As illustrated in the *Public Health Analysis*, most of the region is a Health Provider Shortage Area (HPSA[41]) and the entirety of the region is a mental health HPSA. The Redwood Region population is significantly more likely to have recently delayed care compared to state averages (18% compared to 13% statewide), disproportionately impacting people with low incomes or mental health challenges.[42] Moreover, the region is projected to need an additional 2,420 behavioral health workers[43] by 2027 (Cal Poly Humboldt, 2023) and expected to have 1,090 registered nurse job openings between 2020 through 2030 (see Appendix). These needs present both a challenge and opportunity for growth in skilled high wage occupations in the *Health and Caregiving* target industry.

Impact of Health Factors on Disinvested Communities

Disinvested communities within the region face even more pronounced disparities in health outcomes and factors. Communities of color exhibit higher rates of premature death, poor health, poverty, limited educational attainment, increased adverse childhood experiences, and limited access to nutritious foods.

Lesbian, gay, and bisexual communities experience elevated smoking and alcohol consumption rates, suicidal thoughts, poverty, adverse childhood experiences, domestic violence, deferred medical care, and health impacts from adverse weather events. Alarmingly, half of this community has seriously contemplated suicide.

Individuals with disabilities in the region face higher rates of poor health, increased smoking, poverty, lower levels of educational attainment, isolation, restricted access to healthy food, and deferred medical care.

There are also disparities in access to healthcare, disproportionately affecting lower-income individuals and those with mental health challenges. Furthermore, people without citizenship, lower levels of educational attainment, AIAN, Hispanic, and unemployed people are more likely to be uninsured (see the *Public Health Analysis*).

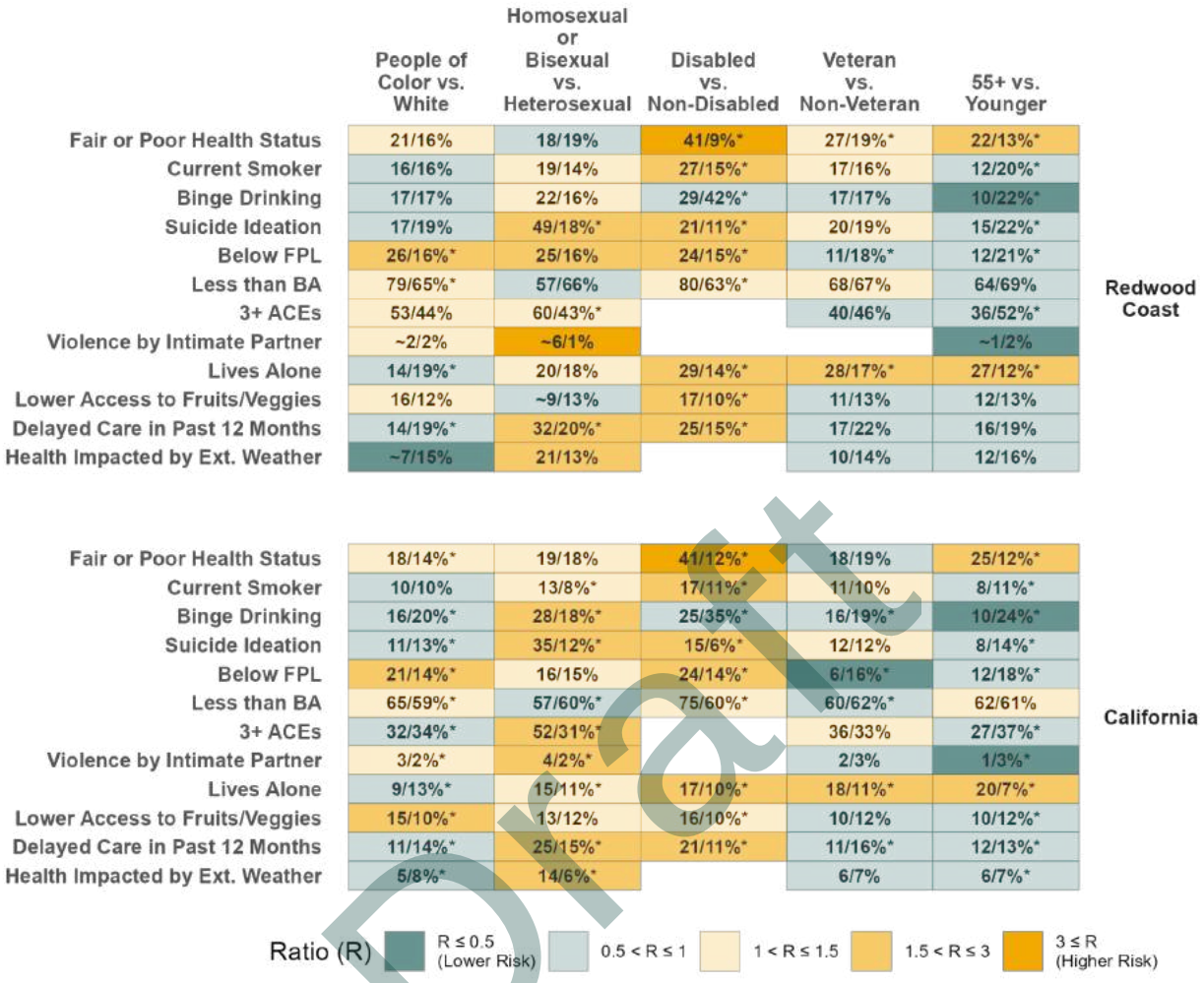
[41] HPSAs are areas defined by U.S. U.S. Department of Health and Human Services (HHS) as having a shortage of primary care, mental health, or dental health providers. See the *Public Health Analysis* for a discussion of HHS methodology.

[42] Delayed care is even greater among those with lower income (20% compared to 13% statewide). Among adults who have seriously considered suicide at some point in their lives, 42.5% (± 5.0%) have delayed care in the past 12 months compared to just 16.4% (± 2.4%) of Humboldt, Mendocino, and Lake county adults who have never considered suicide. CHIS data are not available for Del Norte.

[43] These include a broad range of health workers including substance use disorder counselors, marriage and family therapists, and psychiatrists.

Figure 15

Comparative Analysis of Demographic Disparities in Health Factors (2011 - 2022[44])



Note. Data sourced from the CHIS. (*) denote statistically significant differences and (~) denote unstable estimates.[45]

[44] The figure offers a visual comparison of health outcomes and factors across demographics. Each column illustrates the differences between two populations. As an example, the first column contrasts the health factors of people of color to the white population. Gold shades denote adverse disparities for the primary population relative to the reference group. A specific observation reveals that, in the HML region, 26% of people of color live below the poverty line, in contrast to 16% of the white population.

[45] It is possible that an estimate can be unstable and simultaneously significantly different. Missing values not shown. Years are selected based on all available years from 2011 on. Binge drinking is either "Binge Drinking in Past Month" or "Binge Drinking in Past Year" depending on data availability.

Priority Public Health Challenges

The report highlights the following priority health challenges for the region. See the *Public Health Analysis* for further detailed analysis of health outcomes, risk factors, social determinants of health, and policy recommendations.

1. Smoking Prevention, Education, and Cessation
2. Substance Use Prevention and Treatment
3. Suicide Prevention and Access to Mental Health Care

Climate and Environment Summary

The following includes high level summary materials of the accompanying reports in *Public Health Analysis* and *Climate Analysis.*[46] Please see the full reports for a comprehensive climate and environment data and analyses.

Sources and Impacts Pollution and Hazardous Materials

The region's overall pollution burden is generally low compared to statewide trends (see *Overall Pollution Burden* below). Nevertheless, certain types of pollutants or environmental risks are elevated, while some communities of the region are more impacted than others. These risks include environmental risks that can imperil water resources (e.g., drinking water and fish contamination) such as *Solid Waste Sites,*[47] *Groundwater Threats,*[48] *Hazardous Waste Generators,*[49] and *Clean Up Sites*[50] as well as factors that put children at risk for lead poisoning. Despite low levels of human-caused air pollution, wildfires pose a critical risk to air quality, health, and prosperity in the region (see *Public Health Analysis* and *Climate Analysis*).

[46] *Climate Analysis*

[47] Facilities (e.g., landfills, composting or recycling centers) where household garbage and other similar waste is collected, processed, or stored (*OEHHA,* n.d.).

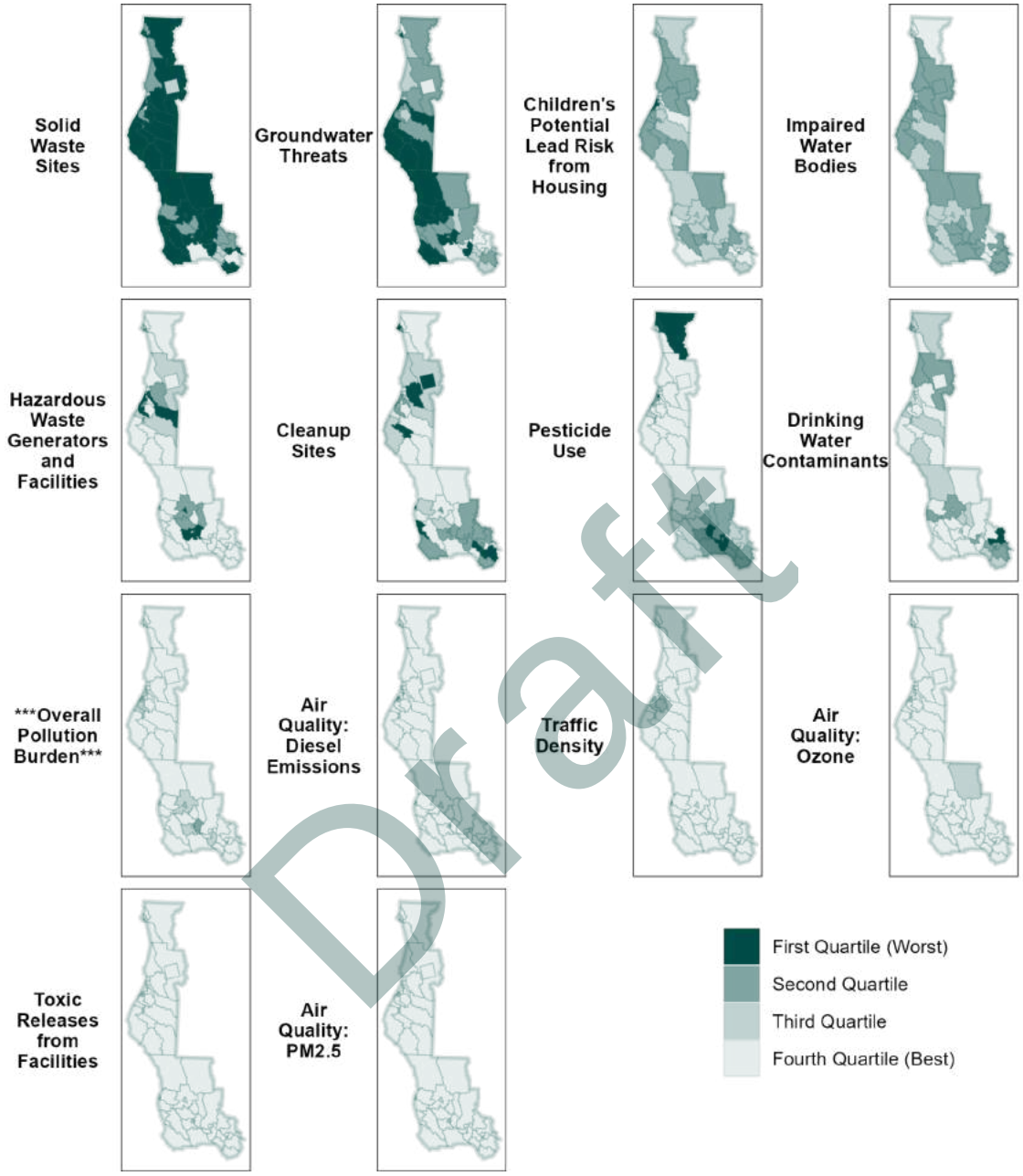
[48] Hazardous chemicals stored or disposed of via storage tanks with the potential to contaminate soil and groundwater (*OEHHA,* n.d.-a).

[49] Facilities that create hazardous chemicals (i.e., hazardous waste) through commercial or industrial activities. These chemicals are transported to regulated facilities for treatment, storage, and/or disposal (*OEHHA,* n.d.-b).

[50] Locations with a history of mismanaged hazardous material or accidental spills or leaks.

Figure 16

CalEnviroScreen 4.0 Indicators (2023)



Note. Data sourced from CalEnviroScreen 4.0. Each Census tract is ranked compared to all other Census tracts in the state. Those in the first quartile (dark emerald) are among the worst 25% of Census tracts in the state. Those in the fourth quartile are among the best 25%.

Risks to Water Quality

Most of the region has drinking water contamination (see *Drinking Water Contaminants*[51] above) levels comparable to state trends, however, the region's water bodies (see *Impaired Water Bodies*[52]) are typically more likely to be polluted compared to statewide trends indicating a potential threat to drinking water quality.[53] Runoff or surface materials picked up by moving bodies is a critical source of water pollution in the region. Agricultural activities, erosion from timber harvesting, construction and roadways can contribute to surface pollution that ultimately accumulate in water bodies. The region's substantial cannabis industry also has an impact on the local environment. Water contamination, streamflow reductions due to water diversions, and poisoning of wildlife have been linked to cannabis production in the region (Carah et al., 2015). Additionally, there are hundreds of sites in the region potentially putting water quality at risk including cleanup sites, and underground storage tanks, putting groundwater sources at risk. Most of the region has above-average *Groundwater Threat* levels compared to state trends.

Impacts of Water Pollution

Contaminated surface waters pose a particular risk to public health as the region's drinking water primarily comes from these sources. Moreover, high levels of pollutants such as mercury can lead to fishing advisories, potentially impacting recreational activities and fishing-related industries— potential threats to *Arts, Culture, and Tourism,* and *Working Lands and Blue Economy*. Communities that depend on fish such as tribes may be disproportionately impacted.

Rivers and streams are primarily impacted by elevated levels of sediment and aluminum. Sediment can accumulate resulting in shallower water bodies, increasing the risk of flooding. Elevated levels of sediment can also increase the cost of processing drinking water from these sources.

Sources of Hazardous Waste

Most of the region has fewer *Hazardous Waste Generators and Facilities*[54] compared to statewide trends, however, populated areas surrounding Ukiah and near Humboldt Bay appear to have higher levels.

[51] Chemicals, bacteria, other pollutants from natural or human sources that are harmful when ingested (*OEHHA*, n.d.-c).

[52] Bodies of water, including streams, bays, rivers, and lakes, that are used for recreation, fishing, drinking, and have been contaminated by pollutants (*OEHHA*, n.d.-d).

[53] See the *Public Health Analysis.*

[54] *Hazardous Waste Generators and Facilities* include retailers that sell product potentially hazardous materials such as bleach, paint, pesticides, aerosols, and pharmaceuticals as well as Pacific Gas and Electric, forest product companies, and healthcare facilities.

Impacts of Hazardous Waste
While in most areas there are lower levels of hazardous waste generators compared to the state, the region's more severe wildfires impacting such sites can lead to risk of exposure to first responders and the public.

While overall *Clean Up Sites* are less common region-wide, the incidence of such sites is uneven. *Clean Up Sites* tend to be located in lower income areas and people living near these sites are at greater risk of harm (e.g., Hoopa).

Air Pollution and Wildfires

As discussed in the *Climate Analysis* report, natural sources, particularly wildfires, are by far the single most significant contributor to overall air pollution.[55] Of non-natural sources, the dust stirred up along the region's rural unpaved roads contribute substantially to particulate matter emissions. Residential fuel use (particularly wood fires) as well as managed burns are also major contributors to overall air pollution.

While indicators of overall air pollution are low relative to state trends, wildfires are a more critical risk for the region compared to the state as a whole and as discussed in the *Public Health Analysis* and Appendix, this appears to have substantial impacts on the health and prosperity of the region.

Lead Exposure in Children

As discussed in the *Public Health Analysis,* exposure to lead through lead-based paint in older housing is the most significant source of lead poisoning in children. Children's estimated risk of exposure to lead from housing is elevated in many areas of the region, particularly in the Humboldt Bay area and the more urbanized areas of Del Norte and Mendocino Counties. Moreover, children 5 and younger in Humboldt and Lake counties have elevated blood lead levels compared to the state average (6.7% and 3.3%, respectively compared to 1.9% statewide).

Critical Environmental Risk Factors

1. Potential for ground or surface water contamination
2. Wildfires
3. Lead exposure in young children

[55] Vehicles make up the largest emitter of NOX, particularly off-road equipment.

Sources of Greenhouse Gas (GHG) Emissions

As discussed in the *Climate Analysis*, there are major greenhouse gas emission data gaps in the Redwood Region highlighting the need for the region to conduct a comprehensive emissions inventory for data-informed emissions planning purposes.[56] What data are available suggest that the residential energy use followed by transportation are the largest anthropogenic emitters of greenhouse gasses in the Redwood Region. However, the largest overall source of greenhouse gases in the Redwood Region is likely wildfires (see the *Climate Analysis*[57]).

Among target sectors, data from *Industry Cluster and Labor Market Analysis*, suggest that relative to economic value added, *Working Lands and Blue Economy* industries have the highest output of greenhouse gas emissions among the target industry sectors (see Figure 10 previously).

Anticipated Climate Impacts

As discussed in the *Climate Analysis*, the region's future climate is projected to exhibit greater levels of heat along with changing precipitation patterns that result in both more extreme precipitation events and longer dry periods.[58]

Wildfires

This combination is expected to increase atmospheric evaporation leading to drier conditions and lead to higher wildfire risk. Across the region, summertime high fire risk days and total wildfire area burned are expected to increase markedly by midcentury, exacerbating an already heightened risk to health, life, and property. Total wildfire burn area is expected to rise between 29% in Lake County and as much as 213% in Del Norte.

Landslides

An intensity of rainfall during wet seasons will increase the likelihood of flooding and landslides within the region. Landslides threaten residents and housing, as well as critical infrastructure, including but not limited to, transportation networks, water and sanitation systems, and communication networks. Landslides can negatively affect the habitats of local wildlife. For example, elevated sediment deposits due to landslides may accumulate in streams or rivers. These deposits can degrade spawning habitats for fish and reduce the diversity of their food source (California Energy Commission et al., n.d.), a potential threat to *Working Lands and Blue Economy*.

[56] While some limited greenhouse gas emissions estimates are available, they should not be used for planning purposes according to the *Climate Analysis*.

[57] Statewide, wildfires were the second largest contributor to GHG emissions in 2020, offsetting previous efforts to reduce GHG emissions (Jerrett et al., 2022).

[58] However, total annual average precipitation is expected to be similar or slightly higher.

Heat

As discussed in the *Climate Analysis*, greater heat also increases the need for indoor cooling. The number of days per year potentially requiring home cooling is projected to rise substantially across the region.[59]

Sea Level Rise

Coastal communities in Del Norte, Humboldt, and Mendocino counties are projected to experience varying impacts of sea level rise. Coastlines such as areas around Crescent City that have low slopes are particularly vulnerable to sea level rise, where even a small level of sea level rise can result in substantial loss of shoreline. Humboldt Bay is a particularly vulnerable area, not only in the Redwood Region, but along the entire West Coast. This area is projected to experience up to 1.5 feet of sea level rise, exacerbated by sinking land.

Impact on Disinvested Communities

Some communities in the Redwood Region may be particularly vulnerable to the potential impacts of climate change. Economic barriers experienced by people with low incomes can result in insufficient shelter or lack of mobility during extreme weather events. Children, seniors, and people with disabilities may also be at higher risk potentially related to age, illness, isolation, or dependence on caregivers or medical equipment. Power outages can also adversely impact the health of individuals reliant on air conditioning, refrigerated medicines, or electronic medical equipment (see the *Climate Analysis*). Moreover, the region is aging, rates of disability and poverty are elevated, and far more of the region's population lives alone compared to the state, indicating such vulnerable populations are substantial in the Redwood Region (see the *Public Health Analysis*).

Tribal populations within the region disproportionately face several climate-related threats, including food and water insecurity, limited access to traditional foods, and loss of culturally vital plant, fungi, and wildlife (Bull Bennett, et al.). Impacts on freshwater resources is a particular concern for Tribal communities that depend on said resources for drinking, fisheries, and cultural activities. Climate impacts to culturally significant species and habitats can detrimentally affect social and cultural components to Tribal communities (California Energy Commission et al., n.d.).

[59] While Del Norte is expected to experience only a modest increase in such days, Humboldt which historically had fewer than 1 such day per year is expected to have on average 8.6 days by midcentury. Similarly, Lake's figure is expected to rise from an average of about 21 days per year to about 54 and Mendocino is expected to rise from 9 to 24.

Potential Climate Change Impacts on Targeted Industries

As discussed in the *Climate Analysis*, these climate impacts may have the following impacts on the region's targeted industries:

Allied Health and Caregiving

- Increased need for healthcare during extreme events (e.g., wildfires, floods, heat).

Working Lands and Blue Economy

- Changing weather patterns may impact agricultural and natural resource productivity.[60]
- Sea level rise or algae blooms may disrupt maritime industries.

Arts, Culture, and Tourism

- Degradation of culturally important landmarks, sites, and infrastructure.
- Flooding, wildfires, and algae blooms may decrease tourism.

Renewable and Resilient Energy

- Increased need for building cooling during heat waves.
- Need for reliable energy sources during heat waves, wildfires, and storms.
- Sea level rise may damage infrastructure.

Strengths, Weaknesses, Opportunities, Threats Analysis

SWOT Methodology

To better center community voice, lived experience, local expertise and resident perceptions of issues and their causes, the RRRISE research team opted for a mixed methods approach to assessing the region's Strengths, Weaknesses, Opportunities, and Threats. This SWOT uses a "concurrent nested approach"- meaning the qualitative data generated by the community leads the research, while the quantitative analysis of publicly available data is primarily used to substantiate the observations and causal relationships put forward by those research participants. Complementing these efforts were two rounds of surveying (March-June 2023: n=97, July-November 2023: n=132), sampled from both Collaborative partners and the broader community, querying respondents on their priorities, challenges, and aspirations for the RRRISE Collaborative (results from these surveys are reviewed in depth in the Partner Mapping report).

[60] Increasingly arid conditions, along with less reliable water supplies and deficits in soil water, will negatively impact crops and pastures (California Energy Commission et al., n.d.).

Data Sources:

1. Participatory SWOT exercise with the Redwood Region RISE Collaborative members: 50 members participating in person (Ukiah Conference Center, 9/16/23), 71 participants via Zoom.
2. Listening Campaign: 124 participants engaging in semi-structured, multipurpose conversations focusing on key priorities, challenges, opportunities, partnerships, and interest in engaging with CA Jobs First. Participants came from a broad range of organizations and sectors. Research contributors also included unaffiliated residents interested in the initiative (roughly 25% of research participants). Conversation ranged from 30 minutes to two hours in length, and topics covered were driven by respondents' interest and priorities.
3. Review and synthesis of the Industry Cluster, Labor Market, Public Health, and Partner Mapping Analyses; and the Economic Regional Summary information found above.

Additionally, researchers consulted the regional planning documents identified by the Collaborative. These include:

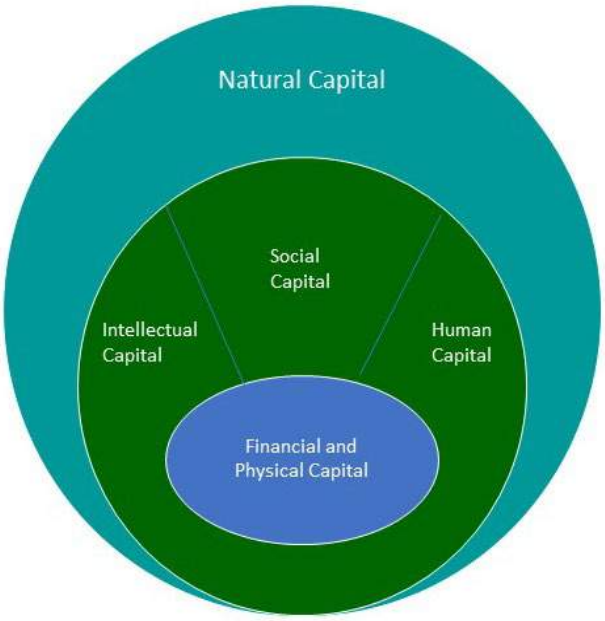
Document Type	Strategic Plan title	Approximate Date Produced
Comprehensive Economic Development Strategies (CEDS)	County of Del Norte	2019
	Crescent City Economic Development Strategic Action Plan	2021
	Humboldt CEDS	2018-2023
	Lake CEDS	2016
	Mendocino/Sonoma CEDS	2022
	MOVE2030: Community plan	March 2021
	MOVE2030: Economic Resiliency plan	March 2021
Tribal CEDS	Hoopa Valley Tribe	2016-2020
	Karuk Tribe Comprehensive Economic Development Strategy	2021
	Wiyot Tribe Strategic Plan 2020-2024	2019
	Yurok CEDS	2017

Transportation Plans	Caltrans District 1	2021
	Del Norte Regional Transportation Plan	2020
	GHD-County of Humboldt, Planning Department	2021
	Humboldt County Transit Development Plan (2023-2028)	2023
	Lake County Regional Transportation plan/Active Transportation Plan	2022
	Lake County Transit Development Plan - 2023 Update	2023
	Mendocino County Transit Development Plan	2022
Climate Strategy Documents	Hoopa Valley Tribe Strategic Energy Plan	2016
	Humboldt Regional Climate Action Plan	2021 (draft)
	Karuk Climate Adaptation Plan	2019
	Toma Resilience Campus	
	Yurok Tribe Climate Change Adaptation Plan	2014
Workforce Development	Del Norte County Labor Market Profile and Industry Sector Analysis	2019
	Lake County Labor Market Analysis & Strategy	2023
	Mendocino County Labor Market Analysis & Strategy	2023

To provide structure to the analysis below, RRRISE researchers used a composite framework loosely derived from different versions of the popular Five Capitals Framework[61]:

[61] See for example Maria Maack, Brynhildur Davidsdottir, Five capital impact assessment: Appraisal framework based on theory of sustainable well-being, Renewable and Sustainable Energy Reviews, Volume 50, 2015, Pages 1338-1351, ISSN 1364-0321, https://doi.org/10.1016/j.rser.2015.04.132.

The Region's Strengths, Weaknesses, Opportunities and Threats



Human and Intellectual Capital

Community members celebrate the independent spirit of the North Coast, noting the cultural richness, "scrappiness," and deep connection to the land and environment. An aging population, brain drain, lack of opportunity for youth, and skilled workforce shortages were pain points brought forward in listening sessions. Better channels to connect young and marginalized people to their aspirations are all desired. In particular, creating opportunities for fulfilling careers in environmental fields is seen as a way to celebrate the traditional ecological knowledge held in the region by tribal cultures, diversify away from natural resource extraction, and uplift eco-innovation which is a strength of local educational institutions and entrepreneurs.

Strengths	**Weaknesses**
● Independent, resilient, "scrappy," self-reliant, innovative, "out of the box" thinkers and doers. ● Deep connection to land, younger people desire to work outdoors and live in a way that is supportive of and by the environment. ● Original stewards of these lands are still here. There is great interest in applying Traditional Ecological Knowledge to solving climate and environmental threats. Many other cultures and cultural movements call the region home and create potential for more development in the creative sector. ● Community College networks and Cal Poly Humboldt create educational	● Labor shortages and skills gaps create bottlenecks and limit opportunity for the region at large. This is most egregious in health and caregiving fields but also in skilled trades and professional services across various industries. ● The Region has some of the most troubling mental health outcomes in the state. Generational, historic, and childhood trauma are startlingly prevalent. Correspondingly, mental health issues including substance use, depression, suicidal ideation, and anxiety abound. ● These mental health issues are associated with cognitive disabilities, attrition from the workforce, low income, social alienation, housing instability and other

opportunities for residents, and are currently expanding their reach across the region.	interrelated challenges.
Opportunities ● Recently established Polytechnic can help drive more innovation in key sectors, particularly related to sustainable, eco-based industries. ● Historic and growing emphasis on "grow your own" workforce strategies and establishing CTE and other career pathways for young people. Major investments in Cradle to Career programs established over the last three years. ● Expanding broadband access and grid connections could bolster opportunities for remote workers.	**Threats** ● Rising cost of living, housing scarcity, lack of training opportunities and low incomes continue to squeeze working families, and drive young people to seek opportunity elsewhere. ● Competition from urban regions exacerbates local struggles to maintain workforce in health-related fields (Brain Drain).

"We need to address two things: the shortage of educated individuals and the scarcity of positions that don't require extensive education"

Workforce shortages, skills gaps, and access to training are widespread problems impacting most key industries and resident wellbeing. Higher educational attainment lags behind the rest of the state, contributing to lack of skilled workforce (though high school graduation rates are higher, see Figure A.7 in the Appendix). Those with the highest education and in the highest skilled occupations face the most substantial proportionate wage gap. Out migration is led by those with the highest incomes and graduate degrees. In other words, despite critical shortages in skilled careers, those professionals are leaving the region to pursue their careers elsewhere (See Figures 43 through 45 in *Redwood Region, California Indicators Report*).

With respect to prospective industries like offshore wind and aquaculture development, preliminary data analysis indicates that labor shortages for occupations like electricians and construction workers number in the 1,000s. Listening session participants often emphasized "grow your own" workforce strategies, focused on enriching and expanding training opportunities existing within the region rather than increasing access to programs outside, which are viewed as a source of attrition of regional workers particularly in trades occupations.

"When they are doing their training they can make more money in places like Santa Rosa, so they don't come back."

At present there are no union training centers in the Redwood Coast Region, so apprenticeship requires leaving the area. Regionally situated unions expressed interest in partnering with North Coast organizations to create more opportunities for use of their mobile training unit which can provide basic construction skills education on location.

Medical and Caregiving Occupations: There are acute shortages of medical personnel in virtually every specialization and profession- primary care, specialists, behavioral health, dental- and more. While pathway approaches are being created and strengthened, the struggle to retain recruits is also problematic. A recent report on the region's behavioral health workforce noted that there are currently 1,900 individuals employed, which is 950 workers short of what is required to meet the mental health and substance use treatment services needed in the region.[62] Additionally, 990 behavioral health workers are anticipated to leave the field in the next five years via retirement, career change, or outmigration.

Career Technical Education and Career Pathways: Over and over, research participants expressed anxiety that the Redwood Region is not a place of opportunity for young people. Participants noted insufficient skills building, career technical education, and workforce development happening in high schools, that local educational institutions are not adequately preparing students for the workforce, especially for the industries of the future.

These trends, observed alongside critical labor shortages, signal an opportunity for the Redwood Region. Expanding Career Technical Education (CTE) was a recurring theme offered by residents, and there is some momentum growing with K-16 being established in the Region and other Cradle to Career programs. Increasing trade and vocational training opportunities and apprenticeships are seen as a strategy to retain young people in the area. Partners from building trades careers noted that there were once more hands-on learning opportunities in the local high schools, and many have the infrastructure to revive that curriculum, however finding instructors to teach CTE classes was a barrier that caused high schools to abandon their programs (respondents from both Del Norte and Humboldt counties noted). Tribal members expressed support for creating training centers, especially heavy equipment operators (one such center is proposed for the Orick area with the Yurok Nation in the lead).

Innovation and Technology:

"If you have tech innovations developed and applied locally it helps support the local workforce, and if they can be exported then it helps the economy grow."

[62] 2023 North Coast Behavioral Health Workforce Needs Assessment.

Having the newly anointed Cal Poly Humboldt university in the region is a crucial engine for growth, respondents expressed (though less felt in distant Lake County). In 2023, the Redwood Region's only four-year university became the state's third polytechnic- Cal Poly Humboldt. Residents associated this development with the potential for upskilling the workforce and attracting "new minds" to the region. The Collaborative would like to see Cal Poly, particularly its applied science departments create more positions for students in the community- hands on learning and apprenticeships were mentioned. Participants also brought up opportunities to create stronger pathways for students connecting Mendocino College, College of the Redwoods, Cal Poly Humboldt and then on to emerging industries. There is optimism about the expansion of the University, new opportunities to commercialize ideas coming from its research, and helping leverage its innovation engine to benefit the region at large.

Figure A.13 in the Appendix gives an overview of key innovation criteria.

Mental health and well being, soft skills development- An epidemic of mental health issues and their comorbidities, which result in disability and attrition from the workforce, concern economic development planners and community members alike. Shortages in providers and facilities to provide intervention and care are barriers to better outcomes. Other issues which inhibit residents from accessing the supports they need include siloed provider networks, transportation barriers, fear of stigma that comes with pursuing mental healthcare in a small community, and complexity when trying to navigate a fragmented system of care.

"[Workforce Initiatives need to understand] barriers like transportation, childcare, housing…understand the holistic approach that is needed. It takes working with regional partners, and looking at larger problems."

Workforce development partners noted the need for a holistic approach in order to overcome the barriers community members are facing in their working lives. The essential strategy is to "get people into jobs, and then make sure that they progress up to a livable wage," but as one respondent noted, disruptions like COVID and wildfires make this linear progression difficult for everyone.

Because such a large segment of the workforce has been employed in an industry (cannabis[63]) that was once illicit and retains a good deal of informality in its working culture, capable workers struggle to "punch a clock" and work under conventional rules and norms. Another issue impacting workers' soft skill set is trauma- providers in particular noted the need for assistance

[63] There isn't reliable employment data for the cannabis industry (see *Industry Cluster Analysis*), but the effects of its recent collapse are easily witnessed in the communities who relied on it, as detailed in this article featuring RRRISE Equity Council Member: https://calmatters.org/economy/2023/02/emerald-triangle-cannabis-workers/.

with issues like managing workday stress and interpersonal issues. As data reveals, the region has low prime-age labor force participation, which is attributed to these factors (Figure A.11).

Opportunities and Barriers for Remote Workers: Despite the preference for "grow your own" approaches, there's a widespread acknowledgment that the aging and diminishing population poses challenges. With its scenic landscapes and abundance of outdoor recreation opportunities, the region could attract and retain more skilled young people if it were easier to maintain remote work. Economic development partners' workforce development strategy employs three approaches: "Build, Attract, and Retain." Increased investment in broadband infrastructure could help achieve this, and bolster digitally based economic activities and entrepreneurship generally. A Lake county participant noted that despite the destruction from catastrophic wildfire (2015-17), they are still experiencing in-migration from urban areas, which is a source of optimism. Many in the region believe that the favorable climate, coastal clean air, and access to abundant water will make this a destination for climate migrants.

Social and Relational Capital

"The lack of institutions to do this work. That is our primary [economic development] problem."

"People want to work with each other and are invested in the community."

"In a rural community, capacity is a HUGE issue. We hear this all the time from city and tribal planners… most organizations are treading water; we can't keep up with the current workload"

Strengths	**Weaknesses**
● Innovative social programs combat disconnection and disinvestment with connection, belonging, and resources. ● Human-centered perspective on economic well-being: economic development practitioners center the needs of people-housing, healthcare, purpose, and opportunity- as opposed to hyper focus on standard economic indicators. ● Appetite for regional partnerships ● Strong and engaged Community Colleges finding innovative ways to expand workforce training opportunities.	● Negative perceptions of working culture include observations of low quality and unsustained cooperation, lack of collective vision, fear of success and a "dream small" mentality, egos, grudges, scarcity mindset, and mistrust. A fear of failure means professionals do not take the risks needed to move the needle forward on key issues. ● Few young professionals to "pass the torch to," lack of diversity in current leadership of the public sector.

Opportunities	Threats
● Better partnerships to strengthen training offerings, esp. in natural resource careers, offer local apprenticeships ● Community benefit agreements ● Community is motivated to enhance B2B activity, create business incubators and general support to entrepreneurs and small local businesses.	● Brain Drain. ● Lack of resourcing to support nascent partnerships; provide backbone support to networks and collaborations.

Working Culture: A surprising result of the participatory SWOT research session with Collaborative members was the frequent emphasis placed on the region's working culture, particularly in the public sector and economic development space. Cultural and organizational barriers were mentioned frequently and included: low quality cooperation, unsustained cooperation, lack of a collective vision, fear of success and a "dream small" mentality, egos, grudges, scarcity mindset, and mistrust. The most frequently mentioned issue for organizations was capacity, but working in silos, duplicative economic development efforts, and not enough depth of experience in economic development were also mentioned. Related, participants note a dearth of energized leadership and lack of succession plans to empower young up and comers. One of the consequences of this is a lack of professionals to "pass the torch to." Capacity constraints impact collaboration and innovation, according to listening session participants.

"It's difficult to get agencies to pivot or try something new, even if it's to their benefit."

Partnerships: There are opportunities to be had with enhanced collaboration between economic development agencies, and by establishing and strengthening cross industry partnerships.

"We assume that NGOs have those connections to the community and business, but we often find that our nonprofit organizations are very siloed."

The accompanying partner mapping report gives in depth analysis of the Region's and Collaborative's organizations; and their relationships and capacity to carry out development work and influence outcomes. Some key findings include:

- Most organizations are small (42% report 0-5 staff members) and work at the county level.
- Many serve priority communities, however relatively few work with non-Federally recognized tribes, unions, or the Hmong community.
- Few organizations explicitly working on Environmental Justice exist, and there is relatively little union presence. Therefore, there are fewer partnerships reported with these types of organizations.

- The predominant partner category within the Collaborative is grassroots and community-based organizations (34%).
- At present RRRISE's reach includes over 900 organizations and individuals in the Region.

Capacity constraints are a persistent theme for the Region. In particular, lack of economic development planning capacity impacts jurisdictions across the region- "everyone is spread really thin," was heard repeatedly. Good initiatives struggle to secure capital, navigate pre-development, and move into implementation. In particular, there is a lack of organizations who can serve as backbone support to convene those desirable collaborations that break down silos. The relative lack of professional organizations in the region inhibits innovation and growth across sectors and industries, and likely impacts the ability of leaders from disinvested and marginalized groups to attain leadership positions and influence outcomes.

Challenges identified in economic planning include a historical lack of planning infrastructure in rural areas, reallocation of resources after disasters, staff turnover, lack of funding and data, the need to prioritize mandates, community resistance, and rapid shifts in the economic development landscape due to policy changes and external factors like climate impacts and emerging opportunities (e.g., legalization of cannabis, wildfire, storm and flooding devastation, and offshore wind).

Tribal Collaboration: Greater collaboration between tribal nations and non-tribal jurisdictions is seen as a catalyst for positive development. Tribal collaborators are cautiously optimistic about recent developments which have included tribal voice at the table, for example in the offshore wind negotiations that took place in Humboldt County. Much more needs to be done to create partnerships that can function beneficially for tribal collaborators- please see *Partner Mapping Analysis* for more in depth treatment of this topic.

Social connection and Support: In conversations across the region, residents' connection to each other is often framed as both the greatest opportunity and biggest weakness. Isolation and social alienation were brought up repeatedly. The need for better connection, especially across generations, was a strong theme. Participants also noted some excellent supportive programs that have been developed, which are implementing innovative solutions to these social issues: projects like the workforce development program "BUILD" in Lake County which offers training in construction trades, Second Chance re-entry and support, Community Schools, child care expansion activities, and others, help support re-connection, fresh starts, and overcome barriers working families face in the region. A family resource center in Humboldt County is hosting the region's first Guaranteed Income pilot, one of the few rural pilots in the nation. Social assistance is a promising sector named in the accompanying *Industry Cluster Analysis* report.

These issues are of heightened importance to Priority Communities. As noted in the Partner Mapping report:

> *Direct feedback from priority communities calls attention to their struggles in obtaining stable jobs that pay enough to cover expenses, relevant skill development opportunities, resources in their communities that meet basic needs for housing, transportation, child/family care and healthcare, and meaningful work structured in ways that fulfill the reasons they choose to live and work in this region – at times, despite enduring and significant challenges. People in priority communities spoke about the impacts of trauma, violence, discrimination and exclusion, and the importance of connection, social safety, the experience of being valued and the desire to simply meet basic needs while being able to choose their career path, where they live and how to honor the many reasons they call this region home.*

Physical Capital

Road networks, water and sewerage connections, energy and communications infrastructure that is consistently described as "crumbling or absent" is the disheartening overview communities gave of their physical assets. Lack of housing is the primary constraint cited when it comes to economic and workforce development.

Strengths	**Weaknesses**
● Renowned Blue Lake Rancheria microgrid initiative is inspiring similar projects across the Region. ● West Coast leader on Offshore Wind Development- motivating additional infrastructure development along the coast and in transmission corridors.	● A vast, rural, and remote region means it is inherently difficult to provide adequate network infrastructure coverage. ● The housing crisis is severe, several counties have the highest ratio of unhoused to housed residents in the state. ● Permitting-anything- takes years. ● Critically outdated water delivery infrastructure particularly challenges the region's small, remote, rural, and unincorporated communities. Few financial solutions in sight to invest in upgrades. ● The current grid can no longer support economic development or housing construction initiatives. Delayed and denied hookups, fires caused by deferred maintenance, and rate hikes result in the region losing faith in provider PG&E.

	• Underperforming solid waste sites and groundwater contamination threats indicate need for infrastructure investments in these areas.
Opportunities • Jurisdictions are receiving funding to improve broadband coverage and wireless access, many tribal areas who need connectivity the most are undertaking major investments in this infrastructure now. • Potential to synergistically develop better electrical transmission, broadband, and transportation infrastructure concurrently along key corridors, improving access for rural and remote communities.	**Threats** • Climate risks make infrastructure development an uphill battle. Scarce resources available are used in rebuilding and recovering from shocks, instead of pro-actively addressing deficits.

Broadband access limits other key opportunities like the ability to deliver online training to entrepreneurs and workers, or to attract remote workers- two examples provided by respondents. Many believe that attracting more remote workers to the region may help stabilize the pattern of economic boom and bust, however at present much work needs to be done to upgrade electricity supply, deliver broadband infrastructure, and create housing to accommodate these workers. There are several major resources launching to address this constraint. For example, Yurok TelecomCorporation has received a large grant to improve cell phone reception in the area- five new towers will be built. Noting that the Tribe owns their airspace so if providers want to expand their reach they can use the tribal broadband capacity, which will expand services to the community. Other Broadband initiatives are listed below.

"There is synergy with broadband. People haven't necessarily made connections between broadband and offshore – internet is a power hog – all the surplus wind power from offshore wind and expanded broadband is going to make this area an attractive place ."

Transportation: Road construction is a priority, frequently mentioned in Del Norte and adjacent tribal areas. One partner associated this challenge with workforce development issues, noting that they will send apprentices away for training, and those workers often don't return to fill critical positions- *"we don't have training facilities, so when people go to train, they don't come back."* The vulnerability of limited road infrastructure was felt by tribal communities- *"we are so easily cut off from the world."* In Del Norte county, Last Chance Grade was a major source of anxiety. Areas with only one way in and out can become "islands," which is especially concerning in the wake of natural disasters such as roads being closed due to landslides, fire, and

flooding. Unpaved roads are also a significant contributor to particulate matter, and present an opportunity to improve air quality (*Climate Analysis*, p. 33).

Airports in Arcata and Crescent City offer crucial connectivity to the outside, and all the potential development opportunities that come with it. This critical infrastructure is coming due for runway rebuilds, modern energy efficient lighting, and safe, upgraded fuel storage facilities. Current funding for these airports coming from the state is more constrained, and the Federal Aviation Administration's Airport Improvement Program (FAA AIP) funding they receive wouldn't cover the cost of all the upgrades needed.

The need for enhanced public transit options was echoed in listening sessions throughout the region and in transit plans. More frequent availability, extended hours, increased destinations, and Sunday service would benefit the communities they serve. Particular concern was expressed for youth, elderly, and disabled residents.

To help achieve California's goals for a carbon-neutral future, infrastructure to support improved access for pedestrians and cyclists needs to be considered as roads and highways are improved. Based on feedback to the Caltrans interactive map, over 75% of comments mentioned that they were uncomfortable to walk or bike because of heavy traffic or high vehicle speeds (Caltrans, 2021).

Water Delivery and Sewerage: Good water infrastructure is a major issue mentioned by numerous jurisdictions across the region. Residents complained of the high rates; others that low revenue resulted in a lack of funds to update water and sewer infrastructure in their small communities. This was a primary concern in Orick, as with many other smaller and unincorporated communities who are worried about the risks of aged water infrastructure and the inability to fund wastewater treatment facilities and leech fields (see *Climate and Environment Analysis*). Special service districts attempting to maintain this crucial infrastructure struggle. In other instances, they noted that federal and county entities were not sufficiently meeting obligations to maintain critical water infrastructure, for example levees to prevent flooding. That so much of the housing constructed in these commodity boom towns was built informally is now creating problems- siting and layout makes it impossible in certain locations to upgrade the infrastructure to a system that Humboldt County can permit under current regulations. Not to mention the exorbitant cost- nearly $30,000 to acquire the permit cited by a community leader.

Constraints related to the rural and remote geography: participants noted vulnerabilities related to limited infrastructure ("just one way in and out"), distance from major airports, difficulty in providing services with low population density, the aforementioned lack of broadband, distance to markets, lack of public transit infrastructure or transportation for moving goods and high costs associated with doing so, crumbling water infrastructure. Isolation creates

other undesirable social and economic outcomes. In general, outdated, and dangerous infrastructure was a very prevalent theme across the region. Transportation corridors are threatened by fires, landslides, and other climate related threats- Last Chance Grade in Del Norte County is one of the more startling examples of this risk.

Housing as a limiting factor to Economic Growth: Across all industries and sectors, workforce housing was cited as the primary constraint to growth and wellbeing in the region. Medical fields are particularly impacted, participants frequently mention that the difficulty recruiting and retaining medical professionals is in chief part due to lack of housing, though the education sector and more prospective industries like Offshore Wind were also frequently mentioned as constrained by lack of housing. This impacts large employers and small firms alike. Currently, housing and broadband are major constraints to attracting skilled workforce from outside the area in crucial fields like education and health. Housing costs continue to go up and not enough is being produced. While overall California's housing stock has increased by 7% since 2010, the Redwood Region reports only 1.3% growth in stock (see *Industry Cluster Analysis* p. 16*)*. Aging housing stock is associated with the heightened risk for lead poisoning in children observed, and the emissions could be reduced by addressing residential wood burning (see *Public Health* and *Climate Analyses*, respectively).

"*There's only so much developable land – could be a good time to try something at scale. We have teachers every year who accept jobs and turn them down because they can't find housing. This touches the medical field as well – anyone who tries to recruit anyone out of the area. Building homes creates jobs for builders and subcontractors but the trick is keeping them affordable in the long term."*

Housing Development Constraints and Challenges: Housing constraints were attributed to a host of factors. Single family zoning, and zoning restrictions specific to coastal communities, the complexities of the permitting process were all elevated as challenges. There are few large developers- "most everything is built by DANCO." The prevalence of unincorporated rural communities contributes to this- counties are not as well positioned as municipalities to build housing. North coast municipalities are exploring annexing adjacent land as a strategy to get more units built on outlying areas. Many have made concerted efforts to incentivize owners to create an extra unit or two using ADU policies, or by subdividing slightly larger city lots. Listening session participants estimate that the time it takes to get a housing development project through a local permitting can be between two and five years- at an exorbitant cost to the developer. This imposes additional limits on financing as commercial capital will not fund these non-value generating predevelopment activities. Orthodox approaches which focus on subsidizing the homeowner (to whom the cost burdens are transferred) do not systematically address this issue. Housing policy in the state is dominated by urban concerns and is not doing enough to address the constraints faced in rural areas. This includes the increased burden on rural

developers of creating infrastructure “from scratch,” a key difference from their urban counterparts.

The climate crisis exacerbates the housing crisis in the Redwood Region, as in many parts of arid California. Lake County is a stark example of this, where 60% of the housing stock was lost in catastrophic wildfires in 2016.

“The valley fire was eight years ago- we are only NOW getting a couple of new houses up. We lost almost 2,000 homes."

There are a lot of factors that delay rebuilding, for example changes in regulations and older construction- many families in Lake County were told that they had to revamp existing septic and sewerage connections in order to rebuild, creating delays and substantial added costs. Advocates there expressed the need for more funding for fire mitigation and home hardening programs, and a desire to partner with the local community colleges to add a workforce curriculum around fire adapted, affordable housing construction techniques. Municipalities there and across the region are focusing on big housing construction pushes and finding new ways to overcome constraints. Notably, the region’s northern Tribal Nations have succeeded in breaking down some barriers to producing housing- investing in tribal led construction firms, creating land trust models for building affordable housing, and taking advantage of a different regulatory environment to build housing on tribal lands- though much more is needed, respondents note.

The Housing Crisis in the Redwood Region: The region is disproportionately struck by the homelessness crisis in California, with the highest ratios of unhoused to housed residents in the state. Neighborhood issues arising from encampments are a major concern municipalities and health and human service agencies must contend with. One innovative environmental justice organization is framing this issue as such- helping advocate for dignity for those experiencing homelessness by providing basic waste management services, while organizing clean ups around encampments many of which are located in conservation or other natural areas.

“How do we make [housing] so that no one has to turn a profit [on the investment], people can just have a place to live?” -Environmental Justice advocate

“How do you create home ownership opportunities to establish roots, equity, and wealth?” -City manager

Recognizing that many housing policy prescriptions speak to the problem as it occurs in more urban contexts, Redwood Region housing advocates are exploring innovative solutions. There is increasing interest in land trust models of housing development that can help low income working families build wealth in addition to stabilizing their housing. Creating cooperatives and

subsequently developing mobile home parks is one method of interest that could benefit a lot of community members in the region. Community land bank model housing development has also been initiated in Mendocino county and by the Wiyot Tribe, and possibly elsewhere in the region. Research participants in Del Norte expressed interest in both land trust models and restricted deeds as a way to maintain housing affordability while providing home ownership opportunities.

Natural Environment

The region's pride, and primary strength, is its beautiful, unique, and often pristine natural landscapes. With a diversity of ecosystems and clean air, the region's environmental setting offers communities everything they need for economic wellbeing, physical, mental, and spiritual health.

Strengths	**Weaknesses**
● Resurgence of cultural burns and Indigenous management practices. Locally mobilized fire safing initiatives and increased training opportunities for land management and ecosystem restoration careers. ● Diverse climates and ecosystems, year-round growing season, and ability to produce a wide range of crops and horticulture products. ● Natural beauty that draws millions of visitors each year. Wide range of outdoor recreation opportunities. ● Research setting for natural and life sciences, marine research. ● Oldest and largest lake in the state in Lake County, unique ecosystem with volcanic activity. ● Well positioned for renewable energy development.	● Scars of extractive economy, including disinvestment in certain areas. ● Remote, easily cut off from the rest of the state. ● Historic marginalization means priority populations are at higher risk for suffering the negative impacts of the Climate Crisis.
Opportunities	**Threats**
● Ecotourism, recreational trails, agritourism. ● Expand regenerative agriculture activities. ● Dam removal is anticipated to increase salmon populations- offering recreational fishing opportunities as well as restoring	● Sea-level rise in Humboldt Bay (Sierra Business Council, p. 43) destroying housing, infrastructure, displacing communities and leading to economic losses. ● Coastal areas are all at risk under sea level

access to traditional diets for Indigenous communities.	rise projections, particularly threatened is Humboldt Bay. ● Inland areas face high risk from wildfire and extreme heat. ● Current and future impacts from climate change threaten native communities' access to traditional food such as fish, game, and wild and cultivated crops which have an impact on cultural, economic, and community health.

Diverse Ecosystems create Economic Opportunities: These are covered in greater detail below in the discussion of the Working Lands and Blue Economy sector group.

Legacy of Extractive Industries: The economic prosperity of the Redwood Region was initially built on the abundant natural resources within the area. Although extensive logging significantly diminished the forested areas, the ecosystems have proven to be resilient, providing some of the highest-quality wildlife habitats in California. Over time, the extraction industries have waned, with government and social services now employing the majority of the region's workforce. Despite a surge in visitation and growth in the service industry, the Redwood Region remains economically weaker compared to most coastal regions in California.

Impacts of Climate Crisis: Throughout the region, various climate hazards are anticipated to impact key economic drivers. Rising temperatures are expected to reduce agricultural productivity, while increasing surface water temperatures may lead to tourism disruptions caused by harmful algae blooms. Furthermore, endangered fish populations are likely to decrease fishing opportunities. Altered precipitation patterns may result in prolonged dry spells and extreme precipitation events, leading to water shortages for crops and pastureland. Severe storms could induce flooding, infrastructure damage, and the ruin of agricultural lands. Very frequently mentioned are the impacts of climate change the region is facing: lack of adequate water, increased wildfire risk. The knock-on effects this has include limited access to electricity, huge economic losses to business, inability to insure properties, loss of housing stock, and more. Sea level rise threatens the coastal infrastructure and blue economy. The region is also prone to non-climate related disasters: proximity to fault lines means destructive earthquakes and tsunamis as well.

The heightened risk of wildfires, coupled with recent wildfire activity, has inflicted economic losses on the agriculture industry. Additionally, the historic Redwood forests along the inland boundary of the region face a looming threat from wildfires, further jeopardizing the economic landscape of the area. Sea-level rise in Humboldt Bay could lead to flooding and erosion which

would lead to severe infrastructure damage and could cause public health concerns. Sea-level rise projections indicate that communities around Humboldt Bay could become inundated, not only displacing residents and causing personal financial injury, but may also lead to lowered home values, a reduced tax base, and more poverty in the region. Public infrastructure like roads, water pipes, electricity towers, and wastewater treatment plants are within the inundation zone. (See *Climate Analysis*).

Tourism growth via natural attractions.
Research participants in both Eastern Humboldt and Mendocino County mentioned the positive development of local Firesafe Councils, and positive collaborations with CalFire.
Mendocino table: lack of climate readiness to deal with drought, flooding,

Lake County became the first in the Region to create a Climate Resilience Officer position.
Climate adaptation and resilience planning is happening in earnest– (Insert number of plans from our inventory).

Financial Capital

Throughout the listening campaign, institutions focused on the lack of resources and barriers to attaining them, while individuals and their advocates emphasized the lack of appropriate job opportunities and the high and rising cost of living- with essentials like housing, medical and childcare posing significant financial struggles. The Redwood Region is characterized as a place people stay for the love of its land and communities, at the sacrifice of building durable wealth and pursuing upward mobility.

Strengths ● Lower income inequality when compared to the rest of the state.	**Weaknesses** ● Low income, across all ethnic groups and household types, when compared to the rest of the state. ● Congruent with the rest of the state, people of color earn less than their white counterparts. ● Institutions struggle with capacity to strategically pursue funding opportunities. ● Jurisdictions have smaller tax bases and higher financial burden to maintain basic services and infrastructure.
Opportunities ● The region's one four-year university is tribal serving, Hispanic serving	**Threats** ● Macroeconomic policies continue to drive up inflation, particularly on food and fuel.

institution. Strengthening pathways in secondary education to help bridge students of color into training opportunities. Working to make institutions of higher education more inclusive and reduce other barriers to students of color.	• Public funding opportunities offered in ways that are inaccessible to rural regions and tribal communities, perpetuating cycles of disinvestment.

Public Investment and Institutional Development:

Respondents in public sector institutions were quick to elevate the challenges and barriers the region faces in accessing funding. These challenges include:

1. Shovel Readiness: *"We got $2.6 million to do this [wastewater infrastructure project], but we were supposed to be shovel ready and we didn't even have a plan".* The necessary sequence of predevelopment activities is incongruent with risk-averse funding processes: *"The approach to funding should change – the county or state should reinvest tax money by making the decision about funding at the* ***beginning of project****."* This is to say if a project is needed and approved- public entities should set aside the funds while pre-development takes place so it can be carried through to completion. Tribal partners also expressed challenges in getting projects to shovel readiness.
2. Funding for technical assistance and backbone support to partnerships- As one example, a resident of Willow Creek celebrated the work of local fire resilience groups, but noted that they weren't sure if they would be able to continue given the lack of funding for backbone support to their partnership.
3. Counties are running budget deficits, few having capacity to write grants that could provide consistent funding for economic development initiatives, or maintain staffing to carry out the work. "*We are focused on keeping the lights on,*" one government respondent lamented.
4. Large swaths of land under state and federal conservation status impacts the tax base. This is particularly an issue in Del Norte county.
5. Having the capacity to be proactive vs. reactive to funding opportunities: *"[our county] is simply reacting to federal and state funding opportunities e.g., "we need a bridge, lest apply for this grant to do that."*
6. Capacity traps, generally- Institutions struggle for the funds and staff hours- to pursue funds and hire staff. Special districts in rural and remote areas noted that there are resource barriers to even apply for grants- they have been turned down for resources to upgrade their infrastructure because they couldn't demonstrate enough financial stability to maintain the new infrastructure were they to be awarded. These cycles of disinvestment and low capacity play out in different ways across all counties and tribal lands in the region.

Looking on the bright side of rural disinvestment, the region is eligible for many tranches of state and federal funding because of the income data and other socioeconomic factors. Innovative ideas community members put forward include establishing a Regional Public Bank and providing technical assistance for forming collaboratives and worker ownership.

Private Investment:

Many communities, firms, and individuals in the Redwood Region do not have ready access to capital. "Banking deserts" (rural areas with fewer financial service institutions) in the region make it more difficult for individuals and local businesses to get conventional startup or expansion loans. Research (Tolbert et al., 2014) suggests a relationship between the prevalence of independent local banks and increased business formation, higher wage and income levels, and lower poverty rates. Addressing financial inclusion and asset-building through programs that provide greater access to financial services (e.g., affordable loans, credit counseling, and investment opportunities) is thus a key priority of the Collaborative, as are investments that leverage local, regional, state, federal, and philanthropic dollars to maximize economic benefits and further the inclusive vision and plan for Redwood Region economic vitality established in the regional roadmap.

Household Income & Wealth:
Listening sessions with residents and service providers across the region emphasized the same point: working people are getting squeezed out of the local economy. Their perception is born out in the data: with wages far lower than the rest of the state and increasing cost of essentials, a family of four with two adults working full time will on average spend 97% of their income just covering the basic essentials of housing, food, healthcare, and childcare, five percentage points more than other comparable areas (see Figure 5).

Target Industries SWOT Analysis

The Redwood Region is characterized by a relatively diverse economic base spread throughout the four counties and tribal lands. Based on a quantitative analysis of economic performance, environmental impact, and available resources, 11 key industries were elevated as holding potential for job and wage growth. Additionally, a survey of 97 Collaborative and community members, and review of previous industry cluster studies (published in 2022), created four broad groups which form the Collaborative's thematic working groups called Sector Tables:
1) Arts, Culture, and Tourism, 2) Health and Caregiving, 3) Resilient and Renewable Energy, and 4) Working Lands and Blue Economy.

A review of regional (county and Tribal) Comprehensive Economic Development Strategy (CEDS) documents confirms the importance of these sectors across the Redwood Region (with regional variability owing to geography, population, and other factors). Such targeted sectors, or industry "clusters," are characterized by: 1) increased innovation activity and knowledge "spillover," 2) more specialized (and educated) labor pools, 3) lower transaction costs (communication, transportation, coordination, etc.), and 4) stronger networks of specialized suppliers and service providers (Porter, 1998). Industry clusters tend to perform better in "thick" labor markets (many buyers and sellers of labor), have more skilled workers in nonroutine jobs (a more educated workforce), and better occupational matching (skill sets to employer needs), which often means greater worker productivity. Focusing on these sectors lends itself well to targeted workforce development programming addressing industry-defined skill needs and public sector industry support.

Weaknesses of the targeted sector approach include (but are not limited to): 1) the potential for reduced industry diversity (by focusing on specific sectors at the exclusion of others, such as emerging markets), 2) the potential for groupthink (at the expense of innovation), 3) barriers to entry for new firms (through an anti-competitive blocking effect), 4) increased fragility (less resilience) owing to reliance on more unitary sectors (Donahue et al., 2018). A less diverse economic base can be more vulnerable to economic downturns. This may be evidenced by the exclusion of industries pertaining to offshore wind development in the cluster analysis.

Working Lands and Blue Economy.

Favorable climate and potential for Regenerative Agriculture: The most often mentioned strength and source of opportunities for the region lies in the natural beauty and abundant natural resources. Participants noted high potential for innovation in the agriculture sector and blue economy. Some existing strengths include the wine industry, horticulture farms, regenerative livestock production models, and strong local food economies. The region is blessed with a climate that allows for year-round crop production. With varied ecosystems and microbiomes there are diverse opportunities including expanding regenerative agricultural practices on the grasslands. Advocates note that the region currently has more organic matter in its soils than 90% of the State, and there is a lot of potential to continue sequestering carbon in the grasslands and building organic matter into the soils. The region anticipates opportunities to further develop manufacturing industries linked to this sector.

Coastal and Lake-based Blue Economy: From the industry cluster analysis: there is potential for further developing science and research-based industries along the coast and limnology research in Lake County. There are challenges as well: all the region's ports are in need of substantial infrastructure upgrades to realize blue economy opportunities.

Nature-based Solutions and Ecosystem Restoration: There are opportunities to invest in sustainable infrastructure and nature-based solutions- wetlands, forest restoration, and innovations like the Arcata Marsh were given as examples. Partnering with the State and National Parks to train a workforce in land and resource management careers is another opportunity contributors mentioned- for example, a heavy equipment regional training center which has been proposed for Orick, a small and struggling rural community close to the Redwoods park.

Cultures united by a love of the land: Cultural factors contribute to the strength in this domain. Community members expressed appreciation that the original stewards of this land are still living here, and that their traditional knowledge and practices are alive and can be used to manage the forests and lands more sustainably. Tribal governments and nations in the region are nationally and internationally recognized for their work to protect and restore the lands, forests, and rivers. Elevating their expertise as leaders in Redwood Region RISE is an opportunity area for the Collaborative. Dam removal occurring on the Klamath river and the other river restoration work that may bolster salmon populations is an incredible opportunity as are indigenous forest management techniques i.e., cultural burns, addressed below.

Additionally, cultural movements like the "Back to the Land" movement center low-impact, sustainable living. The connection and appreciation for the environment is strong across the region. Other cultural attributes that came up repeatedly for participants include resilience and "scrappiness," a self-sufficient and independent spirit, tight knit communities, and a strong sense of place.

Traditional Ecological Knowledge: There is a major climate resilience, economic and workforce development opportunity to be had in reducing the fuel load in the forests and developing commercial uses for that biomass. Specifically for communities adjacent to forest conservation areas there is excitement for workforce training opportunities, for example a proposed heavy equipment training site in Orick. Controlled burns, cultural burns, and other fire and conservation activities are workforce development opportunities. The potential for "cooperative" forest management amongst smaller, private landholders is exciting. Find ways to hire firefighters in the off-season to process forest – dead trees – to provide firewood to those in need – and manage forests to manage risk of fires.

Climate Vulnerability*:* The Region is vulnerable to drought, fire risk, and sea level rise. Fire insurance is growing more costly, and some companies will no longer insure properties in the region (See Appendix for data on this issue). Vast natural landscapes are costly to manage, increasing that risk. These are compounded by a long history of poor forest management practices that have resulted in high fuel loads in heavily forested areas, driving catastrophic wildfire events. Agricultural industries are particularly vulnerable, the severe economic losses

faced by the wine industry in Lake and Mendocino due to smoke and other wildfire effects are a stark example of this. Water rights are often contentious, this was noted as particularly impacting communities near Clearlake. Commercial fish stocks are trending downwards, sea level rise and acidification from climate change are an issue. There are elevated mercury levels in local fish stocks, posing a risk to Blue Economy industries (see *Climate Analysis*). It is important to note that while data on emissions sources are limited; these data suggest that industries within the *Working Lands and Blue Economy* group have higher emissions relative to economic value created.

Boom and Bust Cycles:
The economic history of the Redwood Region is one of commodity boom and bust cycles of natural resource extraction. After the gold rush came waves of timber extraction. The housing boom of the 1960s decimated 90% of the old growth redwood forest, followed by a decline in coastal fisheries by the early 1990s and most recently a collapse in the newly legalized cannabis industry in 2022. That industry is no longer considered a major driver for the region. "The Redwood Coast region lost agricultural jobs, gained construction and manufacturing employment, and lost services" (Industry Cluster Analysis). The collapse of the cannabis industry is having a significant negative impact in rural small towns across the region.

Projects and Initiatives Highlighted by the Community
From CEDS and Tribal strategic plans, listening sessions, local table meetings, and surveys

- Kelp, fungi, and abalone farming; hemp and hempcrete;
- Local foods economy: food hubs, farm-to-table, dockside fish markets, local meat processing facilities;
- Eco-tourism, outdoor recreation.
- Doing more to monetize forest carbon sequestration could be an opportunity- for forested and grassland ecosystems.
- Ecosystem Restoration and other Natural Resource Management careers
- Aquaculture Innovation Hub
- Noyo Harbor Collective
- Tribal EcoRestoration Alliance

Renewable and Resilient Energy

High Potential for Renewable Energy Development. Lake County has a special advantage with their geothermal energy production - one of only three sites in the world where it is possible to tap into this source so close to the surface. The coastal counties all have the advantage of hosting good sites for offshore wind development[64]. Solar projects are of interest as well (see

[64] Schatz Energy Center Offshore Wind Feasibility Study: https://schatzcenter.org/2019/07/oswstudy2/

Hoopa's Comprehensive Economic Development Strategy (CEDS), as are opportunities to use biomass for energy.

There is a lot of anticipation related to the development of offshore wind in Humboldt Bay- "the biggest in the country!" However, pessimism was also frequently expressed; noting that it will be many years before the project can get off the ground, and that "cultural attitudes" could get in the way. A respondent from a Labor organization noted that it will be six years before the wind project starts hiring laborers. "A huge challenge will be patience, hanging in there until things get off the ground," said an environmental activist. Another concern is the sustainability of those jobs after major construction is completed, and the opportunities that will be afforded to local laborers (who are still majority non-union) during the port redevelopment phase. It's clear from their frequent mentions that the companies involved- Crowley, Vineyard Offshore- are already notable presences in the local community.

A more prospective project mentioned is the idea of a "hydrogen highway" for the Redwood Region, an idea that is aligned with fleet conversion for transport in the region. A respondent put forward that biomass to hydrogen conversion has become a more commercially viable technology than it was in the past, and there are successful hydrogen fuel projects in other parts of the country and world. The concept behind this is still in the preliminary feasibility stage, but interest has been expressed throughout the region and by tribal planners. Facilities could be co-located near forestry operations/mills where biomass is produced. Currently a feasibility study is being conducted, commissioned by the Sonoma County and Mendocino County Economic Development District (SMEDD, to explore a trucking route from Eureka to Oakland supported by hydrogen fueling.

Dissatisfaction with public utility PG&E is resounding. Deferred maintenance of their above ground infrastructure continues to be a dangerous fire risk. Inability to get electricity hookups to new residences and businesses is a major constraint reported throughout the region. But the infrastructure problems that need to be resolved are bigger- during listening sessions participants in Del Norte spoke of how many had been without electricity for ten days or more in the wake of fires there- relying on emergency diesel generators. Inland communities wonder if the grid has the capacity to keep critical institutions cool during the heat waves projected to come.

Energy Sovereignty Initiatives: Driven by these concerns about the conventional grid, a project of major interest to the region is Blue Lake Rancheria's microgrid- this was brought up repeatedly by tribal partners and those from rural and remote areas of the region. The Redwood Coast Airport Microgrid launched in 2022- "the first 100% renewable energy, front-of-meter, multi-customer microgrid".

"We need PG&E to do their job better – removing and installing electrical drops is frustrating – a big problem for the county if we're ever going to meet housing and other goals. PG&E is a huge problem."

At present there isn't adequate transmission capacity and connection to transportation corridors for the anticipated wind energy generation. One partner noted that for there to be sustainable local benefits beyond the construction of that infrastructure, they should seize the opportunity to synergistically expand electricity and broadband access. This would make it easier for new businesses to establish along rural corridors and to places like Round Valley. The three corridors the state has already identified are Fairhaven to Kneeland and down highway 36, along the 299, and then through Southern Humboldt along the 101.

Energy provision in Lake County looks a little different than the rest of the region- the grid is sectioned, transmission lines aren't all under threat, though they are supported by megawatt diesel generators similar to Del Norte and other parts of the region. An important aspect of their energy sector is geothermal energy coming from the geysers (Calpine). The infrastructure was established for this in the 1970s or 1980s but there are environmental issues that need to be better addressed. The county received funding through the "Full Circle Project" which uses secondarily treated wastewater and injects into the steam fields of the geysers- this is delivered in partnership with Calpine and Northern California Power Authority, and now Open Energy. While this saves on tertiary treatment of wastewater it also results in 10 million gallons of water leaving the Clear Lake watershed basin, which supplements the wastewater used. The community is unclear, over time, what impact this will have on the lake.

Projects and Initiatives Highlighted by the Community
From CEDS and Tribal strategic plans, listening sessions, local table meetings, and surveys

- Energy careers curriculum, solar arrays on brownfield redevelopment sites in Hoopa
- Blue Lake Rancheria Microgrid
- Fort Bragg Oneka Seawater Desalination Pilot Study
- Toma Resilience Campus
- Offshore wind development

Health and Caregiving

Medically Underserved Region: To put it simply- *"there is no medical care around here."* People from all walks of life find themselves in the position of having to travel long distances to see a specialist- though of course this creates significant barriers for transportation limited and time and resource poor families. Community members elevated how senior populations who often have increased medical needs are particularly burdened by having to drive upwards of three hours to see a doctor. Being a medically underserved area was one of the most frequently

mentioned weaknesses of the region. In addition to the acute shortage of providers; community members also noted the quality-of-care available leaves something to be desired, high turnover in medical staff and especially a lack of specialists. The cost of care, when one can access it, is also a huge barrier. One participant posited that Del Norte is one of the most expensive places in the country to give birth. The proportion of fixed income residents, and those on Medicaid and Medicare, have implications for reimbursement rates and the business models used by healthcare providers.

Behavioral and mental health (especially for youth), and trauma (particularly historical) was emphasized across all counties and tribal lands- substance use, lack of medical providers for these issues, and adverse childhood experiences came up repeatedly. The opioid epidemic is acute in the region.

For those suffering from substance use disorder, or are in the tough position of having a child in need of behavioral healthcare, many must go outside the area to find in-patient facilities. There is fear that funding for important youth programming is drying up as a result of the all but collapse of the cannabis industry (Prop 64 funding).

Medical and Public Health Innovations: Positively, respondents observed a growing movement in the region around Blue Zones (areas of the world where people routinely live to old age and chronic disease rates are low) and the health drivers that create them. Another cultural strength which relates to health and wellbeing for residents is the presence of strong mutual aid networks. Practitioners expressed that expanding telehealth could be an opportunity to improve access to services and the region already has several mobile providers who can meet folks where they are at to provide care.

Leadership on economic development constraints: Leaders in the healthcare industry are taking on the housing crisis; exploring innovative solutions to alleviating this constraint to recruiting necessary personnel. Destination healthcare, for things like lasik surgery for example, could offer a boon to rural communities who have clinics in place- Southern Humboldt respondents emphasized this potential.

Critical need for Child and Elder Care: The lack of childcare providers remains a huge barrier for working families. At its worst in Humboldt County, childcare as a proportion of median earnings reached 37%. There is also a lack of therapists and service providers to support families with kids that have special needs, as highlighted in the behavioral health workforce statistics above.

Projects and Initiatives Highlighted by the Community
From CEDS and Tribal strategic plans, listening sessions, local table meetings, and surveys

- Supportive housing developments for people with disabilities.
- Support to childcare businesses and providers in Humboldt County.
- Housing initiatives for medical staff.

Arts, Culture, and Tourism

Creative Placemaking Initiatives: Several rural, remote, tribal, and unincorporated communities are in fact the gateways to the region for visitors arriving from the North, South, and East. Given that these are some of the most disinvested parts of not only the region but the entire state, there is a strong call to invest in upgrading tourism infrastructure in those specific communities. Better relationships with State and National Parks, including strategic placement of visitors centers and other park infrastructure, was frequently brought up in those communities. For many coastal communities, tourism became the backbone of the local economy once fisheries went into decline (highlighted by respondents from Mendocino but relevant in Del Norte and Humboldt as well).

Downtowns across the region bear the scars of a long history of commodity boom and bust cycles and natural disasters. In Crescent City, the capital city of Del Norte which was destroyed by a tsunami in 1964 and then subsequently built back within a year- planning practitioners, business advocates and others noted the need for creative placemaking which would uplift the community and draw visitors. The perception of downtown areas lacking charm is a challenge for marketing. That city's plans for revitalizing its waterfront areas highlights how more can be done to celebrate the region's original stewards by promoting education of Indigenous cultures. Working together with the Tolowa Dee-ni Nation and other local tribes, the City has created a plan for an interpretive trail that centers those cultures. Tribal collaborators note how allowing tribal people to tell their stories makes a difference in the community. The acknowledgment, collaboration, and celebration is a hopeful indication of more tribal inclusion in planning. Tribal members indicated that they hope to see more representatives on commissions, committees, and other forms of government led work moving forward.

Arts and Culture is a source of healing and resilience: The Arts and Culture sector was highlighted by community members as a key enabler for helping youth thrive. Given the region's troubling statistics with respect to mental health, substance use, and other wellbeing issues associated with isolation and alienation- the arts provide a powerful avenue to expression, connection, and belonging especially for young people. Additionally, the institutions in the sector have played a key role in establishing and/or fiscally sponsoring other organizations and initiatives that celebrate cultural identities- for Latinos, Indigenous community members, and other peoples of color. Arts advocacy groups across the region play a key part in making these special communities visible and celebrated on the North Coast.

Capitalizing on the Region's Rich Cultural History: Cultural heritage is an incredible and immeasurable strength of the region. There are aspects of the region's history that could be better celebrated and might help draw new visitors. One example, the aesthetic culture of the Back to the Land movement. As those artists are now aging and many unable to continue living off grid as they did when they arrived in the1960s and 70s, some investors from Bay Area have started to acquire these architecturally unique eco-homes and preserve them as b&bs and retreats- *"while telling the story of that movement intentionally"* (in Mendocino). *"Artists create that rising value [that draws people to the region].and we need population coming in, we're not replacing ourselves."* A popular idea from partners in the Arts and Culture sector is the creation of a regional Cultural Plan or Arts and Culture "trail"- a central brand that can make all the richness here more visible in one cohesive informational product.

Agricultural and Eco-Tourism Development: There is a recognition of the region's potential for agricultural tourism. Alexandre Family farm located in Del Norte county is a leader in the regenerative agriculture movement. In Southern Humboldt and Northern Mendocino, industry advocates have helped create cannabis centered agri-tourism opportunities and marketing campaigns to support them. Collaborative marketing initiatives, including shared efforts with neighboring counties and funding from Visit California, were mentioned as desirable. Recreational, multi-use trail development is also embraced by the region, with the Great Redwood Trail on its way and Del Norte county planning other opportunities to draw in hikers, bikers, equestrians, and others.

Hospitality as a Key Industry: In areas where traditional industries like logging and fishing have declined, tourism and hospitality are identified as the economic drivers that took their place. Tourism revenue, including Transient Occupancy Tax (TOT), contributes substantially to local economies. This was highlighted especially in communities on the Mendocino Coast. The seasonal nature of tourism can be a pain point, and jurisdictions are exploring strategies to focus on year-round productive activities and attractions. With respect to resilience in the face of shocks, COVID-19 posed challenges, it also brought opportunities, with increased tourism after restrictions lessened. The development of attractions like the Redwood Skywalk, for example, contributed positively to local tourism. There are budding career pathway programs for helping connect youth to opportunities in this industry, for example the "E3" Pathway Program in Del Norte.

Projects and Initiatives Highlighted by the Community

From CEDS and Tribal strategic plans, listening sessions, local table meetings, and surveys

- Crescent City Harbor Revitalization
- Lake County Tourism Improvement District
- Redwood Experience Center

Economic Development Opportunities:

Driving forces of economic change and opportunity in the Redwood Region include economic impacts of from structural changes in the regional and global economies that shape supply and demand, including the regional shift from an extractive to more mixed-industry model, disruptions such as the Great Recession and the pandemic, economic globalization and liberalization of trade, and natural disasters, among others. Driving forces such as climate change impact all factors of economic growth and both limit and provide openings for new forms of economic activity (e.g., circular economic systems). An important driving force for RRRISE are regional efforts to counter inequity and disinvestment through initiatives in affordable childcare, healthcare, transportation, and housing, among others.

To this end, strengthening the regional "enabling environment" (physical and human capital) with strategies that build on the assets, defined needs and equity gaps, and desires of each community can help drive more equitable wealth distribution and greater prosperity region wide. Supporting resilient economic activity through initiatives that incentivize robust and adaptive responses to disruptive changes can also create demand for more resilient products and services. Notably, technological advancements in communication, transportation, and e-commerce have opened new markets, reduced barriers to remote work, altered business models, and made rural areas more accessible and attractive for businesses and individuals.

An impactful driving force in many rural regions is out-migration (brain drain) and population decline, with impacts on consumer demand, labor force availability and participation, and business growth and sustainability. This is particularly the case for the younger workers, suggesting that attention to workplace norms and generational (Millennial, Gen Z) dynamics will be important (e.g., differences in approach to work, life, and work-life balance, the rise of gig and remote work, and desire for greater workplace flexibility, among others). Business management that increases firm innovation and productivity through employee engagement and improvements to workplace culture are likely needed as part of efforts to stem worker outmigration and make the region more attractive to younger workers.

Equity is a key goal of RRRISE and as such constitutes a driving force impacting the selection of economic development strategies and a hoped-for new path for economic prosperity. The Collaborative acknowledges that achieving greater equity will require "flipping the script" about who gets to generate, interpret, and hold the data that informs economic change, and to work to identify and prioritize community-developed opportunities that push the structural changes in economic and industry dynamics needed to build more equitable wealth and prosperity region-wide. An issue of vital importance is to define pathways out of poverty for tribal and at-risk youth impacted by behavioral and mental health issues, historical trauma, substance use, and high Adverse Childhood Experience (ACE) counts.

Critical Economic Development Objectives (see *Opportunities Report*):

1. Ensure that economic development opportunities benefit all areas of the region, including remote small towns and tribal areas.
2. Ensure local engagement and that economic development priorities reflect community needs and values, including disinvested communities.
3. Create economic opportunities while eliminating barriers to economic opportunities.

Looking to Regional Plan Part Two:

Sector Opportunities:

Health and Caregiving. Several opportunities in Health and Caregiving have been identified, including (among others): attracting and retaining healthcare providers (e.g., loan repayment programs, improving compensation and benefits, etc.), expanding the scope of practice so that nurse practitioners, physician assistants, and other qualified professionals can provide a wider range of services), training community health workers, providing greater telehealth and mobile services, and developing K-18 pipeline career programs. Grow health care enterprises.

Working Lands and Blue Economy: Agriculture, forestry, ranching, and economic activities related to oceans, coasts, and marine resources form a significant economic base for the Redwood Region, with opportunities including (among others) diversifying production (including food crops, dairy, cannabis, wine, fisheries, etc.), exploiting the combined benefits of resource extraction, recreation, and environmental preservation, and development of emerging industries (e.g., aquaculture, seaweed cultivation, and farmed fish).Expand specialty foods cultivation, processing, distribution and sales. Develop new forest industry/biomass/timber products. Expand programs applying Traditional Ecological Knowledge, including those preserving aquatic resources, traditional diets, and wildfire management.

Arts, Culture, and Tourism: The sector has many opportunities, including (among others) museums, theaters, and art galleries, cultural events (festivals, concerts, art exhibitions), including traditional arts and Indigenous cultural practices, and development of heritage sites. Develop culinary, cultural, eco-, experiential, and other niche brands of tourism.

Resilient and Renewable Energy : The energy sector (primarily focusing on renewable energy and energy efficiency) provides many opportunities, including (among others): 1) geothermal energy production (Lake County), 2) offshore wind development, and 3) development of distributed energy resources (e.g., solar arrays, microgrids) and energy-efficiency programs.

Cross-cutting opportunities: The Collaborative also identified opportunities that cut across all economic sectors, including: 1) governance and collaboration, 2) creativity, innovation, and entrepreneurship, 3) the move toward a digital economy, and 4) integration of traditional ecological knowledge into economic activities. Applying circular economy principles was a

common theme heard among the Collaborative discussions and represents an approach that applies to all economic sectors.

Turning barriers into opportunities

The Collaborative SWOT analysis identified several Redwood Region-wide barriers that can be turned into economic development opportunities:

- The region's limited skill pool for emerging industries tends to reflect education levels. Opportunity: provide education and workforce training matched to job opportunities inside the region, and work to plug the "brain drain" that exacerbates the skills gap.
- The lack of industry diversity can increase vulnerability to economic fluctuations. Opportunity: foster entrepreneurship and business incubation and train a skilled workforce more capable of supporting new, diverse industries across a range of sectors.
- Inadequate infrastructure can impede economic growth by hindering business operations and limiting access to markets. Opportunity: develop policies and plans to improve infrastructure.
- Limited entrepreneurship, including skills, entrepreneurial culture, and access to capital, can inhibit business creation and growth, dampening innovation, customer creation, and job creation. Low median incomes mean limited disposable income, which can discourage businesses from investing in a region as they foresee insufficient demand for their products and services. Opportunity: create business incubators and work to develop a culture of entrepreneurship and a region-wide entrepreneurship ecosystem.
- Resistance to change can make it difficult to introduce new businesses or technologies. Opportunity: work to build a new narrative incorporating emerging ideas about economic growth into existing narratives.
- Invest in connection: incubate new organizations, create more forums like RRRISE for cross sectoral connection, get intentional about relationship building.
- Invest in building a climate adaptation workforce starting with restoring forest health. Wildfire risk can be mitigated through preventative measures such as prescribed burns and forest thinning, making use of traditional ecological knowledge.

Mitigation plans to address weaknesses

- The shortage of skilled healthcare and mental health professionals creates an opportunity to fill high wage occupations in the Redwood Region. These professionals can be home grown at the region's community colleges and Cal Poly Humboldt.
- A better understanding of the barriers to employment that contribute to lower prime age labor force participation may yield insights that lead to effective solutions to increase the labor force and prosperity of the region. Increasing the availability of workers may make the Redwood Region a more attractive place for business.

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APPENDIX

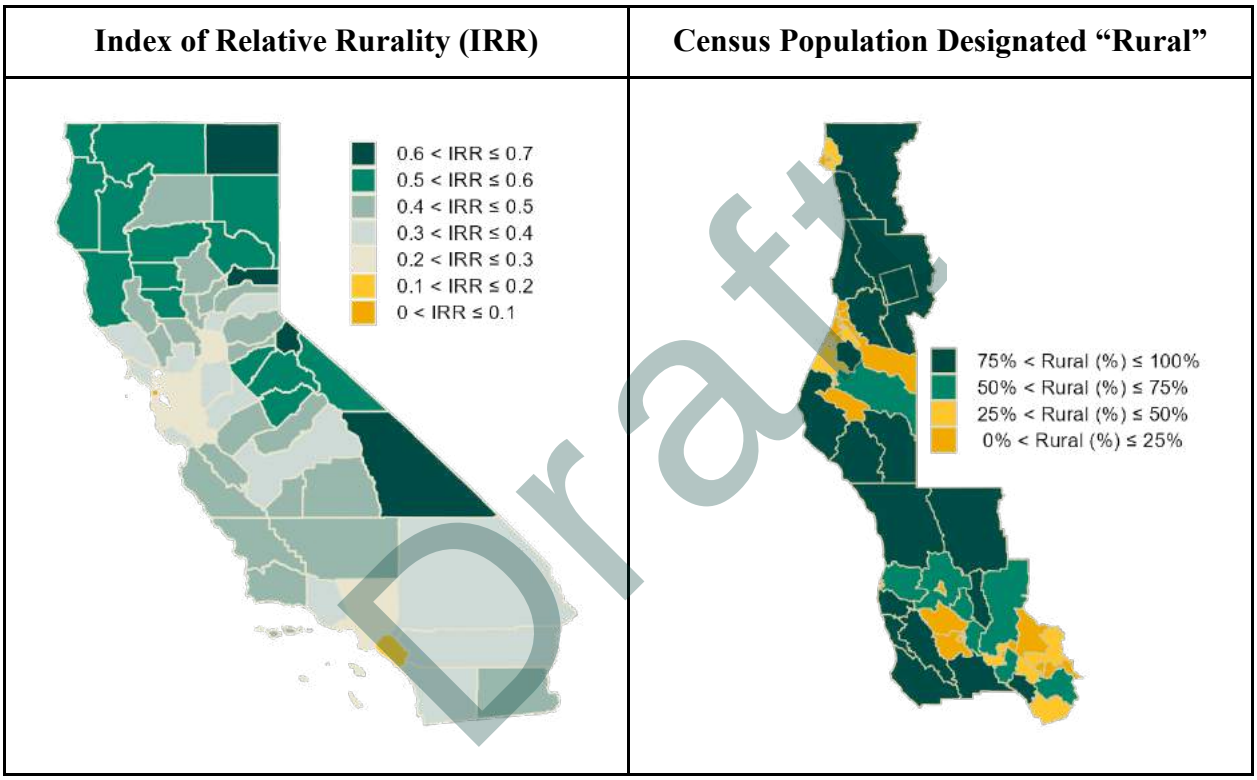
Redwood Region Supplementary Data and Analysis

Demographics

Measures of Rurality

Figure A.1

Measures of Rurality (2010)

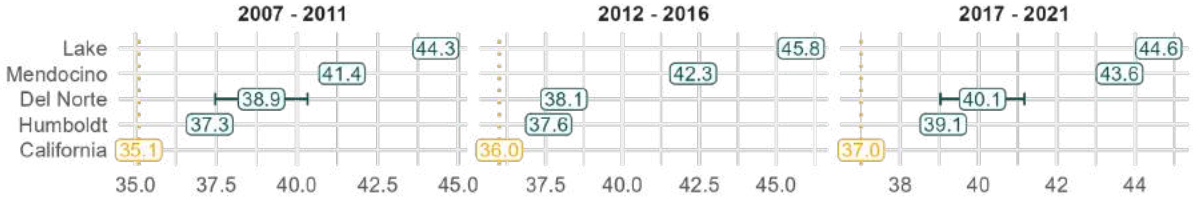


Note. Left Panel: IRR scale ranges from 1 (most rural) to 0 (least rural). Data sourced from Kim and Waldorf's 2018 data set titled "The Index of Relative Rurality (IRR): US County Data for 2000 and 2010." Right Panel: Data sourced from 2010 Decennial Census variables P002001 - P002006.

Age Distribution and Median Age

Figure A.2

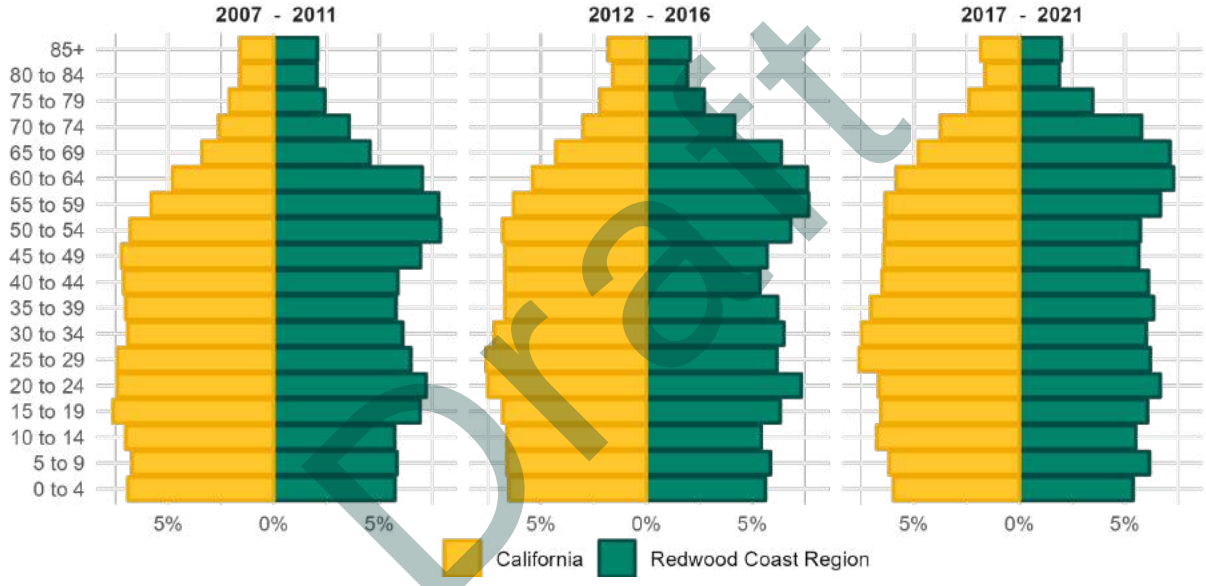
Median Age



Note. Data Source sourced from the American Community Survey's 5-year estimates. Bars indicate 95% confidence intervals.

Figure A.3

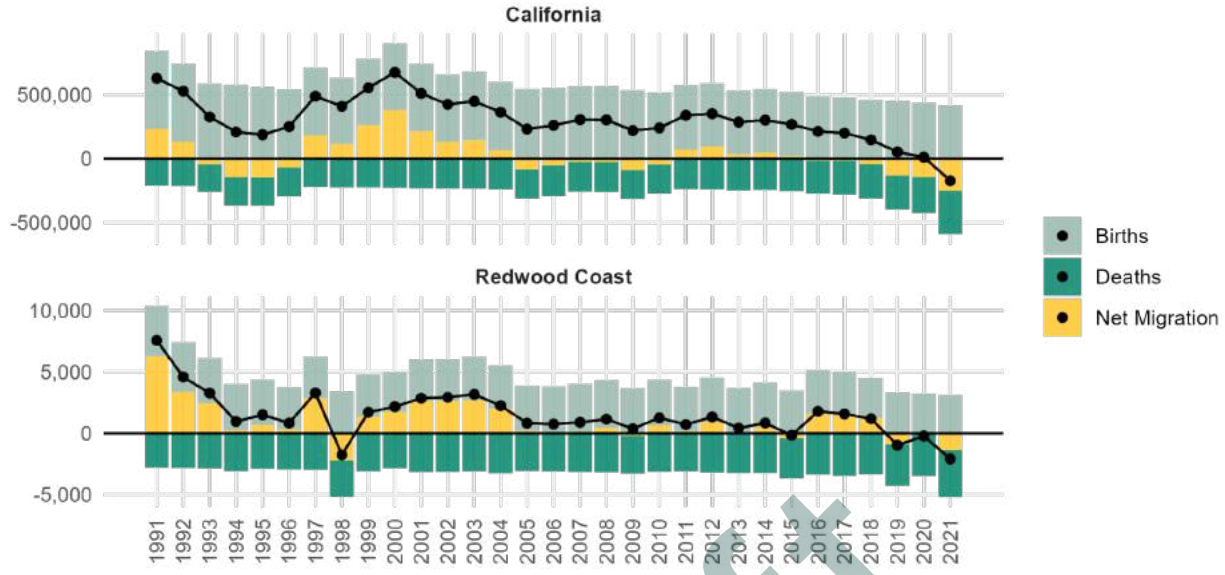
Age Distribution (2007 - 2021)



Note. Data sourced from the American Community Survey.

Figure A.4

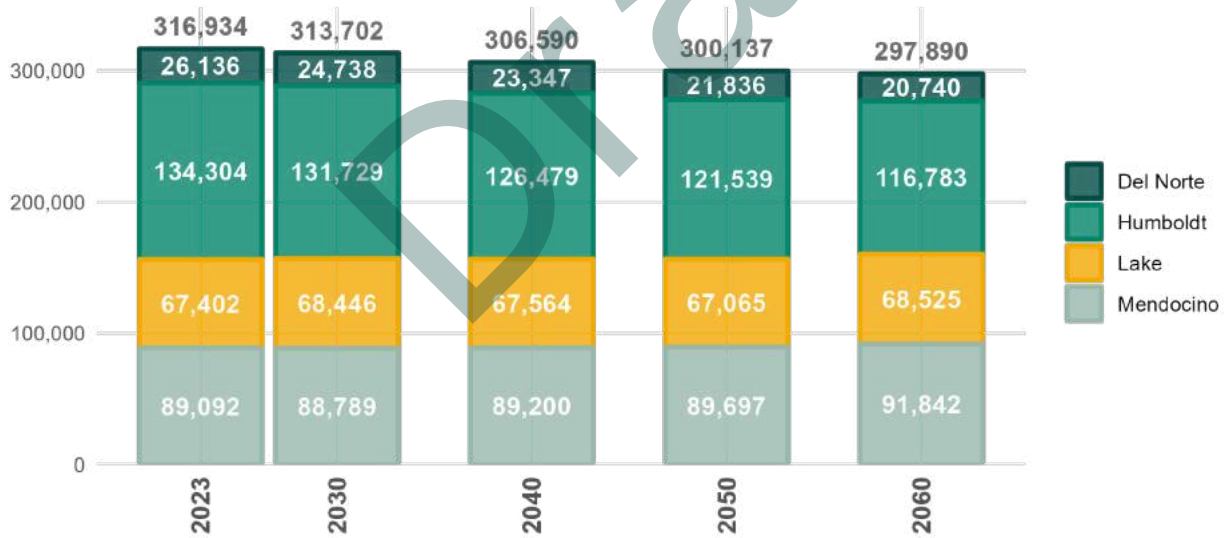
Population Growth and Components of Change



Note. Data sourced from the California Department of Finance

Figure A.5

California Department of Finance Population and Projections



Note. Data sourced from the California Department of Finance.

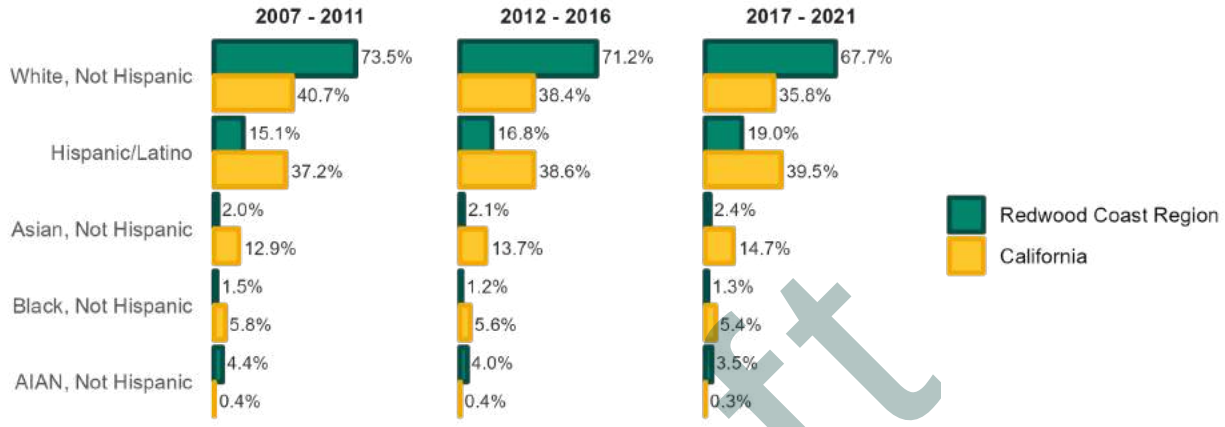
Race and Ethnicity

As shown below, the region is primarily populated by white, non-Hispanic individuals, who constitute 67.7% of the total regional population— almost double the statewide proportion of 35.8% for this group. Hispanic or Latino individuals constitute a further 19.0% of the population,

a share that is growing but small relative to the state population. While other minority groups are underrepresented compared to the state population, the American Indian and Alaskan Native (AIAN) population is proportionately higher than the state population, representing 2.4% of the Redwood Region population as opposed to only 0.3% of the statewide population.

Figure A.6

Race and Ethnicity (2007 - 2021)

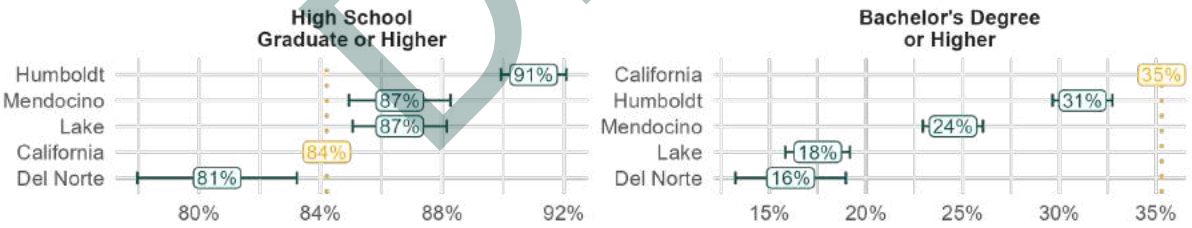


Note. Data sourced from the American Community Survey.

Educational Attainment

Figure A.7

Educational Attainment, Population 25 Years or Older (2017 - 2021)



Note. Data sourced from the American Community Survey.

Additional Indicators of Economic Well-being

Income Inequality

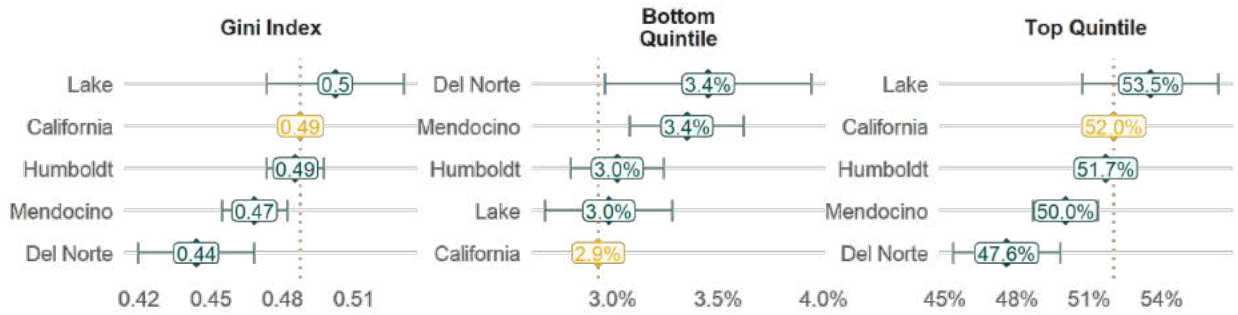
The degree of income inequality in the Redwood Region is comparable or lower than statewide indicators, an outcome that may be influenced by the substantially lower income of high wage and high skilled workers in the region. As indicated by the Gini Index[65], two counties

[65] A measure of income inequality ranging from 0 (most equal) to 1 (most unequal).

(Mendocino and Del Norte) have significantly lower income inequality compared to the state. In these two counties a greater percentage of total income is earned by the bottom 20% of income earners and a smaller percentage of total income is earned by the top 20% of income earners.

Figure A.8

Income Inequality (2017 - 2021)



Note. Data sourced from American Community Survey's five-year estimates.

Housing Availability and Affordability

As shown above, housing cost in the Redwood Region is lower than the statewide averages. However, these costs are substantially higher than similar rural areas nationwide. Moreover, because of the region's lower wages and income, affordability is substantially worse compared to similar rural regions. Moreover, a related indicator below suggests segments of the population may be more *severely* impacted by affordability. Statewide, 44.8% of renters spend more than 35% of their household income on housing expenses, while regional figures are as high as 54.0% in Humboldt.[66]

There are challenges with both the quantity and quality of the available housing supply. As shown below rental vacancy rates are lower than the statewide average, indicating far more competitive conditions for renters. Moreover, much of the region's housing supply is older and in need of repair. In Lake, for instance, a majority of housing units are in need of rehabilitation (Lake County, 2019). The scarcity of quality housing units is particularly difficult for low-income individuals, where property owners tend to favor potential tenants with higher income. As a result, lower income people may be pushed into substandard housing. A critical risk being childhood lead exposure. As discussed in the *Public Health Analysis*, deteriorating lead paint on older housing is the leading risk factor for lead poisoning and young children in the Redwood Region have some of the highest blood concentrations of lead in the state.

[66] Humboldt's figure is likely distorted by the presence of Cal Poly Humboldt's student population.

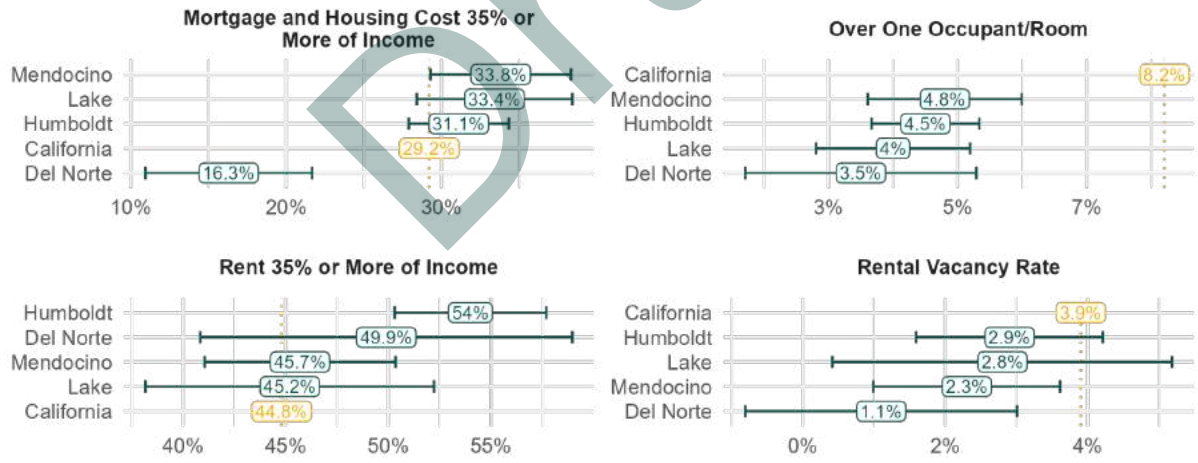
While over time, current trends of net population loss and out migration of high-income workers may reduce demand for housing and ease prices, there are current forces restricting or even destroying the supply of housing.

Recent wildfires have destroyed thousands of structures throughout the region, particularly in Lake and Mendocino counties and Tribal Lands. As discussed in the *Climate Analysis* wildfires are expected to increase sharply in the coming decades. These wildfires have also had a widespread effect of increasing home insurance cost and availability, impacting the total cost of housing for homeowners, but also renters who will ultimately shoulder much or all this additional cost through higher rents. Since 2018, there has been a sharp increase in the number of residents in Lake and Mendocino counties forced into higher cost last resort FAIR plans.[67]

There is also a lack of skilled trades workers to construct housing units needed to satisfy demand or replace housing units lost to wildfires. However, this lack of skilled trades workers also presents an opportunity to develop high wage jobs that meet a genuine economic need for the region. As discussed below, the construction industry as a whole pays higher than average wages and does not require a university degree. In particular, the Employment Development Department (EDD) projects carpentry to be one of the most in-demand occupations in the region through 2030.

Figure A.9

Housing Affordability, Conditions, and Availability (2017 - 2021)



Note. Data sourced from the U.S. Census Bureau's 2021 American Community Survey's 5-year estimates. Bars indicate 95% confidence intervals.

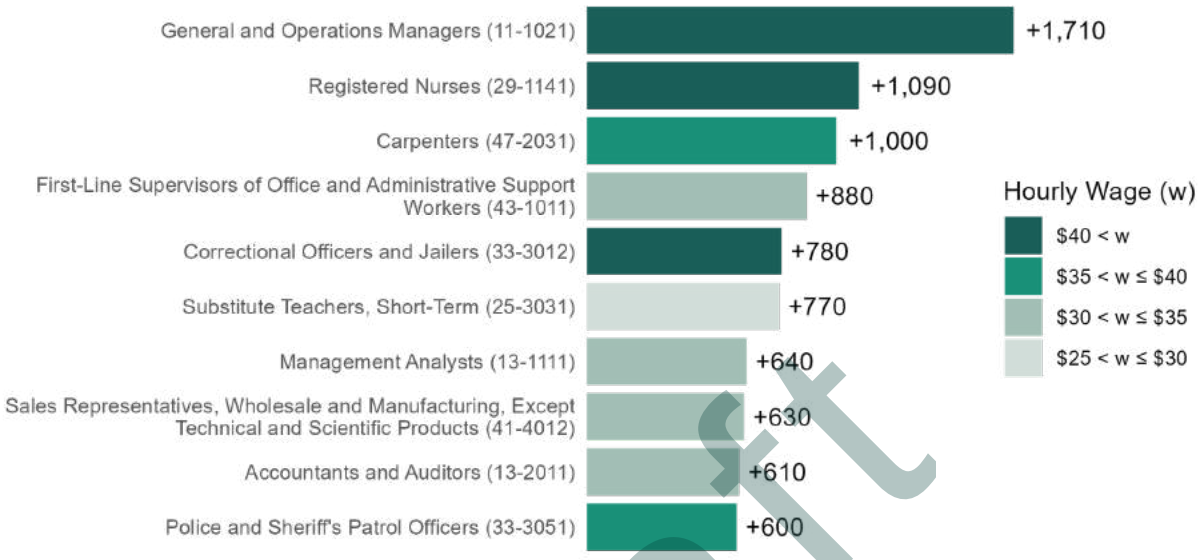
[67] Fair Access to Insurance Requirement (FAIR) plans are state-mandated property insurance plans for individuals and businesses unable to secure insurance in the standard, voluntary market)Fair Access to Insurance Requirements [FAIR] Plans, n.d.).

Additional Industry and Labor Market Data and Analysis

Top 10 High Wage Occupations by Projected Growth

Figure A.10

Top 10 Occupations by Projected Job Openings 2020-2030 with Wages > $25 per Hour (2022)



Note. Data sourced from California EDD. SOC codes in parentheses.

Labor Force Participation Rates

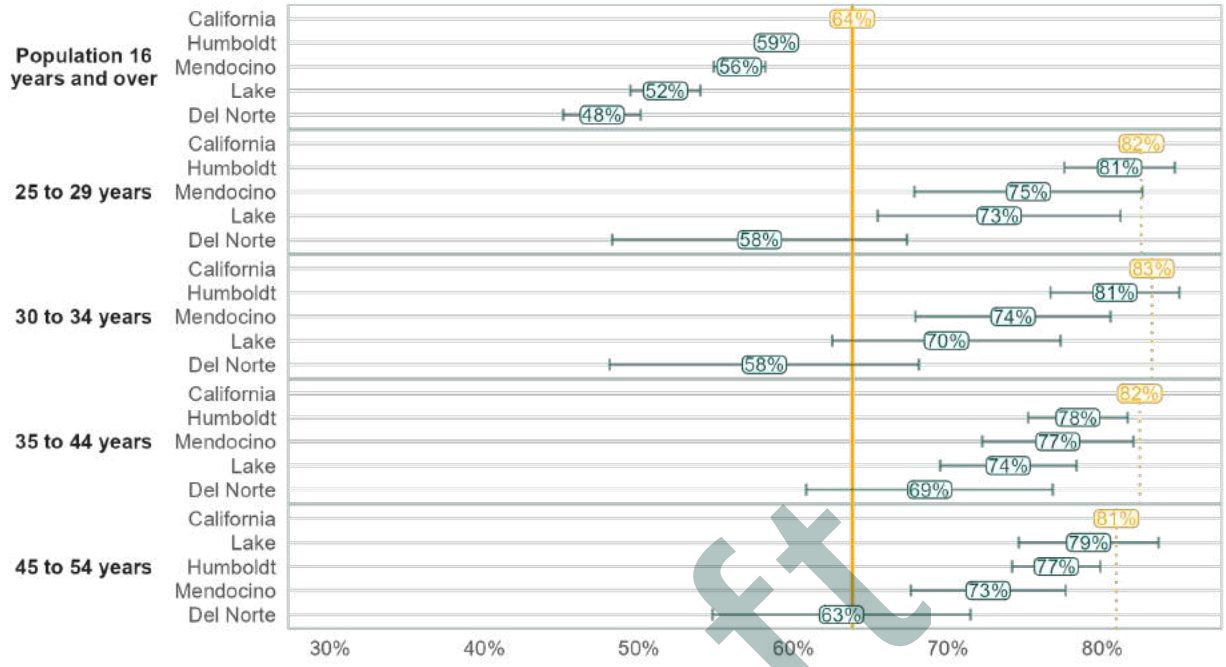
Another clear contributing factor to the region's higher poverty rates is lower labor force participation[68] (see below). The overall labor force participation rate is lower due to the region's aging population. However, even among prime age workers (ages 25 through 54) labor participation is significantly lower. Thus, barriers to employment appear to be particularly relevant to those who should be in their prime earning years. The Redwood Region's higher disability rates among these age ranges[69] may play a role as individuals with disabilities often experience barriers to employment.

[68] This is the percentage of the population 16 years and older who are either working or looking for work.

[69] See the *Public Health Analysis*.

Figure A.11

Labor Force Participation Rate by Age (2018 - 2022)

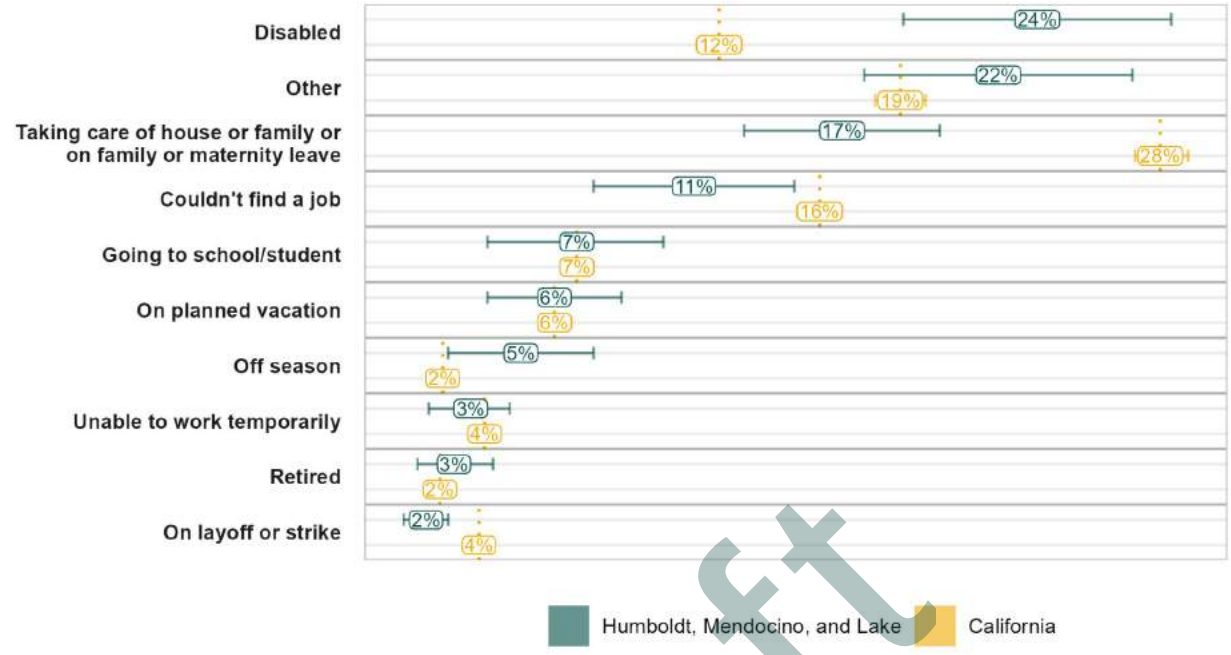


Note. Data sourced from the 2022 American Community Survey 5-year estimates. Del Norte figures are artificially low due to the effect of the prison population. Bars indicate 95% confidence intervals.

Data from the California Health Information Survey (CHIS) reveal that disability is a key factor behind the region's lower prime age labor force participation rates. Nearly twice as many CHIS respondents aged 25 to 54 who are not currently employed cited disability as the reason compared to the equivalent group statewide. Moreover, this trend is not unique to Humboldt, Lake, Mendocino counties and Tribal Lands. CHIS data indicate that across rural northern and northeastern Sierra counties in California, out of work prime age adults are far more likely to cite disability as a reason for being out of the workforce compared to the state average.

Figure A.12

Main Reason not Working Among Prime Age Workers (2011 - 2022)

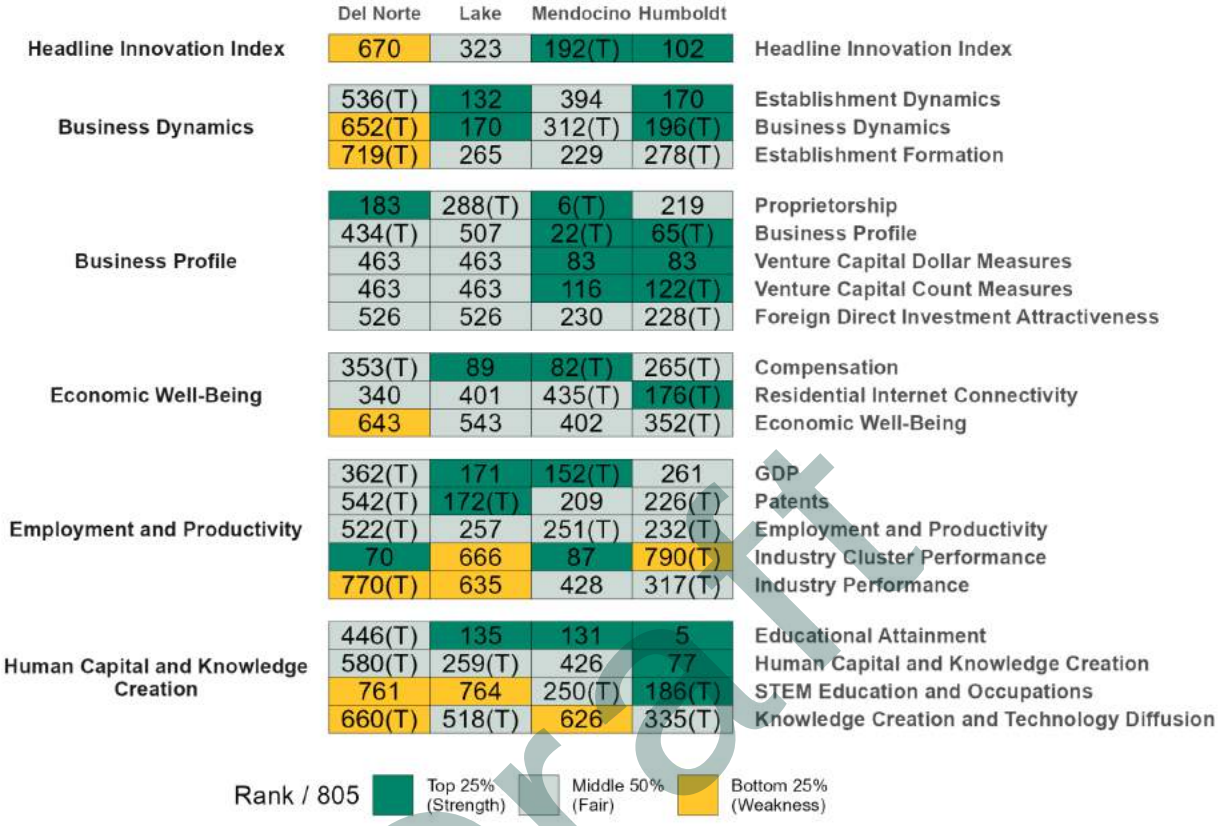


Note. Data sourced from CHIS. Del Norte data is unavailable. Includes only respondents aged 25 to 54 who are not currently employed. All available years are used to improve statistical reliability of the estimates. Restricting the years to 2017 - 2021 reveals an even sharper disparity in disability between the region and the state (23.4% compared to 10.6%).

Innovation and Business Environment

Figure A.13

Innovation Index Ranking Among Similarly Rural U.S. Counties



Note. Data sourced from StatsAmerica. For each indicator, the Redwood Region is ranked out of 805 U.S. counties with a similar Index of Relative Rurality (IRR) compared to the Redwood Region.[70]

Additional Climate and Environment Indicators

Wildfire Risk Assessment

The threat of wildfires is a growing problem in California, especially in the northern region of the state. Figure A.14 provides a visual mapping of wildfires across the state from 2018 to 2022 using data from the California Department of Forestry and Fire Protection (CAL FIRE). The data indicate recent wildfires have been larger and more common in the northern part of the state compared to the southern region. (StatsAmerica: Download Center, n.d.)

[70]This includes counties with an IRR such that $0.5 \leq IRR \leq 0.53$. For a detailed description of each indicator visit https://www.statsamerica.org/ii2/reports/Driving-Regional-Innovation.pdf

Figure A.14

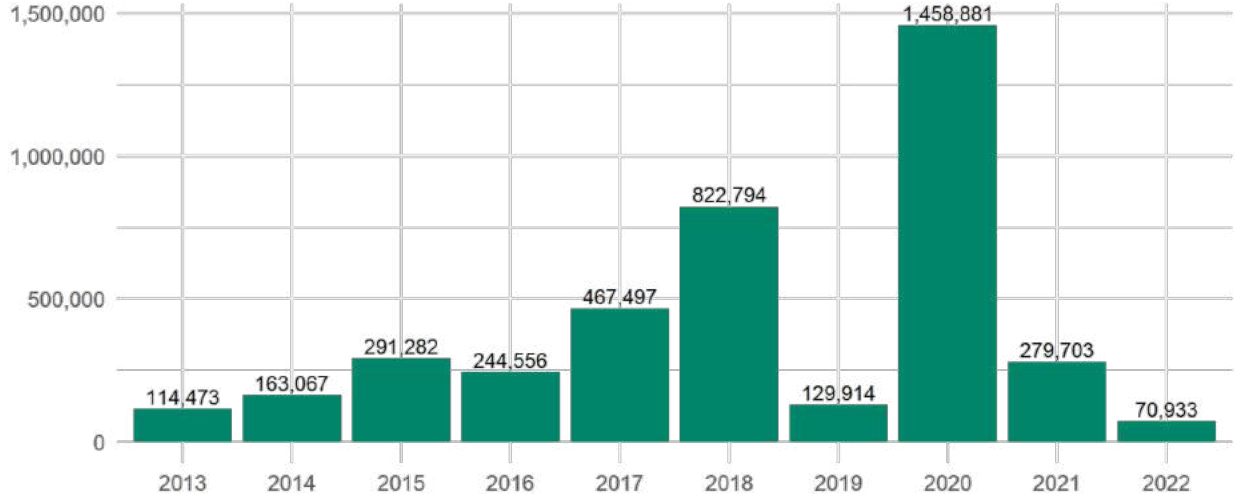
Wildfires, Burned Area (2018 – 2022)

Note. Data sourced from CAL FIRE.

Wildfires will be a prominent challenge for California, as climate change continues to contribute to the number and magnitude of fires across the state, including northern counties like Mendocino and Lake (California Energy Commission et al., n.d.). CAL FIRE data show the number of acres burned due to wildfires in California have increased over the years (see Figure A.15); so too has the number of destroyed structures (see Figure A.16).

Figure A.15

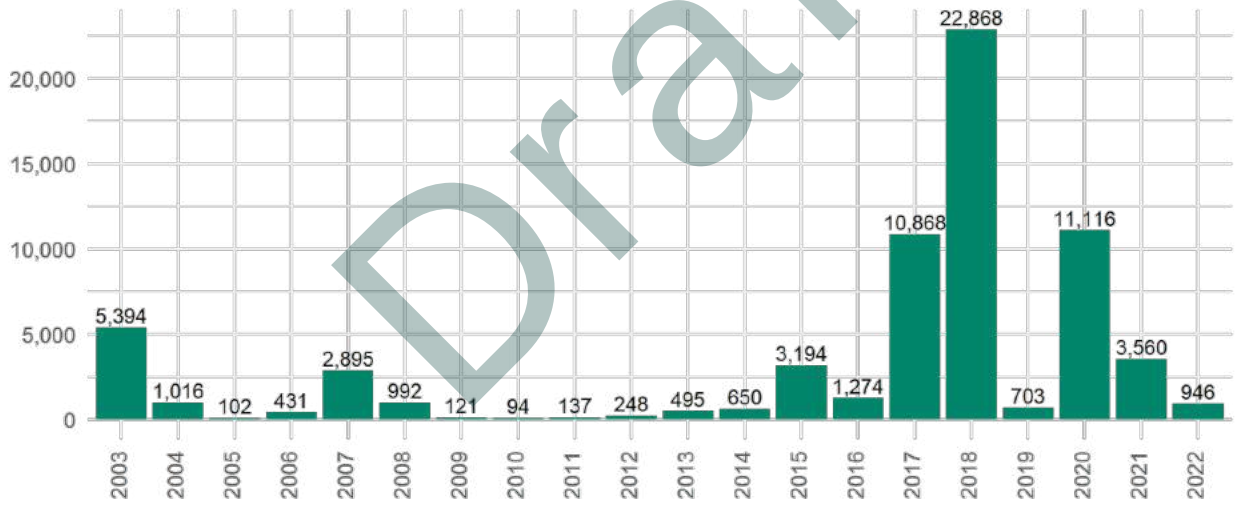
Number of Acres Burned by Year



Note. Data sourced from CAL FIRE.

Figure A.16

Number of Structures Destroyed by Year

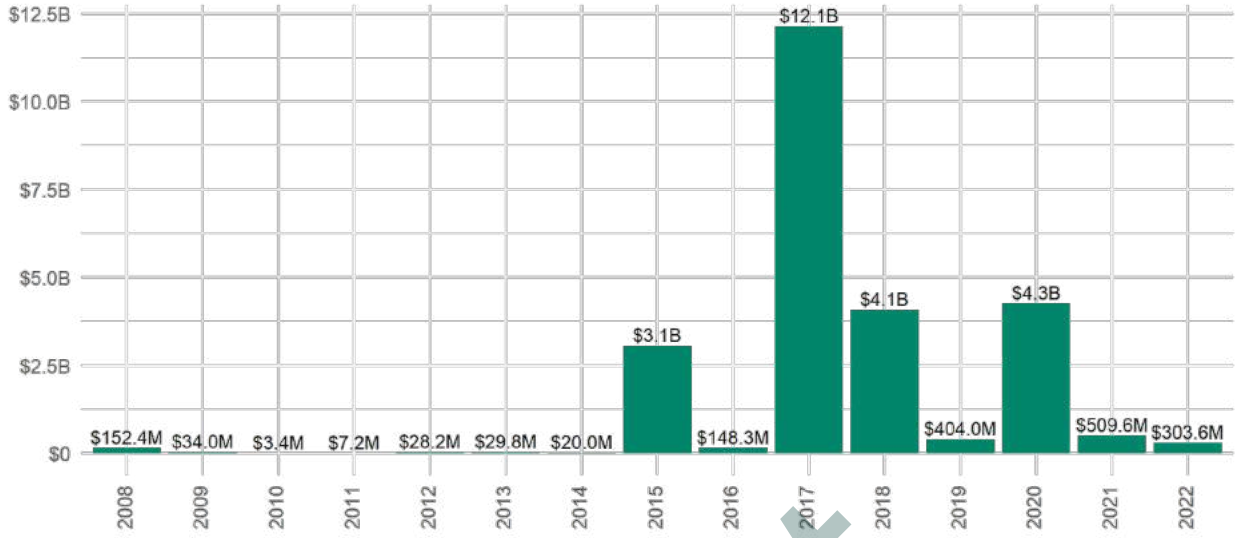


Note. Data sourced from CAL FIRE.

The increase of total dollar costs due to wildfire damage has been concurrent with rates of burned acres and destroyed properties (see Figure A.17).

Figure A.17

Total Dollar Cost from Wildfire Damages by Year



Note. Data sourced from CAL FIRE.

As wildfires continue to be an economic and social burden on California, insurance companies are denying homeowners insurance to many residents. Residents within zip codes affected by 2015 and 2017 wildfires experienced a 10% increase in insurer-initiated non-renewals between 2017 and 2018. The number of new and renewed policies in the voluntary insurance market fell by 8,700 in 10 counties with the most homes in high or very high-risk wildfire areas.[71] Thus, insurance in the voluntary market for California homeowners in areas at risk of wildfires is becoming increasingly difficult to obtain (Lara, n.d.).

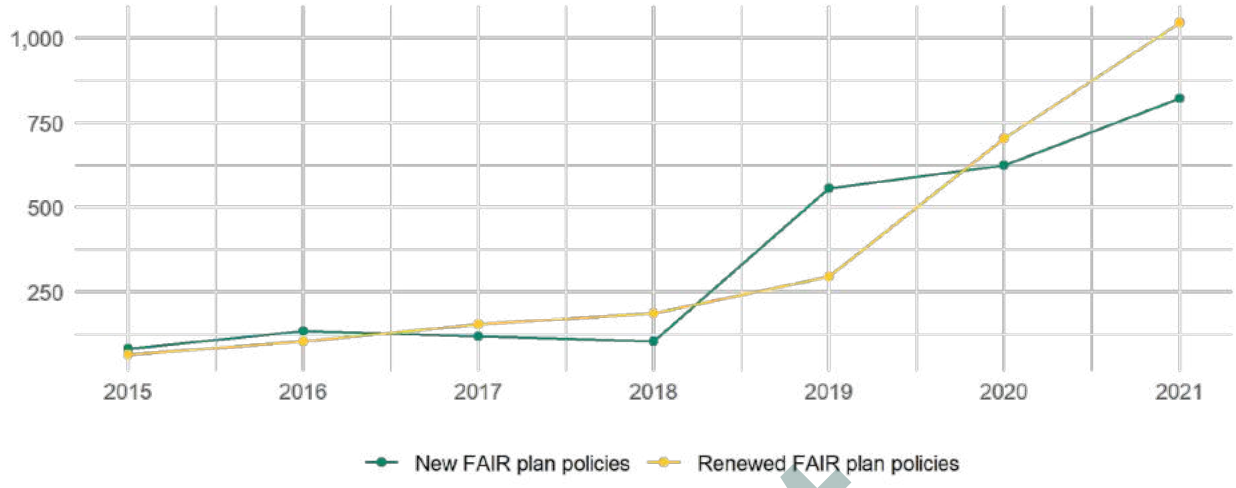
Many homeowners and business owners in high-risk wildfire areas are forced to secure insurance outside the voluntary market through surplus lines or under the FAIR plan,[72] often at higher costs. Ten counties with the most homes in high or very-high risk areas show a 177% increase in new and renewed FAIR plan policies between 2015 and 2018 (Lara, n.d.). New and renewed FAIR plan policies have increased in both Lake County and Mendocino County (see Figures A.18 and A.19).

[71] These counties include Tuolumne, Trinity, Nevada, Mariposa, Plumas, Alpine, Calaveras, Sierra, Amador, and El Dorado.

[72] Fair Access to Insurance Requirement (FAIR) plans are state-mandated property insurance plans for individuals and businesses unable to secure insurance in the standard, voluntary market (Fair Access to Insurance Requirements [FAIR] Plans, n.d.).

Figure A.18

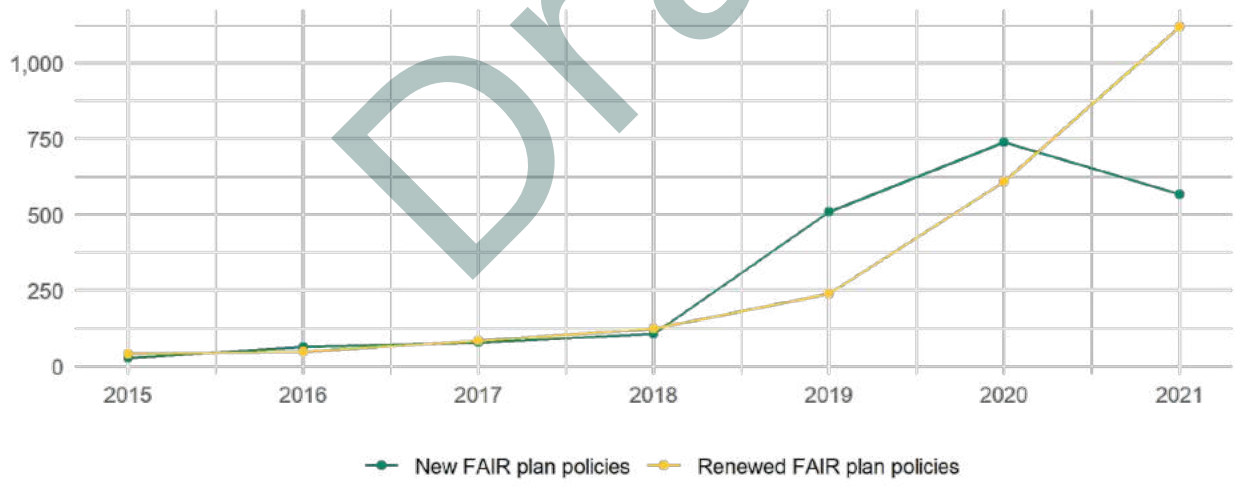
Number of New and Renewed Fair Access to Insurance Requirement (FAIR) Plan Policies in Lake County by Year



Note. Data sourced from the California Department of Insurance.

Figure A.19

Number of New and Renewed FAIR Plan Policies in Mendocino County by Year



Note. Data sourced from the California Department of Insurance.

Major 2015 Lake County Fires: Rocky, Jerusalem, and Valley Fires

Three fires occurred in Lake County and adjacent Tribal Lands during the summer of 2015 that burned over 170,000 acres, damaged or destroyed thousands of structures, and resulted in four fatalities (CAL FIRE, n.d.). Initiating this disaster was the *Rocky Fire*, which started southeast of

Clearlake on July 29 and was active for 16 days (CAL FIRE, n.d.-b), resulting in the evacuation of 13,000 residents by early August (NBC News, 2015). A second fire, named the *Jerusalem Fire*, started near the community of Hidden Valley Lake on August 9 while fire response personnel were still focused on containing the Rocky Fire that was just north and adjacent to the Jerusalem Fire (Reveal, n.d.), eventually merging into one major fire on August 12 (KRON, 2015). Both the Rocky and Jerusalem fires burned nearly 100,000 acres, damaged eight structures, and destroyed 123 structures before being fully contained by mid-August.

A third fire started outside the community of Cobb on September 9 and was named the *Valley Fire*, which currently is the 6th most destructive wildfire in California history (CAL FIRE, n.d.-c) and was the most destructive California wildfire in 2015 (CAL FIRE, n.d.-c).[73] About 20,000 residents were evacuated in advance of the fire that burned 62,000 acres within the first 48 hours since starting (Reveal, n.d.). The Valley Fire was the largest of the three fires, burning over 76,000 acres and remaining active for 33 days. The Valley Fire was also more destructive than the Rocky and Jerusalem fires, damaging 93 structures and destroying 1,958 structures, including 1,280 homes, 27 multi-family structures, 66 commercial properties, and 585 minor structures (California, S. O., n.d.).

Table A.1

Major Lake County 2015 Fires, Acres Burned, Days Active, and Structure Damage or Losses

Fire Name	Acres Burned	Days Active	Structures Damaged	Structures Destroyed
Rocky Fire	69,636	16	8	96
Jerusalem Fire	25,118	16	0	27
Valley Fire	76,067	33	93	1,958

Note. Data sourced from CAL FIRE.

The California Department of Insurance reports approximately $700 million in insurance losses due to the Valley Fire (California, S. O,n.d.-a), and preliminary estimates on total economic losses exceeded $1.5 billion (Reveal, n.d.). The 2016 Lake County Comprehensive Economic Development Strategy (CEDS) noted 2015 wildfires had a considerable impact on the local economy, hindering development projects due to several community infrastructure systems being destroyed in the fires (Lake County, 2016). The 2016 Lake County Community Health Needs Assessment (CHNA) also noted the impact on community members' wellbeing due to the 2015 fires. Overall findings indicate the 2015 fires attributed to challenges with poverty and mental illness. About one in five residents reported property loss due to the Valley Fire. Results from a focus group conducted for the 2015 CHNA noted some residents have experienced long-term trauma caused by their experiences during the fires. These findings assisted the county in

[73] Destructive is defined by CAL FIRE as *structural loss*. "Structures" include homes, outbuildings (barns garages, sheds, etc.) and commercial properties destroyed.

identifying a need for more mental health services to address residual trauma within the community (Lake County Community Health Needs Assessment, 2016).

2017 Redwood Valley Fire (Mendocino Lake Complex)

On October 8, 2017, a fire started northeast of Potter Valley, merging with a second fire in Redwood Valley a day later, creating what is known as the *Redwood Valley Fire.* The Redwood Valley Fire eventually merged with a fire that started in Lake County, named the *Sulphur Fire*, formally naming this set of fires the *Mendocino Lake Complex Fires*. The Redwood Valley Fire burned over 36,000 acres, forced 8,000 residents to evacuate, damaged or destroyed nearly 600 structures, including approximately 350 homes, and claimed nine lives (CAL FIRE, n.d.-c; Mendocino Council of Governments, n.d.; County of Mendocino, 2023).

Table A.2

Redwood Valley Fire, Acres Burned, Days Active, and Structure Damage or Losses

Acres Burned	Days Active	Structures Damaged	Structures Destroyed
36,523	18	41	543

Note. Data sourced from CAL FIRE.

For Mendocino County, residential and commercial property losses from October 2017 wildfires were over $180 million dollars (California Department of Insurance, 2018), much of this amount likely attributed to the Redwood Valley Fire. 2017 was a particularly devastating year for California wildfires, with the total number of acres burned that year (467,497) almost doubling the five-year state average (256,150). Nearly 11,000 structures were destroyed by California wildfires in 2017, more than previous years, and over two times more than the state's second most destructive wildfire year (2003, 5,394) (CAL FIRE, 2019). The California Department of Insurance reports California wildfires in October 2017 alone resulted in nearly $10.5 billion in residential and property losses(California Department of Insurance, 2018). The estimated total dollar amount in property loss due to wildfires in 2017 is over $12 billion (CAL FIRE, 2019).

Extreme Heat Days and Events

Extreme heat days and events are expected to increase in the region, particularly within inland zones, posing a threat to individuals, health care systems, and economies (California Energy Commission et al., n.d.; Pacific Institute, 2012). Table A.3 shows historical (1950-2013) and projected average number of days with extreme heat for each county in the Redwood Region.

Table A.3

Historical and Future Projections for Number of Days with Extreme Heat

County	1950-2013 (Observed Historical)	2025-2039	2040-2054
Del Norte	5.2	8.6	13.4
Humboldt	3	11.6	18.2
Lake	3.6	13.6	17.7
Mendocino	4.2	14.8	17.4

Note. Data sourced from (Cal-Adapt, n.d).

Extreme heat events are associated with higher rates of mortality (Bull & Morton, 1978; Ballester et al., 1997; Basu & Samet, 2002; Yu et al., 2011) Individuals with certain health conditions, such as heart disease, are susceptible to the dangers of extreme heat. Exposure to extreme heat is associated with higher rates of cardiovascular mortality (MEDBOX, n.d.). Rates of heart disease are elevated in the region compared to the state (Kirsch, 2023), suggesting an increase in the number of projected days with extreme heat may lead to higher rates of heat-related deaths. Excessive heat can also trigger health conditions, such as heat cramps, heat exhaustion, and heat stroke (California Environmental Protection Agency & California Department of Public Health, 2013).

Certain populations within the region are more susceptible to extreme heat. As much as 45% of the region's population is moderately to highly vulnerable to the effects of climate change, including extreme heat (Pacific Institute, 2012). Children (all ages), those with medical conditions (e.g., diabetes), disabilities, or are on certain medications, households without air conditioning, those with low-income, ethnic minorities, and outdoor workers are all disproportionately susceptible to the threat of extreme ambient temperatures (Pacific Institute, 2012; Union of Concerned Scientists, 2021). The population likely most at risk from extreme heat is individuals 65 years of age and older (Pacific Institute, 2012). The region's median age is skewed older compared to the state. An aging population and an increase in the number of days with extreme heat may result in higher rates of heat-related mortality and hospitalizations (Centers for Disease Control and Prevention, 2022; Li et al., 2019).

Economic wellbeing can also be threatened by extreme heat. One effect of rising temperatures is a loss of occupational productivity. Nationwide, exposure to heat led to a loss of nearly 500 billion potential labor hours in 2022, nearly a 42% increase from 1991 to 2000 (Lancet Countdown, 2023). Outdoor workers in the region may experience diminished productivity due to extreme heat events, which could ultimately affect revenue for companies.

Extreme heat may be an economic challenge for the Redwood Region's agricultural industries. The wine industry, for example, is an important economic component for certain parts of the

region, particularly Mendocino County, which contributes nearly $46 million in state and local tax revenue annually (Economic Forensics and Analytics, Inc., n.d.). Wine grapes are sensitive to ambient temperature, which can affect the quality and flavor of final products. With the number of days with extreme heat expected to increase over time, the Mendocino wine industry could experience economic losses (USDA Climate Hubs, n.d.).

An increase in the number of days with extreme heat could also be a challenge for local healthcare systems. Extreme heat events are positively associated with healthcare utilization. Nationwide, extreme heat events during the summertime cost $1 billion in excess emergency department visits and hospitalizations (Rodriguez, 2023). Growing rates of heat-related illness and mortality could put further administrative and economic strain on the region's healthcare systems that are already inundated and insufficient.

Redwood Region RISE

PARTNERSHIP MAPPING REPORT

OPPORTUNITIES AND CHALLENGES FOR PARTNERS BUILDING AN EQUITABLE ECONOMIC DEVELOPMENT ROADMAP FOR THE CALIFORNIA REDWOOD COAST

DECEMBER 15, 2023

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Contents

Executive Summary

This study describes the number, types, purpose and capacity of partners participating in Redwood Region RISE (RR RISE), the CA Jobs First regional planning initiative for the Redwood Coast Region. While data presented is drawn from multiple sources and formats, methodological limitations limit the ability to generalize findings across the region. Findings may not accurately describe the experience of all people in the region or diverse experiences within named communities of people and the 32+ sovereign Tribal governments, communities and citizens whose ancestral homelands encompass this region.

This report offers a baseline snapshot of perspectives contributed by partners participating in RR RISE engagement activities on the planning process between February and November 2023, and shared priorities for achieving widespread economic well-being in the region. It suggests opportunities to strengthen collaborations and relationships as partners move into the next phase of planning focused on crafting a vision, goals, strategies and projects that will guide regional economic development into the future. It is intended to establish a foundation to guide ongoing inquiry, outreach and community dialogue.

A. Historically Active Partners

More than 970 community members and organizations across all counties and required partner groups, including Tribes, have signed up for the mailing list and are tracking RR RISE activities. Partners who responded to two surveys are eager to participate to ensure the planning process fairly identifies projects for funding and the regional plan is aligned with existing plans and strategies. Partners are also eager to meet locally, spread word about local meetings and engage communities who don't typically participate in economic development planning in the process.

The RR RISE governance structure is comprised of the Regional Collaborative, Equity Council, Tribal Planning Table, four Sector Tables and Local Planning Tables to ensure multiple opportunities for participation by all required partners and priority communities. Attendance at monthly Collaborative meetings has increased over time and is strong and steady.

B. Disinvested Communities and Economic Barriers

The entire Redwood Coast Region meets the state's definition of a "disinvested community." The burdens of this disinvestment are shouldered unequally and are not concentrated in certain geographic areas. For this reason, the RR RISE Collaborative defines disinvested communities as people in communities falling within the state's definition *and* belonging to groups united by ancestry, ethnicity, belief, affinity, and experience who are negatively impacted by social, political and economic exclusion.

Residents of the Redwood Coast Region, particularly members of priority communities, are among the poorest in the state according to traditional measures of economic well-being, are at risk of disproportionately poor health outcomes related to substance use, behavioral health, disability and delayed or lack of access to health and behavioral health care and are vulnerable to

climate impacts related to their age, disability, health and income statuses. Their annual income is largely consumed by essential expenses like healthcare, housing, transportation and childcare, which exceed state averages.

Experiences relayed through listening sessions with members of priority communities and in-depth interviews with job seekers, workers and business owners representing priority communities confirm and elaborate on these economic barriers. Direct feedback from priority communities calls attention to their struggles in obtaining stable jobs that pay enough to cover expenses, relevant skill development opportunities, resources in their communities that meet basic needs for housing, transportation, child/family care and healthcare, and meaningful work structured in ways that fulfill the reasons they choose to live and work in this region – at times, despite enduring and significant challenges. People in priority communities spoke about the impacts of trauma, violence, discrimination and exclusion, and the importance of connection, social safety, the experience of being valued and the desire to simply meet basic needs while being able to choose their career path, where they live and how to honor the many reasons they call this region home.

The RR RISE Equity Council identified specific ways in which economic barriers are compounded by social and political barriers that prevent the participation of priority populations in economic development planning and have historically prevented them from benefiting from local investment. The Council cites a need for social infrastructure to support participation of priority communities in the RR RISE process. Ensuring communication is accessible and understandable by using plain language, providing physical and emotional safety in community forums, and creating opportunities for members of priority populations and organizations they lead to be embedded in planning and project processes as full partners are necessary to the success of regional work.

Data show Native Americans are among the people most severely impacted by economic barriers. The RR RISE Tribal Planning Table met for the first time in December 2023 and is providing a forum for Tribal government leaders to determine how they would like to engage in RR RISE to further their economic development plans and projects. The outreach team will continue to engage leaders in the 32 federally and non-federally recognized governments in this region to ensure the Tribal Planning Table is directed by and meets the purposes established by Tribal government leaders.

Existing Plans and Synergies Supporting Regional Partnership

The Redwood Coast Region is a new state-designated planning area, with RR RISE and the K-16 Collaborative awarded in 2022 the first efforts to coordinate economic development and education pathways across the region. Counties have not and do not yet routinely work together on plans or projects although Mendocino County has joined with Sonoma County to form an Economic Development District. While there are no Redwood Coast regional plans available for analysis in this report, an analysis of existing plans documents a shared focus on industry sectors and aligned goals and strategies. Moreover, the RR RISE proposal development and planning

process has already generated synergies advancing regional cooperation and coordination toward economic development planning.

Regional relationships formed as a result of proposal development, and Collaborative and other RR RISE meetings confirm partners and communities across the region are exploring, developing, and implementing similar/related economic development goals and strategies. The focus and composition of Sector Tables launching in January reflects these shared areas of focus and purpose and provides a forum to build partnerships and identify opportunities that make economic sense for the region. Organizations representing industry leaders from each county will partner to craft shared strategies backed by regional data and informed by input from other Collaborative planning tables and priority communities.

C. Strengthening the Network of Existing Partners

Partnership development is complex work. Feedback from partners and communities across the region suggests this work needs to be approached from a systemic perspective and supported at many levels.

Strengthening relationships between diverse partners, and between partners and communities.
Most organizations participating in RR RISE are small and work at county levels. They reach all priority (disinvested) communities identified by the RR RISE Collaborative, and most often serve people living in remote areas, youth, communities of color, ethnic and racial minorities and LGBTQIA+ communities. Few organizations reported serving non-federally recognized Tribes, unions/union members and monolingual Hmong speakers. Survey results suggest additional outreach and research can help clarify how RR RISE priority communities are identified and engaged by organizations participating in economic development planning and implementation processes.

Research for this study showed, on average, the strongest planning and project partnerships exist between traditional economic development actors: education, government, economic development and workforce development agencies and businesses. Government and economic development partners also reported they have strong relationships with Tribes and community development organizations.

On average, workforce development agencies and businesses in this region don't partner with environmental justice organizations. Grassroots, business, and philanthropy organizations don't partner with labor organizations. Environmental justice and labor organizations can offer important contributions toward the larger goals of the RR RISE initiative. Additional outreach to engage their participation in RR RISE planning tables can help forge stronger relationships.

Existing partnerships with the potential to shift from exchanging information to collaborating on projects include education organizations with Tribes and with community development organizations; government and workforce development organizations with grassroots organizations; and business organizations with economic development organizations. Outreach

and additional focus on these groups to learn how they are working together, clarify their roles in local and regional economic development work, and identify how they might be resourced to collaborate on developing plans and projects may open additional opportunities to accelerate regional work.

From the perspective of ensuring an equitable, inclusive process, organizations and community members in the Redwood Coast Region express a high level of commitment to building on community strengths and addressing community problems. They are willing to form partnerships and relationships around economic development plans and projects that meet the needs of priority populations. Yet many partners experience capacity gaps in skills, expertise, organizational infrastructure, training, staffing, and funding. Transportation and time also pose barriers for most partners to achieve broader participation in the planning process, followed by digital inequities related to lack of access to broadband or devices.

A primary obstacle to forming partnerships in the region is the lack of capacity among nonprofits, especially those located within and/or serving key segments of priority communities and geographic areas. Tribal governments, communities, and tribal-serving organizations are among the least capacitated and simultaneously recognized as among the most innovative and integral partners to engage in economic development projects. Tribes and workforce development organizations reported community distrust is a challenge that prevents them from achieving broader participation in economic development planning.

Community members participating in listening sessions and Local Planning Table meetings also reported a lack of trust in government and economic development agency planning processes due to the history of extractive boom and bust cycles of development and failure of governments and business to deliver on previously planned projects or to include community feedback in planning processes. Listening sessions, interviews with members of priority communities and meetings of the Equity Council surfaced concerns about indigenous erasure, violence, exclusion and structural inequities that pose real barriers to priority populations' participation in economic development planning and project development.

The willingness expressed by partner organizations and community members to focus on strengths, form partnerships, and access training that presents new models of community investment and building community power signal opportunities that can help address challenges to engaging priority communities in the process of developing equitable economic development partnerships, plans and projects. Delving more deeply into imbalanced power dynamics and capacity constraints in dialog facilitated by skilled intermediaries, additional research to lift up the experience of priority communities, and ongoing outreach to include priority communities in decision-making processes can help uncover, name and address these challenges.

<u>Strengthening regional partnerships within and across industry sectors</u>
The Redwood Coast Region is a new state-designated planning area. Economic development partners in counties across the region do not routinely work together on plans or projects. RR

RISE and the K-16 Education Collaborative represent the first efforts of counties across the region to organize and collaborate on plans and projects. Strong regional alignment across industry sectors, goals and strategies present abundant opportunities for partners to design projects with regional relevance. RR RISE Sector Tables create a space to catalyze partnerships, develop regional strategies and propose regional projects.

Convening groups around shared interest in growing research and development, education, business entrepreneurship and communications/marketing strategies can help incubate partnerships and build support networks across industry sectors. Participants in listening sessions and local planning table meetings acknowledged NIMBY-ism or community resistance to change and planned projects often presents a major challenge to progress. Responding to requests from county residents and priority communities to form and/or fund intermediary organizations with the capacity to train, coach and build leadership skills in diverse communities, facilitate respectful dialogue and build social networks focused on specific goals can help ensure local voices contribute to plans, project designs and formation of local and regional partnerships within and across industry sectors.

From the perspective of ensuring an equitable and inclusive planning process, partners across the region will need to address the tension between planning for strategies that build toward regional growth industries and strategies to meet critical infrastructure, talent and funding gaps that currently limit economic growth within their own communities. Partners from across the region have repeatedly voiced concern about the process of fairly identifying projects for funding. To ensure an inclusive planning process, partners must address power differentials that have created barriers to the participation of RR RISE priority communities in planning and decision-making, including building the capacity of organizations to achieve broader participation in RR RISE and of communities to organize in self-determined, sustainable ways.

Sector Tables create a structure and forum for this work. The investment of Catalyst Funds will help support partners in working together across sectors and counties to develop a shared vision, strategies and criteria for developing and selecting projects. Tools will present opportunities for partners to clarify their roles, strengths and limitations so that efforts can be coordinated and partners can contribute from their position of strength. This work presents an opportunity for partners to join in identifying resources needed to support cross-sector work on an ongoing basis and collaborate to build an inclusive social and planning infrastructure.

Regional and State Partnerships

RR RISE partners, including members of priority communities, point to federal and state policies and grant programs that are not designed to support rural regions' ability to compete or develop projects that meet their needs. They specifically call out shifting and unrealistic timelines, performance criteria, and disbursement schedules that do not account for the time and resources required to form partnerships, ensure community participation, design responsive and complex regional projects, and deliver results.

Partners are burdened by competing demands to produce and implement local/county plans in divergent planning jurisdictions simply to access ongoing, much needed local funding, and the lack of coordinated or enabling policy to support local or regional implementation of plans and projects. The number, nature and timelines of federal and state implementation opportunities are overwhelming strained systems, and grant funding programs are not designed with the realities that structure rural economies in mind.

Many local governments, businesses and community-based organizations do not have the expertise, experience, or capacity needed to capture and/or use grant funded resources without assistance. That the state agencies leading the CA Jobs First grant program have not been able to hire regional staff to provide guidance to northern California and the Redwood Coast Region for this grant program is an indicator of the difficulties partners in this region experience when searching for talent. Partners expressed needs to build the awareness, knowledge, and experience in economic development planning and implementation processes to meet persistent and urgent local needs and begin to work at the scale contemplated by CA Jobs First and other grant programs.

Summary

Data gathered from RR RISE partners and community members across the region tracks closely with research conducted by nationally renowned rural scholar Anthony Pipa at Brookings[1] and by the Little Hoover Commission[2] documenting the historical policy impacts of federal and state underinvestment in rural regions. This work points to the need to prioritize stable, flexible funding specifically for rural regions that builds local leadership capacity, improves policy and funding coherence at federal and state levels, and invests in substantial, flexible grants to enable regions to capitalize on and preserve the beauty, quality of life and pride of place that are also critical to catalyzing economic growth.

While state policy focuses on building traded sectors, this region lacks a coordinated approach to industries holding that potential and capacity to build markets is critically and negatively impacted by the lack of physical infrastructure - transportation routes, water, housing, broadband – and services – healthcare, education – to effectively build markets that will engage and meet existing needs of the residents of this region, especially priority communities.

[1] (Pipa, A, 2003) A recipe for a rural policy renaissance [Podcast Transcript]. https://www.brookings.edu/wp-content/uploads/2023/03/Reimagine-Rural-Ep-8-policy-recipe.pdf

[2] Little Hoover Commission (2022). *Equitable economic development across California*. https://lhc.ca.gov/report/equitable-economic-development-across-california-0

Introduction

The California Jobs First Grant Program (previously Community Economic Resilience Fund) seeks to build an equitable and sustainable economy across California's diverse regions and foster long-term economic resilience in the overall transition to a carbon-neutral economy. Jobs First is designed to maximize the participation of diverse stakeholders in regional economic development planning processes. Through this program, the state has funded thirteen regions to convene a Collaborative that accounts for diversity across sectors, subject matter expertise, lived experience, and inter-generational perspectives to develop a Regional Roadmap toward quality jobs, economic resilience and carbon neutral future.

Jobs First emphasizes inclusive planning to ensure equitable outcomes for disinvested communities, which face many challenges resulting from inequitable land use and zoning policies, exclusionary economic development processes, underinvestment, and a lack of meaningful engagement in planning and policy decisions. It acknowledges residents and community leaders in disinvested communities are actively engaged in local planning, economic development processes, campaigns, and other activities to improve their communities' quality of life, and the grant program is structured to ensure these communities enjoy the benefits of future investments.[3]

Regional plans must be supported by data, including a report providing a snapshot of the historically active stakeholders (hereafter partners[4]) that can influence creating an equitable, High Road economy[5] and/or benefit from it; describing the region's disinvested communities; and mapping a network of partners that can identify opportunities, challenges and potential investments on the path to achieving economic and climate resilience. The report must also include a capacity and power analysis, to surface and document how challenges like economic barriers and the capacity to engage in economic development partnerships impact priority populations, community partner organizations and economic development planning processes in the region.

This report identifies partners, describes disinvested communities and the challenges to economic well-being they experience, and surfaces opportunities to expand partnerships in the Redwood Coast Region (Del Norte, Humboldt, Lake and Mendocino Counties) that can help

[3] Notice of Availability of Funds, Community Economic Resilience Fund Program, Program Year 2022-24 Solicitation for Proposals. https://edd.ca.gov/siteassets/files/jobs_and_training/notices/docs/wssfp21-06.pdf

[4] Stakeholder is a term communities may find offensive, particularly Indigenous communities. RR RISE chooses instead to refer to all those who have an interest in and/or may wish to join us in this work as partners. https://sph.uth.edu/research/centers/dell/blog/posting.htm?id=reflecting-on-our-language-stakeholder

[5] The CA Workforce Development Board High Road Framework is focused on opportunity and mobility, a stronger economy for employers who deliver quality jobs and design skills solutions to shared needs, and a more sustainable and resilient environment and community. https://cwdb.ca.gov/wp-content/uploads/sites/43/2019/09/High-Road-ECJ-Brief_UPDATED-BRANDING.pdf. https://cwdb.ca.gov/wp-content/uploads/sites/43/2020/08/OneSheet_HRTP_ACCESSIBLE.pdf.

inform and support the Redwood Region RISE Collaborative to craft a Regional Roadmap by June 2024.

Methods

Data for this report were gathered using the following methods:

- Two surveys fielded to everyone who signed up for the Redwood Region RISE mailing list and promoted through outreach activities and at a regional economic summit: one between March-June 2023, and a second between September-November 2023;
- Outreach and engagement activities, including listening sessions, semi-structured interviews with individuals representing required project partners and disinvested communities, conducted between April and November 2023;
- Semi-structured interviews with business owners, job seekers and workers in disinvested communities conducted in November 2023;
- Documentation of Redwood Region RISE Collaborative activities:
    - Collaborative member registration, email list, attendance records,
    - Local planning table meetings conducted in September 2023,
    - A Collaborative kickoff meeting conducted in September 2023.

Limitations

The results in this section are limited by the brief data collection window in which to canvass a geographically large, remote and diverse region composed of 4-counties and Tribal lands; the methods used to gather data; the lack of high quality and relevant existing data/research available for rural counties and Tribal lands that comprise this region; researcher bias; and participant bias.

Community members who completed surveys, participated in listening sessions and individual interviews and attended local planning table and Collaborative meetings volunteered to participate, responded to an invitation, and/or were nominated to participate, and their responses may differ from others in their communities in systematic ways. Most Collaborative meetings are held online and Spanish language translation for online meetings is provided only during monthly Collaborative meetings. Limited English language proficiency, digital literacy skills, and broadband access are barriers to participation experienced throughout the region by all required partner and priority communities[6]. Accessibility of online and written materials, online meeting platforms and physical meeting locations for those with disabilities, lack of transportation, family care and other obligations also limited responses from members of priority communities.

Finally, the Convening team's challenges in bridging historical cultural, geographical, political, governance and other barriers to working effectively with the region's 32 federally recognized sovereign nations and non-federally recognized Tribal communities constrained its ability to capture primary data from these communities during the data collection period.

[6] See discussion of Priority Communities on page 17.

For these reasons, results presented in this report may not accurately or completely represent circumstances or conditions as they are experienced by or affect all Tribes, communities and partners throughout the Redwood Coast Region. To balance these limitations, data in this report has been reviewed with members of the Redwood Region RISE Collaborative. The report was also reviewed by members of the Collaborative prior to submission.

This report offers a baseline snapshot of partners' perspectives on the RR RISE planning process and priorities for achieving widespread economic well-being in the region. It is intended to establish a foundation to guide ongoing inquiry, outreach and community dialogue. It suggests opportunities to strengthen collaborations and relationships as partners move into the next phase of planning focused on crafting a vision, goals, strategies and projects that will guide regional economic development into the future.

A. Historically Active Partners

i. List of organizations and entities

Organizations across the Redwood Coast Region with a role in economic development began meeting in late 2021-early 2022 in anticipation of submitting a proposal for CERF Planning Phase funding. A core group of community partners leading the proposal effort conducted outreach to Business, Government agencies, Grassroots/Community based organizations, Labor, Philanthropy, Workforce Development partners, Education/ training centers, Economic Development Agencies, Federally and non-Federally recognized Tribal Governments and citizens, Community members, and Environmental Justice Organizations to secure their participation in proposal planning.

These community leaders and partners selected Arcata Economic Development Corporation (AEDC) as the fiscal agent, the California Center for Rural Policy (CCRP) as the Regional Convener and North Coast Opportunities, Inc. (NCO) as the outreach lead. Collectively these organizations are the region's Convening Team tasked to help prepare the proposal. CCRP created an email list for Redwood Region RISE (Resilient, Inclusive, Sustainable Economy), as the project was named, in June 2022. At the time the region was awarded funding in early 2023, approximately 75 organizations representing required partners had signed up to receive email updates.

Redwood Region RISE (RR RISE) officially launched on February 23, 2023. Monthly meetings are held on Zoom. The RR RISE Collaborative is open to all interested partners/members of the public, who can register online to participate in the Collaborative and join the RR RISE mailing list.

The Convening Team initiated outreach and actively engaged people representing a broad range of required partners to join the RR RISE mailing list to help ensure balanced representation across the region. The Convening Team then recruited a volunteer Task Force from organizations

on the email list to form the Collaborative's governance structure. Between March 1 and August 15, 2023, while the governance structure was under development and nominations to seat representatives to the Collaborative's sub-committees, or planning tables, was underway, 747 non-affiliated community members and people in organizations representing required partner groups and priority populations in every county across the region joined the RR RISE mailing list (Table 1).

Table 1. RR RISE Mailing List 8/15/23

RR RISE Mailing List 8/15/23	Del Norte	Humboldt	Lake	Mendocino	Regional	**Total by Category**
Priority Community	0	0	1	1	0	**2**
Economic Development	3	13	8	11	2	**37**
Education/Training	7	19	8	9	8	**51**
Employer/Business Association	8	38	9	26	1	**82**
Environmental Justice	8	14	6	16	0	**44**
Government	18	68	24	45	8	**163**
Grassroots/Community-based Organization	13	39	19	32	1	**104**
Labor	6	10	5	4	1	**26**
Philanthropy	7	11	3	2	1	**24**
Tribal	20	30	21	22	4	**97**
Worker Centers	1	3	6	7	0	**17**
Workforce Entities	5	7	5	5	0	**22**
Community Member/No Affiliation	8	37	14	19	0	**78**
Total by County/Tribal Lands	**104**	**289**	**129**	**199**	**26**	
There are some individuals who may be counted in more than one county/service region and/or partner category. Example: If someone serves Del Norte and Humboldt counties, they would be counted in each of these counties.						
Organizations that are listed as disinvested communities support our community members who have historically been under-represented when approaching opportunities for growth, and whose voices may be heard less than our other partner categories. This includes, but is not limited to seniors, opportunity youth, farmworkers, and members of the BIPOC community.						

The majority represent individuals and organizations located in/serving Humboldt and Mendocino counties. However, as a share of county population[7], Del Norte has the greatest proportionate representation (.38%), followed by Mendocino (.22%), Humboldt (.21%) and Lake (.19%). Government and grassroots/community-based organizations and Tribal citizens and Tribal governments are represented in the greatest numbers. Multiple people from the same organization can register for the mailing list.

The RR RISE Collaborative seated members at its planning tables in late August and September 2023. On November 21, 2023, the RR RISE Collaborative email contact list included 971 non-affiliated community members and people in organizations representing required partner groups and priority populations in every county across the region (Table 2). As a share of county population, Del Norte has the greatest proportionate representation (.54%), followed by Mendocino (.28%), Humboldt (.28%) and Lake (.24%).

[7] Population estimates based on US Census Data July 1, 2022 available at https://www.census.gov/quickfacts/.

Table 2. RR RISE Mailing List 11/21/23

RR RISE Mailing List 11/21/23	Del Norte	Humboldt	Lake	Mendocino	Regional	Total by Category
Priority Community	4	4	2	2	0	**12**
Economic Development	5	14	9	11	2	**41**
Education/Training	9	25	9	11	8	**62**
Employer/Business Association	11	46	9	35	1	**102**
Environmental Justice	8	17	6	16	0	**47**
Government	22	72	27	49	8	**178**
Grassroots/Community-based Organization	20	61	28	39	7	**155**
Labor	8	12	10	12	1	**43**
Philanthropy	8	11	4	2	2	**27**
Tribal	20	32	23	22	4	**101**
Worker Centers	1	4	7	7	0	**19**
Workforce Entities	6	7	5	5	0	**23**
Community Member/No Affiliation	24	71	23	41	2	**161**
Total by County/Tribal Lands	**146**	**376**	**162**	**252**	**35**	

There are some individuals who may be counted in more than one county/service region and/or partner category. Example: If someone serves Del Norte and Humboldt counties, they would be counted in each of these counties.

Organizations that are listed as disinvested communities support our community members who have historically been under-represented when approaching opportunities for growth, and whose voices may be heard less than our other partner categories. This includes, but is not limited to seniors, opportunity youth, farmworkers, and members of the BIPOC community.

The Convening Team periodically analyzes the mailing list to identify opportunities to engage new partners, inform outreach, and direct data collection in counties and Tribal lands. It is building a searchable online tool so those who have registered with the Collaborative and indicated they would like to be included in a directory will be able to search for organizations to partner with on projects and funding opportunities.

ii. Partners' potential role in developing the plan and engaging in the implementation phase

CCRP fielded two surveys to explore partners' potential roles in helping to develop the regional plan and participate in the grant program implementation phase. Survey questions appear in Appendix A.

Survey 1: March – August 2023

Following the project launch on February 23, 2023, the RR RISE Convening Team fielded a survey to identify partners and recruit a volunteer Task Force to help form the Collaborative governance structure. The purpose of the initial survey, which ran from March – August 2023, was to assess partners' interests and availability to participate in the RR RISE planning process. It captured information about partners' location, relationship to economic development work, and preferred ways to participate in RR RISE.

Of 90 responses, 83% (75) were received in March 2023 and 10% (9) were received in April 2023. Results represent a snapshot of partners' perspectives at the time the Collaborative was first forming. Forty-five percent (45%) of all respondents identified as a community member as opposed to representing an organization.

Motivation to Participate

When asked why they were interested in participating in RR RISE, most respondents (71%) answered they are "concerned about economic development, business opportunities, and the future of the region." Sixty-eight percent (68%) indicated their work is directly related to economic development. A majority (60%) responded "I am concerned about equity" and 52% reported they are "concerned about the environment."

Preferred Roles

About half of all respondents reported they were interested in an active role in the Collaborative, either on the Formation Task Force or a work group. Another 30% offered to provide input if asked or provide specific types of support as the Collaborative launched (Table 3).

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Table 3 Initial Role

Type of Participation	Percentage
Volunteer to join Formation Task Force	24%
Prefer a work group appointment	24%
Happy to respond to questions when asked for input	13%
Just attend the monthly meetings	11%
Interested in participating in local tables, not at regional level	9%
Other (offers to volunteer specific services)	19%

N=90

When asked to think about the future, respondents indicated they would like to participate in fairly identifying projects for funding, ensuring the process is aligned with existing plans, and reaching out to communities often overlooked in planning processes (Table 4).

Table 4 Future Role

Type of Participation	Percentage
Help the group fairly identify projects/initiatives for funding	57%
Help make sure the process is aligned with existing plans/initiatives	47%
Help reach out to communities and groups often overlooked in planning	47%
Help make sure plans/projects are beneficial to the environment	36%
Help make sure plans/projects are beneficial to workers	35%
Help the Collaborative function as a group	30%
Help with data	23%

N=88 for all percentages

The Convening Team worked with the Collaborative Formation Task Force from March through August 2023 to develop the RR RISE Governance Structure and conduct a comprehensive community-led nomination process to seat representatives on the Collaborative's Voting Block, Equity Council, Tribal Planning Table, and Sector Tables. CCRP closed the initial survey at the conclusion of this phase of work in August 2023.

Survey 2: September - November 2023

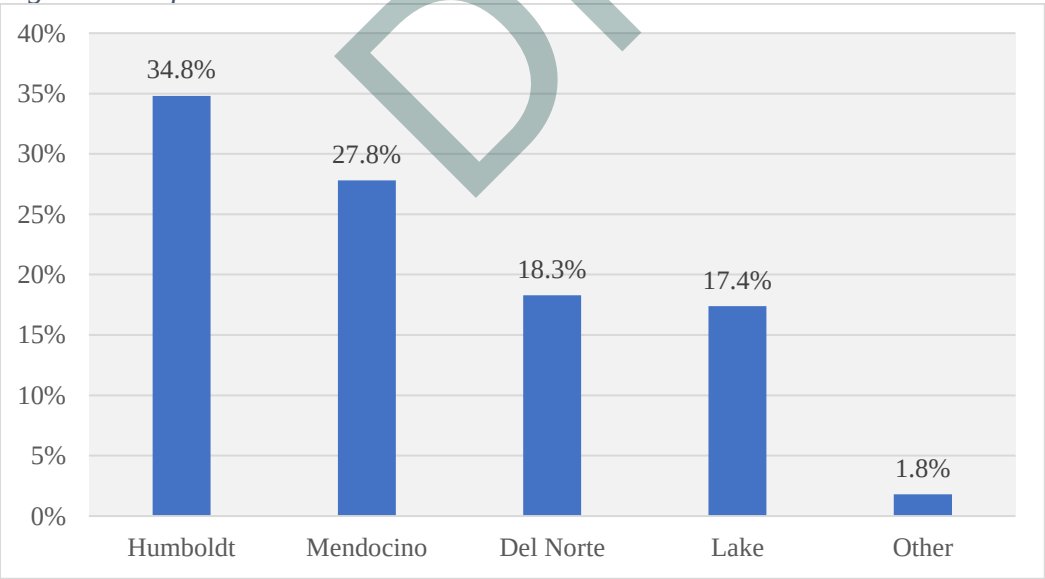
CCRP fielded a second survey after the Collaborative governance structure was in place to learn more about those participating in RR RISE, their existing partnerships, and their perceived capacity and power to affect economic development planning processes. An initial set of survey questions was designed as a tool to support outreach to priority communities not already registered with RR RISE. While data for this report was pulled from survey responses received on November 6, 2023, the survey is still active to support ongoing outreach and engagement.

Partner Demographics

About a third (32.8%) of those who responded to the second survey identified as community members; two-thirds (67.2%) represented an organization.

Survey respondents' location (residence or primary office address) approximates the distribution of the general population in counties across the region, with Del Norte respondents over-represented and Lake County slightly under-represented (Figure 1). People and organizations physically located on Tribal lands did not respond to this survey. Organizations that self-identified as representing Tribes did respond to the survey.[8]

Figure 1. Respondents' Location



N = 115. Other = 'Del Norte, Humboldt' (*n* = 1); 'Lake, Tribal Lands' (*n* = 1).

[8] See Section C, p. 31, below. The Convening Team is meeting with Tribes to explore ways to effectively engage Tribal governments in RR RISE through the Tribal Planning Table.

Preferred Roles

Almost all respondents (98%) reported they would like to participate in economic development meetings and discussions in their own community. Respondents want to engage in RR RISE in multiple ways (Table 5, below). About 75% would like to attend monthly Collaborative Zoom meetings, and 60% would like to participate in Local Planning Table meetings.

Half (50%) would like to help encourage people to join Local Planning Table meetings, about a third (33%) would like to share information and help distribute surveys for community feedback and nearly a third (28%) expressed interest in receiving a mini-grant to help gather feedback from priority communities.

The low number of respondents who indicated interest in participating in the Tribal Planning Table or on a Sector Table suggests areas for further communications, outreach and engagement.

Table 5 Preferred Roles

Roles	*n*	**Percent**
Attend monthly meetings of the RR RISE Collaborative	87	74
Participate on a Local Planning Table	70	60
Help us spread the word to encourage people to join the Local Table Meetings	58	50
Receive/attend update meetings a few times a year (in addition to or instead of monthly Collaborative meetings)	50	43
Flyering/Promoting/Social media/Giving out surveys for community feedback	39	33
Receive the semi-monthly newsletter	36	31
Receive a mini grant to help Redwood Region RISE recruit community feedback from priority populations/members for Local Planning Tables (more information on this opportunity will be provided upon request)	33	28
Participate on a Tribal Planning Table	10	9
Participate on a Sector Table	9	8

N=117 for all percentages

Collaborative Meeting Attendance

As noted above, when RR RISE first launched, approximately 75 organizations had registered for the mailing list and began to attend meetings of the nascent Collaborative. Between February and June, 2023 the Convening team worked with a volunteer task force to develop the governance structure, which includes representation from all required partners and members of "disinvested" communities.

Participation in monthly Collaborative meetings increased in July, when the Convening Team presented the governance structure and launched the process to nominate community

representatives to the Collaborative's planning tables. Attendance has remained strong and steady since representatives were formally seated in August (Table 6).

Table 6. Monthly Attendance

Meeting Date	Number in Attendance
02/23/2023	79
03/30/2023	73
04/27/2023	56
05/24/2023	57
06/29/2023	112
07/27/2023	87
8/31/2023	107
9/20/2023	In-Person: 50, Zoom: 67
10/26/2023	123
11/30/2023	111

Summary

Analysis of the mailing list shows there is robust interest in tracking RR RISE activities across all counties and partner groups, including Tribes. Partners who responded to the surveys are focused on ensuring the planning process fairly identifies projects for funding and ensuring the regional plan is aligned with existing plans and strategies. They are also eager to meet locally, spread word about local meetings and engage communities who don't typically participate in economic development planning in the process. Attendance at monthly Collaborative meetings has increased and is strong and steady.

B. Overview: Disinvested Communities in the Region.

i. Defining disinvested communities in the Redwood Coast Region

The CA Jobs First (formerly CERF) grant program defines 'disinvested communities' as any of the following:

- Census tracts identified as 'disadvantaged' by the California Environmental Protection Agency.
- Census tracts with median household incomes at or below 80 percent of the statewide median income or with the median household incomes at or below the threshold designated as low income by the Department of Housing and Community Development's list of state income limits adopted pursuant to Section 50093 of the California Health and Safety Code.

- ‘High poverty area’ and ‘High unemployment area’ as designated by the California Governor’s Office of Business and Economic Development California Competes Tax Credit Program
- California Native American Tribes as defined by the Native American Heritage Commission (NAHC) Tribal Consultation Policy.

According to this definition, the entire Redwood Coast Region is a ‘disinvested’ community.

On April 27, 2023, fifty organizations and individuals involved in the Redwood Region RISE Collaborative met to discuss disinvestment in the region, and critically examined working definitions of the term and affected populations. During the meeting, this group provided input that helped the Convening Team and Collaborative Formation Task Force craft a more meaningful, accurate, and shared understanding of “disinvested communities” to drive work forward.

The RR RISE Collaborative submitted a memo to the state on May 22, 2023, clarifying the definition of disinvested communities in the region. The memo cites the experiences of deeply rural, remote, and unincorporated communities who feel marginalized by political representation; must travel great distances to services; are underserved by public investment in infrastructure; and struggle to access educational opportunities, healthcare, internet, utilities, transportation, affordable and healthy food, and other community resources present in the region’s town centers. These communities have been disproportionately affected by boom-and-bust cycles of extractive industries and are at heightened risk for impacts of climate change such as the erosion of cultural practices and lifeways, drought, wildfires, severe weather events and sea level rise.

RR RISE thinks of “disinvested communities” as people who face a confluence of relatively severe and often interconnected hardships including, but not limited to, poverty, disability, lack of access to household or community resources, or lack of economic or educational opportunities. The Redwood Coast Region recognizes the experiences of BIPOC communities, of Indian Country including non-federally recognized Tribes, New American communities, of youth and the elderly, and the profound and difficult consequences trauma and disability play in the workforce.

> ***“While the entire region is ‘disinvested’, this burden is shouldered unevenly by groups in our region that need to be the focus of our plans, strategies and projects.”***
>
> *RR RISE Collaborative, May 2023*

Based on its collective understanding of lived experience and demographic data for the region, the RR RISE Collaborative names these as Priority Communities in its definition of “disinvested communities:”

- Advocates for People of Color (e.g. Black Lives Matter, Asian Americans Advancing Justice, New Hmong Rising Association, etc.
- Communities of Color
- Individuals that live in extremely remote/rural areas of the Redwood Coast Region (Redwood Region RISE)
- Individuals who were Formerly Incarcerated
- Individuals with Hearing Impairment
- Individuals with Intellectual Developmental Disabilities
- Individuals with Learning Disabilities
- Individuals with Physical Disabilities
- Individuals with Vision Impairment
- Individuals without Broadband Access
- Immigrants with Documentation (e.g. work visas)
- Individuals without Documentation
- Lesbian, Gay, Bisexual, Transgender, Queer, Asexual, Intersex + (LGBTQAI+)
- Members of religions and ethnic minority communities
- Monolingual Hmong-Speakers
- Monolingual Spanish Speakers
- New Citizens
- Non-federally Recognized Tribal Nations
- Seniors
- Tribal Citizens
- Tribal Governments
- Unions
- Workers
- Youth

The Outreach and Engagement Team brought a proposal to the Convening Team in mid-December 2023 to consider updating the definition of priority communities based on feedback from participants in listening sessions, local table meetings.[9] The proposal will be presented to the Equity Council for advice and then to the Collaborative for approval in January 2024.

ii. How and in which areas these communities face economic barriers.

The RR RISE priority populations experiencing economic barriers are not necessarily concentrated in specific geographic areas. Data presented in this section depicts the severity of challenges presenting barriers to economic sufficiency, mobility, and resilience for priority communities in the region.

Poverty, Employment and Economic Mobility

At the April 27, 2023, Collaborative meeting, CCRP presented data that describe inequities in economic well-being for various age, gender, and racial and ethnic groups throughout the region.[10]

[9] The proposal is to include veterans and refine language used to describe other priority communities to clarify inclusion and respect communities' self-determined preferences for language usage.

[10] Figures 2-7 taken from (Kirsch, S 2023). *Understanding our Region* [PowerPoint Slides]. https://ccrp.humboldt.edu/redwood-region-rise-meeting-materials. The full presentation documents data sources.

Poverty rates in all counties in the region fall above the state average (Figure 2). This is true for every population group except adults in Del Norte over the age of 65 and adults in Lake County who worked full-time year-round. Poverty rates are highest among all non-white populations, people with any disability and children and youth under age 18. Poverty rates drop significantly among adults who worked full-time, year-round.

Figure 2. Poverty Rates

Note: Yellow oval and bar=State Average. Green oval=county average; green bar=95% confidence interval.

Unemployment rates in all counties in the region also fall above the state average and are highest for non-white populations and people with any disability. Labor force participation rates for all populations in each county are lower than state averages (Figure 3).

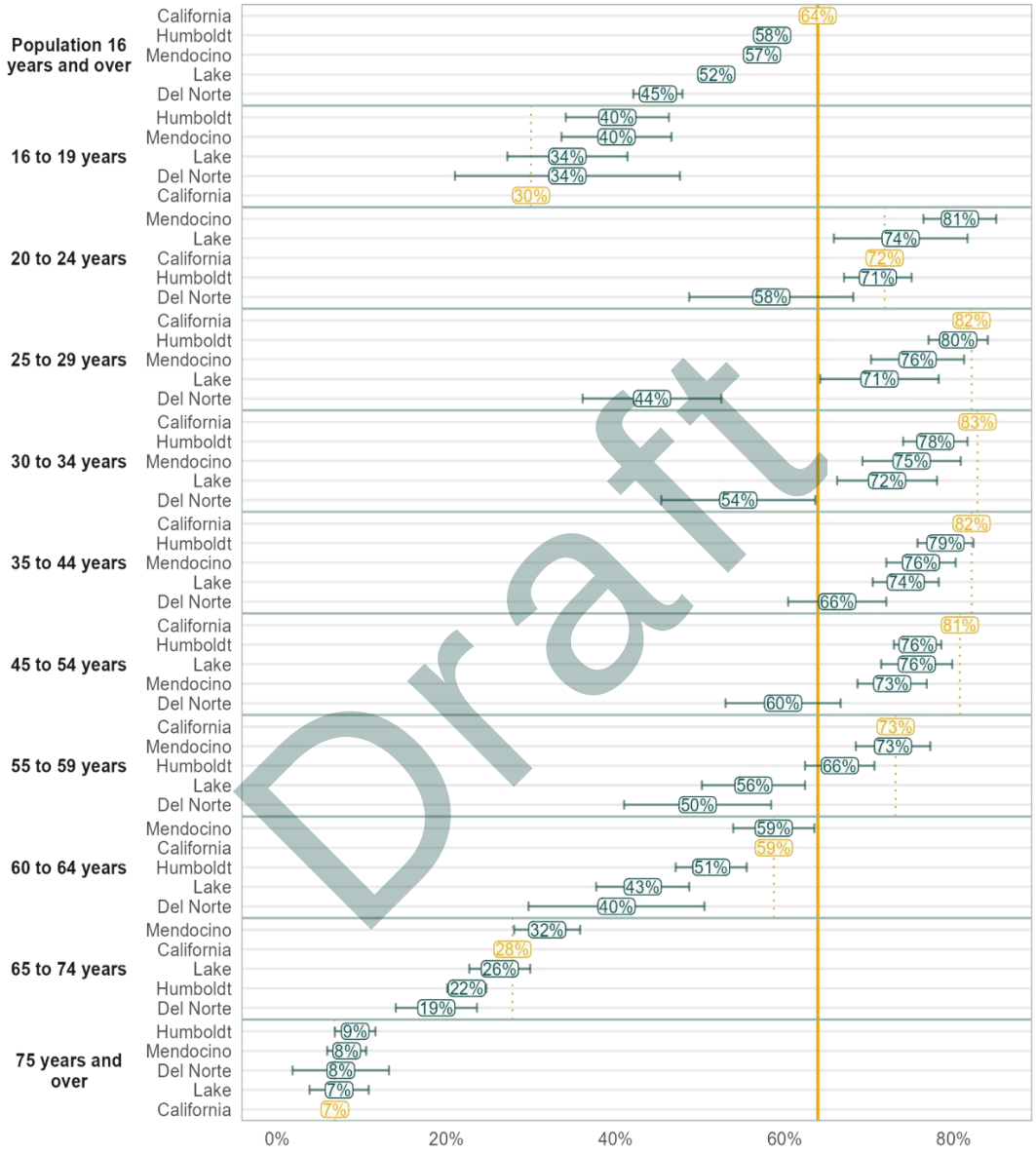
Figure 3. Labor Force and Unemployment Rates

Note: Yellow oval and bar=State Average. Green oval=county average; green bar=95% confidence interval.

Figure 4 shows labor market participation in the region among youth aged 16-19 years old is higher than the state average and higher or equivalent to the state average for youth aged 20-24

years except in Del Norte County. Labor market participation then drops below the state average for all prime age working age adults (ages 25 – 64 years) and seniors up to age 75 years old.

Figure 4. Labor Market Participation



Median earnings in each county fall significantly below the state averages for all population groups (Figure 5). As shown in Figure 6, educational attainment does not translate to earnings on par with state averages.

Figure 5. Median Earnings

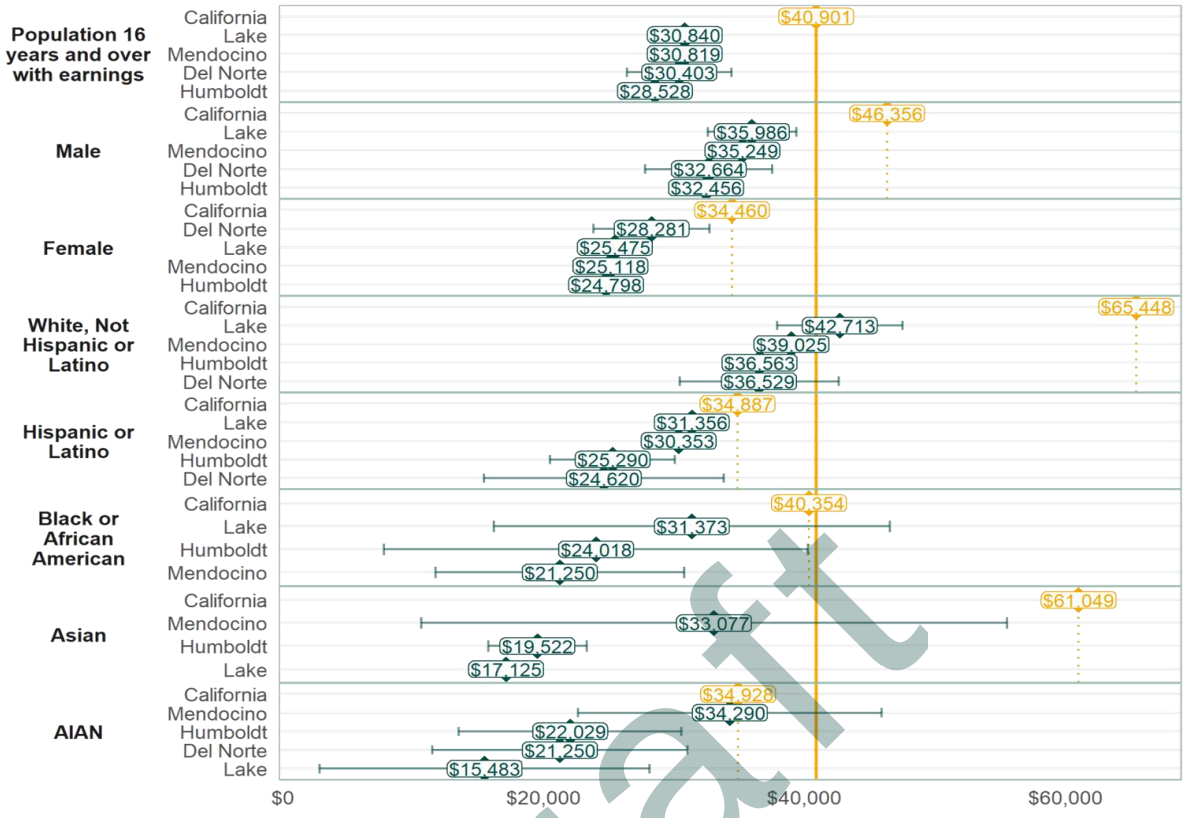


Figure 6. Median Earnings and Educational Attainment

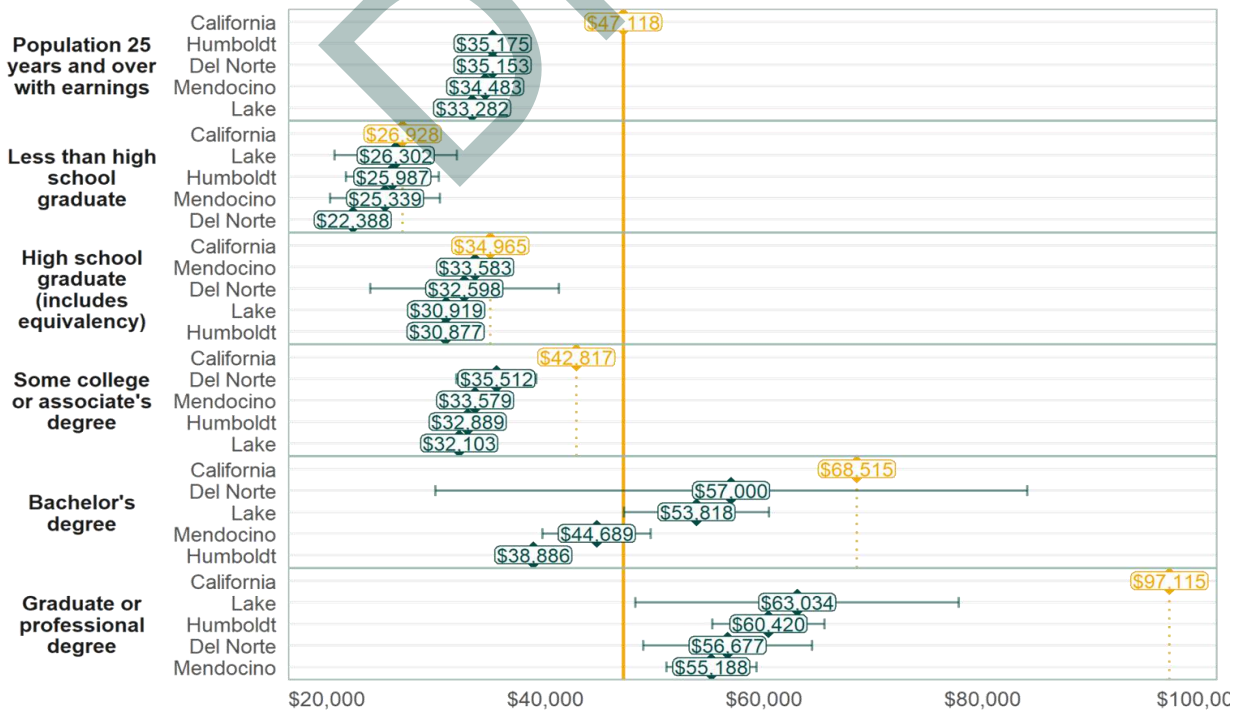
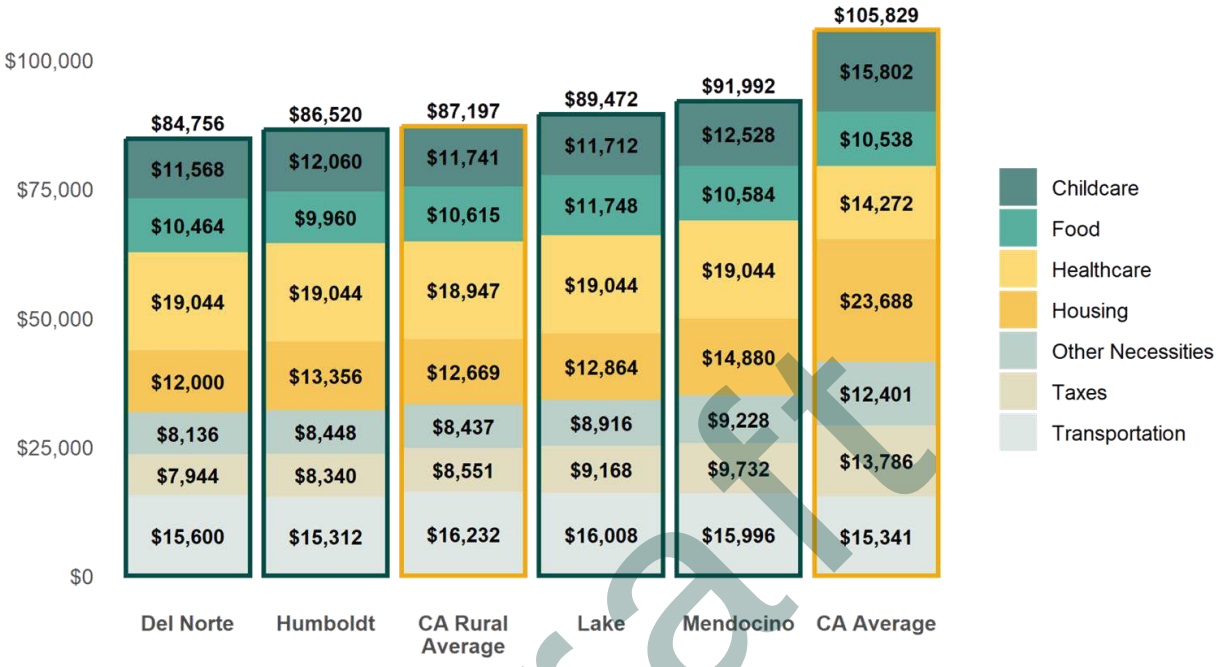


Figure 7 shows while average total cost of living estimates for counties in this region are lower than the state estimate, the cost associated with essential expenses like healthcare, housing, transportation and childcare as a proportion of total cost exceeds the state average. The cost of living in Lake and Mendocino Counties is higher than the CA rural county average.

Figure 7. Cost of Living



Workforce Health and Well-being

At the May 24 and June 29, 2023 Collaborative meetings, CCRP presented preliminary data on health disparities across the region and a preliminary analysis showing disparities may be related to disability, substance use, behavioral health, economic inequalities, climate impacts, and other environmental factors. The public health report informing Regional Plan Part 1[11] refines these analyses and demonstrates people in the Redwood Coast Region, particularly members of priority communities, face striking health disparities and barriers to accessing care when compared to state averages.

Key findings from this report include:

- The region has a higher proportion of populations at risk for tobacco use, substance use and mental health challenges, including those living in poverty, homeless individuals, people with lower levels of educational attainment, people living alone, and those who have experienced multiple adverse childhood experiences (ACEs).

[11] Kirsch, S. (2023). *Roots of Disparity: Public Health Challenges on California's Redwood Coast*. California Center for Rural Policy at Cal Poly Humboldt.

- While these challenges are experienced broadly in the region, people of color, disabled groups, and lesbian, gay, and bisexual individuals face particularly pronounced health and socioeconomic challenges.
- The region also experiences adverse disparities in access to healthcare, which appears to disproportionately impact those with lower incomes and people with mental health challenges. Adults who have mental health challenges are at far higher risk of experiencing delayed care.[12]

Climate Impacts

At the August 31, 2023, Collaborative meeting, The Sierra Business Council presented preliminary data on indicators of climate change impacts on the region. Figures 8 and 9 show how vulnerable populations could be affected by climate impacts.[13]

Figure 8. Populations Vulnerable to Climate Change Impacts

Population	Number of People	Percent of Total Population	Critical Risks
Under 5	117,421	5.4%	Extreme heat, air quality
Over 65	165,563	32.9%	Extreme heat, air quality, reduced evacuation ability
People of Color	179,956	64.6%	Extreme heat, air quality
People in poverty	156,819	17.8%	Extreme heat, air quality, reduced evacuation ability, water shortages (i.e., dry wells), extreme precipitation events
People that did not work (aged 16-64)	158,611	29.4%	Extreme heat, air quality, reduced evacuation ability, water shortages (i.e., dry wells)
Households with no car	18,104	6.6%	Extreme heat, air quality, reduced evacuation ability, water shortages (i.e., dry wells), extreme precipitation events
People with disabilities	158,697	18.4%	Extreme heat, air quality, reduced evacuation ability, power outages
People without health insurance	125,042	7.9%	Extreme heat, air quality

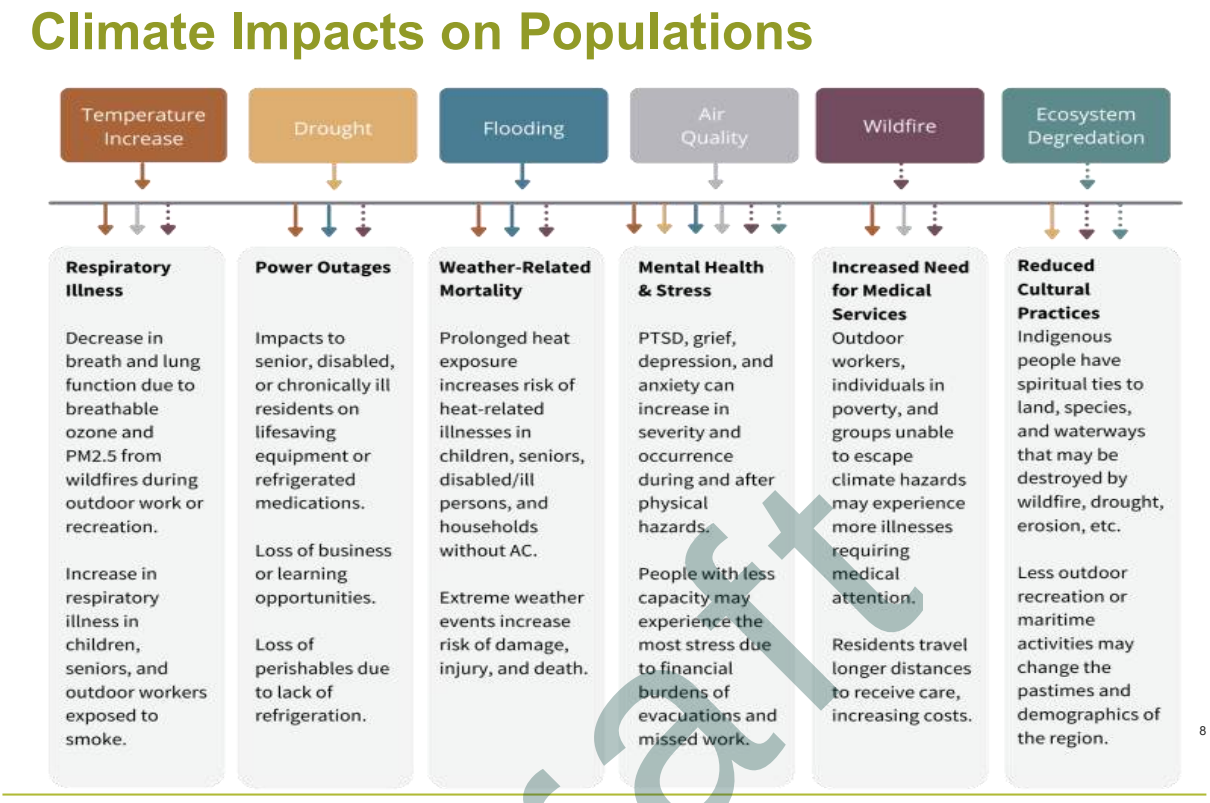
Various Total Population values were used based on population type. For example, the percent of households with no car is based on the total number of households in the Redwood Coast region, and not total population.

Table: Sierra Business Council • Source: U.S. Department of Commerce. 2022. Census Bureau, American Community Survey Office, Washington, D.C. • Created with Datawrapper

[12] Ibid, p.4. These findings are elaborated by direct feedback from priority communities in findings presented in the Insights Report discussed below and linked in Appendix C.

[13] (Reynolds, K 2023). *CERF Climate Data* [PowerPoint Slides]. https://ccrp.humboldt.edu/redwood-region-rise-meeting-materials

Figure 9. Climate Impacts on Vulnerable Populations



Slide Credit: Sierra Business Council

These populations are considered vulnerable to climate impacts due to physical conditions associated with their age, gender, race, ethnicity, disability, health, employment and economic statuses. They frequently lack access to social and other resources that can facilitate adaptations to climate change and/or successfully navigate and manage climate hazards.[14]

Centering Community Voice: Barriers Elevated in Listening Sessions

To elevate and center voices and the lived experience of priority communities in this region, NCO, True North Organizing and RR RISE facilitation partner, ThinkPlace West, conducted deep listening sessions with members of priority communities in late October and early November 2023. These semi-structured interviews used a Human-Centered Design approach, posing general questions to guide the discussion toward selected topics while allowing the focus to shift to follow the stories interview participants told.

Interviewers recruited young people between the ages of 16-30 who are business owners, workers and job seekers. They asked questions about:

- How people came to the job or career they have now.
- Their work history, including best and worst job experiences.
- Challenges they face (or faced) in getting a job, working, or running a business.

[14] Ibid.

- What they know about available jobs in their community or what it would take to grow their business or create jobs in the community.

Priority communities represented by interview participants include young people, communities of color, Tribes, people living in extremely remote/rural areas of the region, people without broadband access, formerly incarcerated individuals, individuals with learning disabilities and physical disabilities, Lesbian, Gay, Bisexual, Transgender, Queer, Asexual, Intersex + (LGBTQAI+) Individuals, second-language English speakers, Hmong community leaders, entrepreneurs, small business owners and workers. The NCO and ThinkPlace West teams collaborated to gather insights supported by direct quotes from the interviews. Insights were then grouped into themes as presented in the text box below (needs updating) to describe how priority communities experience economic barriers. (The full Insights Report appears in Appendix C.).

Theme 1: Job and Income Stability

Interview participants reported juggling multiple part-time jobs, school and other obligations while looking for stable full-time employment and pointed to the need for jobs across a wider range of skills, not just entry or professional levels of experience. People hold multiple part-time, dead-end/temporary jobs and/or attend school and/or hold internships while looking for full-time, stable employment. Job seekers see their choice as between low-wage, low skill jobs or better-paying jobs requiring lots of experience, limiting their earnings and career advancement opportunities. Full-time jobs with benefits are few and far between for people without advanced skills. People are looking for jobs in the middle that can support the cost of living here.

Employment conditions present challenges for many people, ranging from not "fitting in" due to neurodivergence or needing a flexible schedule due to caregiving responsibilities. Employment systems and structures are not designed for the people who live here and want to work.

Opportunities for priority populations don't exist because jobs aren't designed for their abilities, comfort or needs.

People who feel connected and supported have more positive experiences with being seen and valued on their path to work, within work settings, and as part of the communities in which they strive to succeed as entrepreneurs. Connections occur on multiple levels - by identity group (LGBTQAI+), shared lived experience (formerly incarcerated, Spanish speaker), community group (church, cultural group), geographic community, as clients, and as mentors and advocates within and outside of work settings. People rely on these connections to find jobs, as well as to start and grow their business. They stay in jobs longer and have more success and positive employment experiences overall.

Theme 2: Skills: Growth and Development toward Goals

Participants highlighted the kinds of support they need to succeed in starting or growing a business, finding a job and/or advancing in a career they would like to pursue. Barriers to success include unreliable information about existing job opportunities, high costs, distance, scheduling and lack of access to programs/services with content tailored to meet their needs.

Remote work seems tailor-made for our remote region, but barriers make it difficult to sustain. Work labeled as "remote" is often really "work from home," still requiring residency in or near a city. Many learning and support opportunities are clustered in larger communities and inaccessible to those in remote corners, requiring lots of time and money to attend in person. Content in training isn't geared toward those in very remote areas. Entrepreneurs can have difficulty getting supplies or selling their product in limited local markets. People who want to pursue a degree, credential, or certificate to enter the workforce or achieve their goals have different backgrounds, needs, and strengths.

Positive work experiences and school/community programs provide valuable opportunities for gaining technical and people skills, receiving mentorship and support, developing a sense of purpose, growing as a person, and learning to navigate systems, especially when tailored to fit their circumstances. When people have help overcoming obstacles as they transition to new life experiences and identify and make headway on a career path, many of them are optimistic and energized to move forward.

Young people and most adults in this region are constrained in their college/education choices by cost and local availability. Many local jobs offering a career path require a four-year degree, which can feel unattainable due to distance and/or cost. Students end up choosing careers for which there is either training or education available locally or drifting between jobs without a clear career path. Jobs in the "middle" that pay well without requiring a degree are few and far between.

Theme 3: Basic needs: I need things in my community so I can work.
Interview participants cited a range of conditions like access to healthcare, child care, the high cost of housing and transportation that present barriers to economic sufficiency and mobility. Long distances between communities and a lack of affordable, reliable transportation create barriers to opportunities. Jobs, education, training, shopping, day care may all be out of reach for people without personal vehicles or money for gas. Limited public transit options don't serve the most remote parts of the region at all and often run infrequently everywhere else.

It's not possible to work if you do not have care for children and loved ones. People leave the workforce or do not pursue opportunities for advancement because of limited affordable care. Even when children are school age, drop-off and pick-up times impact employability. There is also a physical, emotional, and time impact of caregiving that is often under-recognized in economic development. Care disproportionately impacts women, including low pay for care jobs. When employers do provide flexibility, it improves people's lives.

Mental and physical health are a foundation for being able to work and earn a living. Healthy foods aren't accessible in remote parts of the region. Health services are often distant. It can be difficult to afford traveling for health services, especially if employers won't make accommodations for time off. Many people feel a deep connection to our region's natural beauty and find it healing but have concrete needs for resources to support their health in their communities.

Expensive, hard-to-find housing causes people to move out of the area, take a job they don't like, or live with family. Young people trying to move away for education find the cost of housing makes a four-year degree impossible. Even for businesses, the cost of renting space can be prohibitive. Many employers have struggled filling positions due to unavailability of housing. This not only speaks to the high cost of housing, but the fact that wages do not match the cost of living in the area. High housing cost and low pay means people are constantly struggling and financially stressed.

Theme 4: Purpose: What work means to me
Interview participants shared diverse reasons they choose to live and work in this region - and why it's sometimes not possible for them to stay. Work is connected to complex motivations and meaning in their lives and helps them meet important needs, not all of which are motivated by economics. People spoke of many challenges to living in this region, from a shortage of jobs, opportunities, and childcare to facing prejudice and trauma. Yet they are all still here. Why? Some people spoke of this region as a healing place, about their connection to land and water. Others spoke about wanting to stay close to family or a network of support. For Indigenous people, this region has been their home since time immemorial.

Even people who love this place sometimes leave. They leave to find better-paying jobs. Or to chase educational opportunities that aren't available in the region. Or to find more affordable housing and cost of living somewhere else. Others leave to get away from something. Racism,

homophobia, and other prejudices can make life difficult and cause trauma. These issues came up in interviews, even though everyone interviewed currently lives in the region. Some have left and come back. Some moved away and made comparisons. Others simply talked about things that have made them think about leaving.

People are juggling work, school, caregiving, and wearing many other hats. How can folks so buried in day-to-day challenges and survival dream about what will make a better future, build their capacity to develop their purpose and find and access quality jobs? People described making hard choices to forgo their dreams simply to earn enough to cover basic needs for themselves and their families. Many have a "side hustle" or passion projects that feed creative outlets but don't bring in enough money to pay the bills. Some can't find teachers or mentors to help them take their creative talent to the next level and know others who have left the area for this reason.

Some jobs are important to building community and are sources of rewards beyond monetary compensation. Some uncompensated work should be. When people provide services like transportation, translation, family care and emotional support to help others that ultimately benefit employers and institutions, can their services be compensated? What parts of community work are essential elements to building social networks and creative outlets outside the cash economy.

Elevating Diversity, Equity and Inclusion: Equity Council

Redwood Region RISE strives to center the voices of and support participation from community members representing or advocating for priority communities through its Equity Council. Equity Council members were nominated to serve as the result of a county-wide outreach effort and are both acknowledged by their communities as representing and also self-identify as representing one or more priority communities in the four-county region. Membership on the Equity Council will be reviewed on a regular basis, and at least annually, to ensure inclusive and equitable participation by all priority groups is achieved.

The Equity Council began meeting in August 2023. It provides oversight on community outreach and engagement activities to ensure diverse voices and perspectives are included in the planning process and that decision-making processes are equitable. It ensures the voices of priority communities are being heard and included in all RR RISE planning tables and decision-making processes, and provides recommendations on best practices, strategies, and implementation for community outreach and engagement and decision-making.

Equity Council members identified the following economic barriers experienced by the priority communities they represent.

- Regardless of disability and other factors, nationally most people are assessed as reading at an eighth-grade level or below, with many of us most comfortable at a fourth or fifth-grade reading level even regardless of marginalized factors -- plain language is crucial for democratic access.

- People in priority communities often do not feel safe contributing in communities outside their own.
- There is a lack of infrastructure [social, policy, physical] that promotes participation of priority communities as full partners.

Members of the Equity Council confirmed barriers included in the Empathy Interview Insights report are among the highest priority issues for business owners and people in their communities. The Equity Council advised that priority communities and community organizations need to be embedded in projects selected for regional development through RR RISE and benefit from them, not just voice support for these projects. The Council wants to see projects that will have a direct impact on priority communities and project selection criteria that are structural and can help achieve regional goals.

Voicing Interests of Sovereign Nations: Tribal Planning Table

Tribal government leaders attended the first meeting of the Tribal Planning Table on December 8, 2023.[15] The Tribal Planning Table is a forum for leaders of Tribal governments. It is critical to acknowledge Tribal sovereignty and the unique needs of each of the 32 governments that exist within the Redwood Region. As data presented above show, Native Americans are among those in the Redwood Coast Region most severely impacted by economic, health and climate challenges posing economic barriers.

In this initial meeting, government leaders and Tribally-designated staff of federally and non-federally recognized Tribes discussed how they wish to participate in the RR RISE initiative, the economic development priorities and challenges in their respective governments and communities, their perspectives on the CA JobsFirst and other state grant programs, and how they would like to be resourced by the Tribal Planning Table.

Leaders of Tribes in attendance were receptive to continuing to participate in the forum and to defining the Table as a space for Tribes to engage with one another and non-Native partners across the region. They recommended continuing to approach and engage all Tribes who might want to participate and direct the design of the Table. The RR RISE Outreach Team is continuing to communicate and engage with each Tribe in the region; is requesting Tribes' feedback on the design of a mini-grant program to support their participation; and exploring the next steps for convening the Tribal Table to ensure this forum is directed by and meets the purposes established by Tribal government leaders.

Summary

The entire Redwood Coast Region meets the state's definition of a "disinvested community." Burdens of this disinvestment are shouldered unequally by residents who are among the poorest in the state and acutely so by Native Americans, people of color, people with disabilities and LGBTQAI+ members of priority communities. These barriers include stark income inequality as

[15] These Tribes were represented at the initial Tribal Planning Table meeting: Elk Valley Rancheria, Hoopa Valley Tribe, Resighini Rancheria, Tolowa Dee-ni' Nation Wailaki Tribe Band of White Lily Clan, Yurok Tribe.

measured by wages, labor force participation, unemployment and poverty and lower levels of educational attainment, which does not necessarily offer a pathway to living wages. Priority communities are disproportionately affected by disparities on health outcomes impacting quality of life and ability to work, including substance use, behavioral health, disability, and access to healthcare. Moreover, these communities are more likely to be vulnerable to climate impacts due to health and income statuses. Finally, while the average cost of living in this region is lower than the state average, healthcare and housing costs as a share of household budget exceed both CA rural county and state averages.

Experiences and insights relayed by job seekers, workers and business owners representing priority communities across the region elaborates on economic barriers suggested by quantitative data and calls attention to the importance of job stability, relevant skills development opportunities, local resources that meet workers' basic needs and structuring work in ways that people find meaningful. They spoke about connection, social safety, the experience of being valued and the desire to simply meet basic needs while being able to choose their career path, the community in which they live and honor the reasons they call this region home.

The RR RISE Equity Council identified specific ways in which economic barriers are compounded by social and political barriers to prevent the participation of priority populations in economic development planning and have prevented them from benefiting from it in the past. Ensuring communication is accessible and understandable in plain language, physical and emotional safety in community forums, and opportunities for members of priority populations and organizations they lead to be embedded in planning and project processes as full partners are necessary to the success of regional work. The leaders of Tribal governments and designated staff who participated in the first RR RISE Tribal Planning Table outlined ways the forum can provide opportunities to further their economic development plans and projects. The outreach team will continue to engage leaders in the 32 federally and non-federally recognized governments in this region to ensure the Tribal Planning Table is directed by and meets the purposes established by Tribal government leaders.

iii. Snapshot of the outreach plan

The CA Jobs First grant program prioritizes outreach to organizations that represent disinvested communities – RR RISE priority communities. This section of the report offers a snapshot of the outreach and engagement plan describing how the RR RISE Collaborative intends to ensure their active participation.

North Coast Opportunities, coordinating the RR RISE Community Outreach & Engagement Team with support from True North Organizing Network for work in Del Norte County, infuses the following guiding principles throughout all outreach strategies and all phases of the planning process:

1. Honor the wisdom of individuals who have been marginalized in economic development planning;

2. Create and allow space for individuals with lived experience to drive the prioritization of projects that will be funded;
3. Encourage and accept non-traditional approaches within the economic development planning sphere.

Phase 1: Educate Priority Populations and Grassroots Organizations on California Jobs First
Phase 1 of the NCO Community Outreach & Engagement Plan, from January to August 2023, focused on educating members of RR RISE priority communities and grassroots and community-based organizations representing them on CA Jobs First and RR RISE. Activities included online meetings and presentations, conducting listening sessions, tabling at community events, radio presentations, phone calls, and distributing flyers in priority communities. Staff contacted Tribal government leaders and their staff, including Tribal administrators and retaining a Tribal economic development consultant with existing tribal contacts in Humboldt, Del Norte and Lake Counties to deliver presentations and/or physically visit Tribal offices in twenty-six Tribal communities.

Staff developed a contact list and approached community-based organizations with a request to support outreach by hosting focus groups and distributing surveys and/or other communication materials regarding the Planning Phase through their networks. This was done to lay the groundwork for connecting members of RR RISE priority communities to the Collaborative launched in February 2023 and Equity Council launched in August 2023. The Equity Council is a body composed of individuals who are self-identified as possessing life experience that is reflective of "disinvested communities."

During this phase, outreach focused on preparations to launch the RR RISE Local Planning Tables, which are community meetings in each county, in September 2023.

Phase 2: Center DEI in the Planning Phase
Phase 2 of the NCO Community Outreach & Engagement Plan (September 2023 to June 2024) focuses on centering Diversity, Equity & Inclusion in the Planning Process. Local Planning Tables launched in Del Norte, Humboldt, Lake and Mendocino Counties. The purpose of Local Planning Tables is to identify the needs and priorities of individuals within each county and "sub-region" within each county. For example, the needs of individuals in Lake County will likely be distinct from their neighboring coastal counties. Then within Lake County the needs of those in the City of Lakeport are likely to be distinct from the needs of individuals in Clearlake Oaks, an unincorporated community. Needs identified at the Local Planning Tables will be brought forward to the four Sector Tables to be considered as regional solutions to economic development are designed.

In September 2023, NCO contracted facilitators skilled in Human-Centered Design through an inclusive Request for Proposals process overseen by the Equity Council. ThinkPlace West facilitators will support Redwood Region RISE and North Coast Opportunities Outreach & Engagement efforts to:

- Create platforms for meaningful engagement for priority populations to be heard;
- Ensure the wisdom of priority populations is honored;
- Inform economic development stakeholders what adjustments are needed in language, approach, and communications to accommodate differences in understanding about the economic development sphere among participants; and
- Provide the tools needed so that all participants can confidently navigate participation in this Planning Phase.

North Coast Opportunities and ThinkPlace West are jointly facilitating the Equity Council, Tribal Planning Table and Local Planning Tables. NCO and ThinkPlace have identified Empathy Interviews as a strategy to center the voices of job seekers, workers and business owners from priority populations. From October through December 2023, NCO Coordinators were trained on Empathy Interview techniques and coached on the process. Staff have completed interviews and analysis to identify insights from community voices that will be shared at Local Planning Tables in all four counties in January 2024. During these deep conversations, community members have brought forward how the lack of affordable housing, transportation, healthcare, and education directly impacts finding thriving wage opportunities. Results are presented in the ThinkPlace West Empathy Interview Insights Report included in this report (Appendix C).

C. Network of Existing Partners and Plans

i. Network map of existing partners

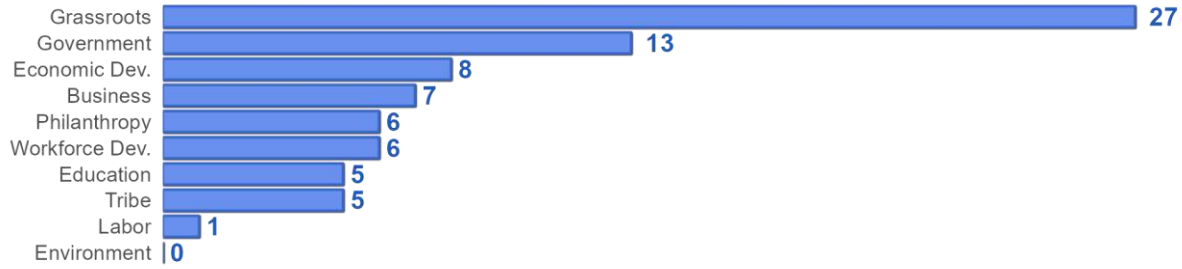
As indicated by the analysis of the RR RISE Collaborative mailing list and robust participation in monthly Collaborative meetings, the RR RISE Collaborative has engaged active representation of existing partners and priority communities in each required partner category across the region. This section of the report focuses on organizations representing required partners and priority communities to highlight how partner organizations are engaging in economic development planning and the supports they need to build stronger partnerships and community engagement.

Organizations Responding to the Survey

As figure 10 shows, the largest number of survey respondents (34%) represented grassroots/community-based organizations, followed by government agencies (~17%). Labor (1%), Tribes (6.4%) and education and training centers (6.4%) were represented by the fewest number of survey responses. No respondents indicated they represented an environmental justice organization.[16]

[16] The survey question asked for a response that best described the organization. On reviewing data, organizations with an environmental justice focus may have identified as grassroots/community-based organizations.

Figure 10 Organizations

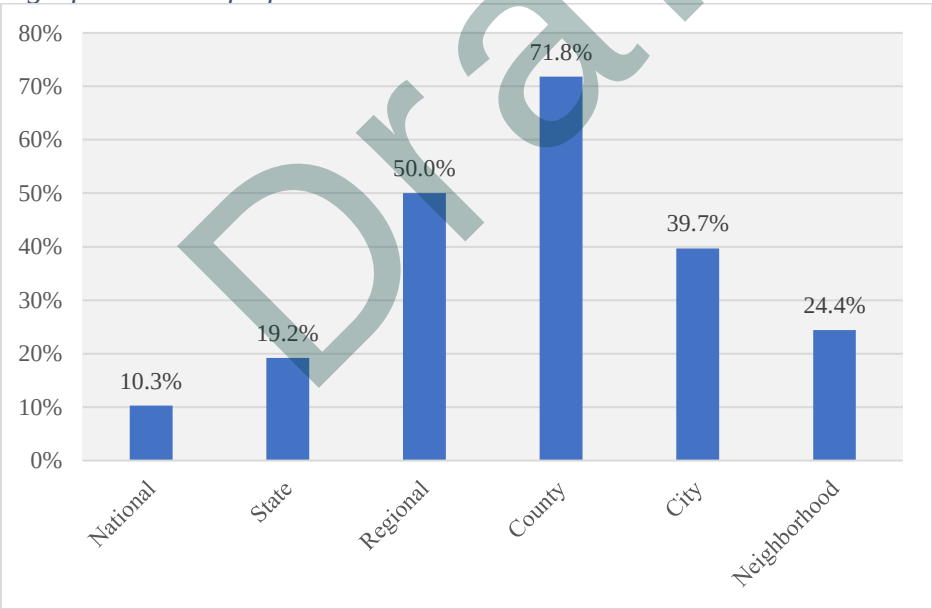


N = 78

Partner Organizations: Scale and Scope of Services

Organizations typically work at multiple levels. Most partners reported working in organizations that operate at the county (72%) level. Half reported working across the Redwood Coast Region (not necessarily providing services in every county in the region). About 40% operate at a city level and nearly one quarter (24%) report working at a local neighborhood level. The fewest reported working at state and national levels (Figure 11).

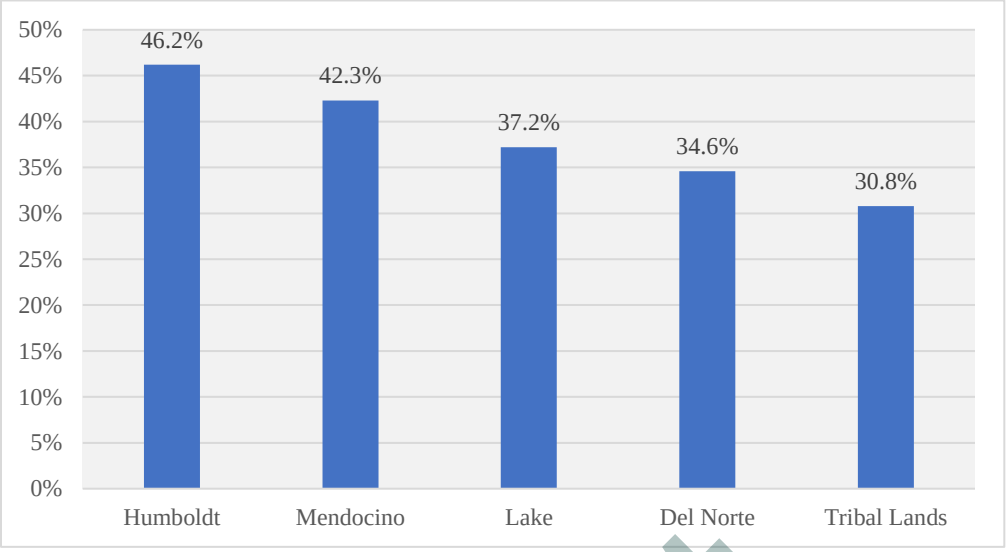
Figure 11 Geographic Scale of Operations



N = 78 for all percentages.

Organizations reported offering services in multiple locations, in every county across the region and in Tribal lands (Figure12).

Figure 12 Location of Services



N = 78 for all percentages.

Populations Served

RR RISE partners provide services to people who represent/identify as members of more than one priority population, and most serve more than one priority population. Partners most frequently reported serving remote communities, youth, communities of color and members of ethnic minority communities, followed closely by LGBTQIA+ and Tribes (Table 7, below).

Overall, grassroots organizations reported providing services to the most diverse range of priority communities. Government and workforce development organizations most frequently indicated they provide services to remote communities, youth, and communities of color. Governments also reported serving people without broadband and people with developmental disabilities, while workforce development organizations reported serving LGBTQIA+ and formerly incarcerated communities. Philanthropy and education organizations most often reported serving members of ethnic minority communities.

Fewer partner organizations provide services to new citizens, people without documentation, religious communities, non-federally recognized Tribal Nations, unions and monolingual Hmong speakers, suggesting groups that may benefit from further outreach to determine appropriate RR RISE engagement strategies.[17] Less than half of the organizations who responded to the survey reported serving members of these specific priority communities, suggesting a possible need for education and further research to discern whether organizations capture data on the priority communities defined by RR RISE and/or how priority communities are being served across the region.

[17] The Outreach and Engagement Team and Convening Team members track survey results on an ongoing basis and work to initiate outreach to under-represented groups is already underway.

Table 7. Organizations Serving Priority Communities

	Percentage (%)
Remote communities	65
Youth	59
Communities of color	49
Members of ethnic minority communities	49
LGBTQIA+	45
Tribal citizens	45
Senior citizens	42
Individuals without broadband access	40
Workers	40
Immigrants with documentation	34
Formerly incarcerated	32
Individuals with:	
Physical disabilities	32
Learning disabilities	31
Developmental disabilities	28
Visual impairment	25
Hearing impairment	22
Monolingual Spanish speakers	32
Advocates for people of color	31
Tribal governments	31
Individuals without documentation	25
New citizens	23
Members of religions	22
Non-federally recognized Tribal Nations	22
Unions	14
Monolingual Hmong speakers	12

N = 65 for all percentages.

Summary

Community-based and grassroots organizations representing priority populations are the largest group of survey respondents. Few partner organizations reported working at the state or national level; most work at regional/subregional, county and city levels. Partner organizations serve all priority communities in the region, with most offering services in multiple locations across the county in which they work.

Organizations most frequently reported serving people living in remote areas, youth, communities of color, ethnic and racial minorities and LGBTQIA+ communities. Few organizations reported serving non-federally recognized Tribes, unions/union members and monolingual Hmong speakers. Survey results suggest additional outreach, education and research are needed to clarify how RR RISE priority communities are identified and engaged.

ii. Their existing regional and subregional plans, strategies, and related reports

The Redwood Coast Region was designated as such by the state in 2022. The CA Jobs First Grant Program and the Regional K-16 Educational Collaboratives Grant Program are the two state-funded initiatives convening the four counties in the Redwood Coast Region. The two grant programs are part of a state approach to guide community-driven planning and implementation for education, workforce and economic development projects.[18]

Existing Plans

Although some partner organizations work across the RR RISE region, there are no existing regional plans for the Redwood Coast Region available for analysis in this report. The Convening Team is conducting an ongoing analysis of plans submitted by RR RISE partners during the proposal development phase and in connection with listening sessions (a partial list appears in Appendix D). These plans cover different time periods, a variety of political jurisdictions, diverse geographic areas and a wide range of economic development goals, strategies and projects in varying levels of detail.[19]

To assess opportunities existing plans may present to help catalyze regional partnerships, this report outlines areas of alignment across the counties' most current Comprehensive Economic Development Strategy (CEDS) documents. All counties are in the process of updating (Del Norte, Mendocino) or preparing new (Humboldt, Lake) CEDS documents. In place of the Lake County CEDS, which expired, the County produced an interim Economic Development Strategy document, used for this comparison.

RR RISE convened the first meeting of the Tribal Planning Table on December 8, 2023, to learn from Tribal leaders in federally and non-federally recognized communities how Tribes can be supported to participate in the RR RISE planning process. While Tribes prepare a variety of economic development plans, they were not included in the analysis in this paper to respect the process of engaging their participation through the Tribal Planning Table. As Tribal governments continue to meet, the Convening Team will seek their guidance on appropriate ways to include

[18] The Regional K-16 Education Collaboratives Grant Program announced $108m in funds awarded to the Redwood Coast K16 Education Collaborative (convened by CalPoly Humboldt) in May 2022. This program is part of a statewide strategy cultivating regional economies, strengthening education-to-career pathways, and ensuring that education, vocational, and workforce programs work in partnership to provide broader access for all to education and employment opportunities in their own communities. The Redwood Coast Collaborative seeks to develop a robust college-going culture in the region by building career pathways for education and health care, increasing participation in and completion of A-G courses and improving retention rates in higher education, especially for Native American and socioeconomically disadvantaged students. https://www.gov.ca.gov/2022/05/26/california-distributes-108-6-million-to-create-regional-education-to-career-pipelines/

[19] For example, related workforce development planning regions intersecting the Redwood Coast Region include: Del Norte County is part of the Northern Rural Training and Employment Consortium (NoRTEC) representing 10 additional counties outside the RR RISE region; Humboldt County is a standalone workforce development region; Lake, Mendocino, Napa and Marin Counties are represented by The Workforce Alliance of the North Bay; and, Mendocino and Sonoma Counties have formed the Sonoma Mendocino Economic Development District, which prepares a CEDS document for the two-county district.

information on their economic development plans and priorities in regional analyses and the RR RISE planning process.[20]

To further inform the analysis of existing plans, the RR RISE Convening Team invited economic development planners to participate in listening sessions. Listening sessions surfaced challenges the planners experienced with respect to completing, updating and implementing CEDS and other plans. Many precipitated and/or exacerbated by the pandemic continue to negatively impact progress. These challenges include:

- A historical lack of planning infrastructure and/or impacted resources (staff, time, financial resources) characteristic of rural, remote areas.
- Reallocation of personnel and funds during and following natural disasters and the pandemic, contributing to the lack of continuity and inability to carry out long-term planning (always in recovery mode).
- Staff and committee/board member turnover, leaving key positions vacant, stalling progress and limiting outreach and community engagement.
- Lack of funding.
- Lack of data.
- The need to prioritize mandates to complete plans covering different topics and jurisdictional boundaries to maintain funding.
- Community resistance to planned strategies and projects resulting in project challenges, delays and cancellations.
- Rapid shifts in the economic development landscape due to policy changes, climate impacts, and emerging new opportunities (e.g., legalization of cannabis, wildfire, storm and flooding devastation, and offshore wind).

County CEDS documents reviewed for this study offer a snapshot of current economic development priorities. Table 8 shows RR RISE counties share a focus on industries with historical, deep roots across the region, including arts and culture, tourism, agriculture, forestry, fishing and manufacturing. Recently updated plans sharpen the focus on these traditional industry areas under the banners of Blue, Green and Creative Economies. Counties also share a focus on education, research and development, and small business innovation and entrepreneurship.

[20] During the first Tribal Planning Table meeting on December 8, Tribes expressed interest Green enterprises in forestry, land management and restoration, and renewable energy through hydrogen, wind and solar projects. They are also interested in in support for economic development initiatives unique to tribes; for example, those focusing on indigenous arts culture and experience as well as building traditional ecological knowledge.

Table 8. Focus Industries

Industries in County Plans			
Del Norte CEDS 2019-2024	**Humboldt CEDS 2018-2023**	**Lake EDS 2019-2025**	**Mendocino CEDS 2022-2025**
• Transportation, Technology, Tourism • Agriculture, including Forestry and Fishing • Manufacturing, Medicine • Education, Environment • Small Business and Sovereign Nation (DNATL) Success	• Tourism/Arts, Culture • Alternative Agriculture / Forest Products • Specialty Food, Flowers & Beverages • Niche Manufacturing • Diversified Health Care • Construction • Investment Support Services • Management & Innovation Services	• Tourism • Agricultural Supply Chain • University & Research Institution Science • Advanced Entrepreneurs: Engineering, Aerospace, Graphic Design/Arts	• Tourism, Arts • Creatives (tech) • Green Economy: specialty food and beverage, biomass, water storage • Blue Economy: ocean-related fisheries and food production

Aligned Goals and Strategies

Counties' goals speak to expanding and growing business opportunities, jobs and development projects in the Blue Economy, Green Economy, Tourism, and Renewable Energy sectors. All plans emphasized support for small businesses and entrepreneurs. Plans recently completed in Del Norte and Mendocino Counties also focused on building the capacity and resilience of rural and Tribal communities, in particular through investments in broadband and transportation.

Specific strategies included in the county plans generally fall within three categories: Industries, Infrastructure and Skills. This summary offers a high-level overview of strategies appearing in two or more of the plans.

Industry Strategies: Diversify local industries and grow industries that offer living wage jobs. Specific examples include:

- Develop culinary, cultural, eco-, experiential and other niche brands of tourism.
- Expand specialty foods cultivation, processing, distribution and sales.
- Support sustainable agricultural, forestry and fishery products.
- Develop new forest industry/biomass/timber products.
- Expand programs applying Traditional Ecological Knowledge, including those preserving aquatic resources, traditional diets, and wildfire management.
- Invest in fire mitigation and safety practices.

- Grow technology-based firms across industries.
- Increase/support light manufacturing.
- Grow health care enterprise.
- Invest in developing renewable energy.

Infrastructure Strategies: Ensure suppliers, residents and visitors can easily access resources and opportunities throughout the region. Common strategies include:

- Invest in Harbor/Port Infrastructure.
- Develop and preserve water resources – storage, management, wastewater.
- Invest in airports.
- Expand and construct emergency routes.
- Expand highways and roads to accommodate supply chain routes, commuters, and visitors.
- Develop regional multi-modal and active transit options.
- Enhance public transportation options.
- Deliver broadband to rural communities.
- Establish Community Hubs for community benefits (e.g., education, work, recreation) and disaster preparedness.
- Increase ADUs, workforce housing, affordable housing – address permitting, zoning.

Skills Strategies: Ensure businesses and residents are prepared and resourced to participate in the local economy.

- Upskill workforce in skills needed in the Blue, Green and Creative economies.
- Invest in ocean education, other high-demand career paths.
- Train on cooperative development/ownership.
- Support business entrepreneurship and a thriving small business environment.
- Develop research and lab space to grow emerging industries.
- Increase childcare affordability and availability.
- Develop quality messaging, outreach and marketing.

Recognizing the importance of quickly seeding partnerships to pursue collaborative regional economic development strategies and elevating candidate projects for regional implementation, the RR RISE Convening Team and Collaborative Formation Task force designed Sector Tables as part of the RR RISE Governance Structure. Sector Tables are an innovative economic development strategy the Region has already launched through the planning grant. Sector Tables will begin meeting in January 2024.

RR RISE Sector Tables reflect traditional and emerging industry and economic development priorities shared by all counties across the region: Arts, Culture and Tourism, Health and Caregiving, Renewable and Resilient Energy and Working Lands and Blue Economy. Industry leaders nominated by community members across the region participate on the tables. Sector

Coordinators for each table will work closely with the Convening Team and others to facilitate working sessions to:

- Identify missing partners for outreach,
- Review data,
- Develop regional strategies,
- Shortlist high-alignment projects,
- Assist the Collaborative with participatory decision for project selection, and
- Identify priorities for ongoing collaboration on sector development.

Projects

Some projects in the CEDS and other plans are no longer current or described in sufficient detail to support meaningful comparisons/analysis. The RR RISE Convening Team invited partners to share important and promising projects during the proposal development phase (July 2022) and through the first partner survey (March-April 2023). Projects have also been discussed in listening sessions and at Local Planning Table meetings. Partial project lists are included in Appendix E.

Recognizing that an analysis of existing plans would be unlikely to generate actionable information and in response to RR RISE partners' eagerness to learn about projects across the region, CCRP recently launched an online form to create an inventory of projects – from early-stage ideas to projects that are close to or ready for implementation. The intent is to capture and share information that can help seed partnerships and begin to categorize projects for regional consideration. CCRP gathered input from the RR RISE Collaborative during the November 28, 2023 meeting to improve the online form and will begin to share information in the project inventory in January 2024.

Summary

The Redwood Coast Region is a new state-designated planning area. Counties do not routinely work together on plans or projects. There are no Redwood Coast regional plans available for analysis in this report.

A comparison of counties' CEDS shows strong alignment across goals and strategies. Plans embrace new and emerging industry areas. Some counties are collaborating on trails and recreation projects, and all four are currently participating in the recently awarded K-16 Education Collaborative focused on education and health career pathways. Plans cite critical infrastructure and talent needs as areas for economic development. Proposed projects are scaled and tailored to local areas and budgets and significant policy and funding challenges hamper implementation of plans and projects.

RR RISE Sector Tables are in place to catalyze partnerships, develop regional strategies and propose regional projects. The Regional Convener has launched an online tool to create an inventory of projects to seed partnerships and identify projects that can be scaled for regional implementation.

iii. Analysis to demonstrate synergies, potentials, and challenges.

Synergies

The RR RISE planning process has already generated synergies advancing regional cooperation and coordination toward economic development planning. County plans document a shared focus on industry sectors, and aligned goals and strategies. Relationships formed as a result of proposal development and Collaborative monthly meetings confirm partners and communities across the region are exploring, developing, and implementing similar/related economic development goals and strategies.

Capitalizing on this knowledge, the Redwood Region RISE governance structure was designed to maximize synergies and potentials to build and enhance partnerships, and identify local innovations, ideas and investments that can be scaled to regional approaches. The focus and composition of Sector Tables launching in January reflects these shared areas of focus and purpose and provides a forum to build partnerships and identify opportunities that make economic sense for the region. Organizations representing industry leaders from each county will partner to craft shared strategies backed by regional data and informed by input from other Collaborative planning tables and priority communities.

The next section of this report outlines preliminary findings about the nature of existing partnerships, potential to strengthen and build partnerships, and challenges to doing so.

Existing and Future Economic Development Partnerships

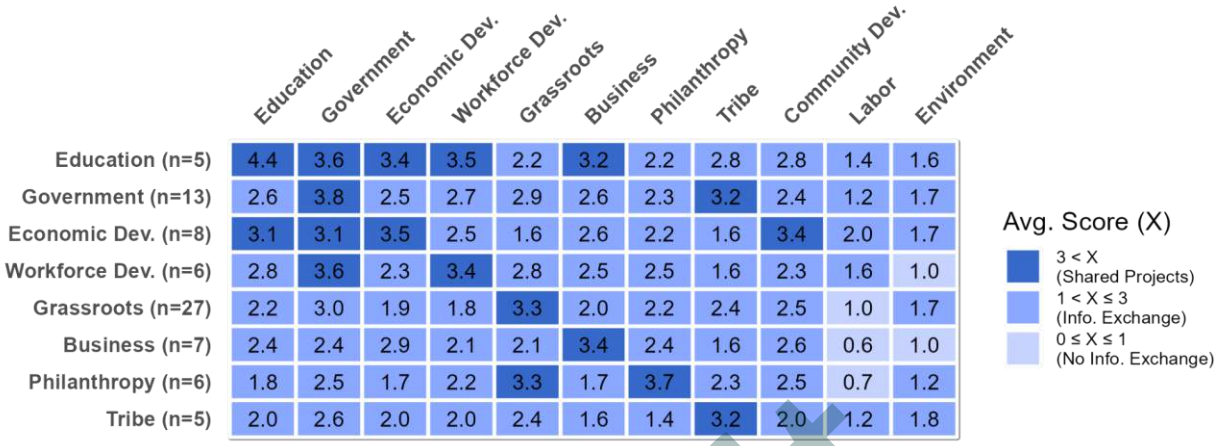
The second RR RISE survey (September to November 2023) asked respondents to describe how they interact with other organizations on economic development issues. Respondents were asked to rate the strength of their connection with other organizations along a continuum of sharing information and engaging in projects. Their ratings were assigned a score as follows:

0 points:	I do not know anyone at this type of organization.
1 point:	I know someone at this type of organization but do not regularly exchange information with them and have never worked with them.
2 points:	I regularly exchange useful information with a person in this type of organization but have not/do not work with them on a project.
3 points:	I regularly exchange useful information with a person in this type of organization and have worked with them on one or more projects.
4 points:	I am in regular contact with people in this type of organization, have participated in a planning process with them before, and have worked with them on projects.
5 points:	I depend on a person in this type of organization for important information and we collaborate closely on plans and/or on one or more projects.

RR RISE partners who responded to the survey rated the strength of their connection to other organizations as represented in Figure [_]. The average strength of connections between

organizations is represented by a numerical score in each box and boxes are also color-coded as indicated in the text box above, with darker colors indicating stronger relationships.[21]

Figure 13. Strength of Connections Among Organizations



N=78

Results show how the organizations in each row rated their economic development relationships with organizations listed in each column. The dark blue line of boxes running from the upper left square diagonally down and across the figure to the right shows that organizations have the strongest connections with other organizations of the same type (for example, education organizations reported they have the strongest connections to other education organizations). This is, perhaps, an expected result.

The other dark blue boxes indicate, on average, the strongest economic development planning and project connections exist among these types of partners:

- Education with government, with economic development, with workforce development and with business organizations
- Government agencies with Tribes
- Economic development organizations with community development organizations
- Philanthropy with grass roots organizations

The largest number of responses indicate organizations regularly exchange useful information but do not work on projects with other organizations. On average, grassroots, business and Tribal organizations reported they exchange information but do not work on projects with any organizations representing required RR RISE partners.

[21] *Note.* Community development and environmental justice organizations are not represented by survey respondents. Only one labor organization responded to the survey and is excluded from this visualization. However, the organizations that responded did indicate relationships to these types of organizations, which are illustrated in the last three columns above. Scoring is based on the average strength of relationships in survey responses.

As an indicator of potential to shift relationships based on sharing economic development information to relationships that involve collaboration on projects, the list below highlights connections that received the strongest scores (values of 2.8 and above).

- Education organizations with Tribes and with community development organizations
- Government with grassroots organizations
- Workforce development organizations with grassroots organizations
- Business organizations with economic development organizations

The lightest blue boxes indicate, on average, organizations don't have a relationship or don't work on projects with other organizations of these types:

- Workforce development with environmental justice organizations
- Grassroots organizations with labor organizations
- Business with labor, or with environmental justice organizations
- Philanthropy with labor organizations

Challenges

Members of the RR RISE Collaborative and tables in its governance structure have identified multiple challenges to developing and sustaining partnerships for economic development planning and projects; many have surfaced during listening sessions as well. These include:

- The need to create forums for people with shared interests to develop projects.
- A lack of coordinated information about public and private funding sources available for different types of projects at different phases of project development, and for project implementation.
- The acute need to resource project predevelopment work.
- Aggressive timelines required by most funding programs, including CA Jobs First, to expend funds and deliver project results.
- Significant state delays in funding disbursements coupled with complex, shifting and inflexible performance criteria.
- Including voices of priority populations in project design when existing economic development plans and projects don't reflect strategies to meet their needs and planning processes have not/do not provide time and opportunities for their input.
- Lack of coordinated or enabling policy at state and local levels (e.g., CEQA, permitting).
- Recognizing and addressing the reality/features of rural economies is vastly different from other areas in the state. Small and nonprofit businesses are the lifeblood of the region's economy, there is limited or no government infrastructure to support planning and implementation, most governments and businesses are still struggling to rebound from the impacts of the pandemic, it is incredibly difficult to incentivize developers to invest in projects, and most projects need to be scaled to meet local or hyperlocal needs across large remote geographic regions lacking basic infrastructure.
- There are few large employers or government agencies positioned to lead economic development and infrastructure projects, and projects at regional scale will take years to plan and develop, including talent pipelines and business supply chains.

- National and state policies are insensitive to and lack of knowledge about rural needs and capacities and funding programs are not designed with rural areas in mind, which prevents partnerships from forming because most program criteria are impossible for rural communities to meet.

Summary

On average, the strongest relationships exist between traditional economic development actors. The weakest economic development connections between required partners exist for workforce development and businesses with environmental justice organizations, and for grassroots, business, and philanthropy with labor organizations. On average, grassroots, business and Tribal organizations reported they exchange information but do not work on projects with any organizations representing required RR RISE partners. On average, economic development partnerships with potential to shift from exchanging information to collaborating on projects may exist for education organizations with Tribes and community development organizations, government or workforce development organizations with grassroots organizations, and business organizations with economic development organizations.

Challenges experienced by partners point to federal and state grant programs that are not designed to support rural regions' ability to compete or successfully deliver project results that meet their needs, specifically calling out timelines, performance criteria, and disbursement schedules that do not account for the time and resources required to form partnerships, include community participation, design responsive and often complex regional projects, and deliver results.

Challenges also include competing demands to produce and implement local/county plans in divergent planning jurisdictions to access ongoing, much needed local funding, and the lack of coordinated or enabling policy to support local or regional implementation of plans and projects.

iv. Community capacity and power

A discussion of the federal, state and local policies fueling genocide, violence and discrimination experienced by the Indigenous peoples inhabiting this region from time immemorial, a succession of extractive boom-and-bust industries in gold mining and timber that decimated communities and irreplaceable natural resources in the environment, and criminal prosecution and stringent regulatory enforcement that has all but eviscerated the region's now-legal cannabis industry are beyond the scope of this paper. Yet the ongoing effects of these historically and violently imbalanced power dynamics are alive in the social, political and economic culture. They are also apparent in the quantitative and qualitative data presented in previous sections of this paper.

This section presents results from the RR RISE partner survey fielded between September – November 2023 which explored how partner organizations rate their capacity to participate in economic development planning and implementation processes and, as a proxy for community power to participate, barriers to their capacity to engage broader community participation in

these processes. Data on community capacity and power was also gathered from Collaborative planning table meetings and listening sessions.

Organizations' Capacity to Participate

Tables 9 and 10 show survey respondents represent small organizations. While one quarter of survey respondents did not know their organization's annual operating budget, nearly a third (31.6 %) reported their organization's annual budget falls below $500,000. More than half (57%) of respondents work in an organization with 10 or fewer staff, and nearly three-quarters (73%) work in an organization with 25 or fewer staff.

Table 9. Annual Budget

	Percentage (%)	Frequency (*n*)
$0 - $100,000	14	10
$100,000 - $500,000	18	14
$500,000 - $2 million	18	14
$2 million - $5 million	9	7
$5 million - $10 million	4	3
Over $10 million	12	9
Respondent unsure	25	19

N-76

Table 10. Employed Full-time Staff

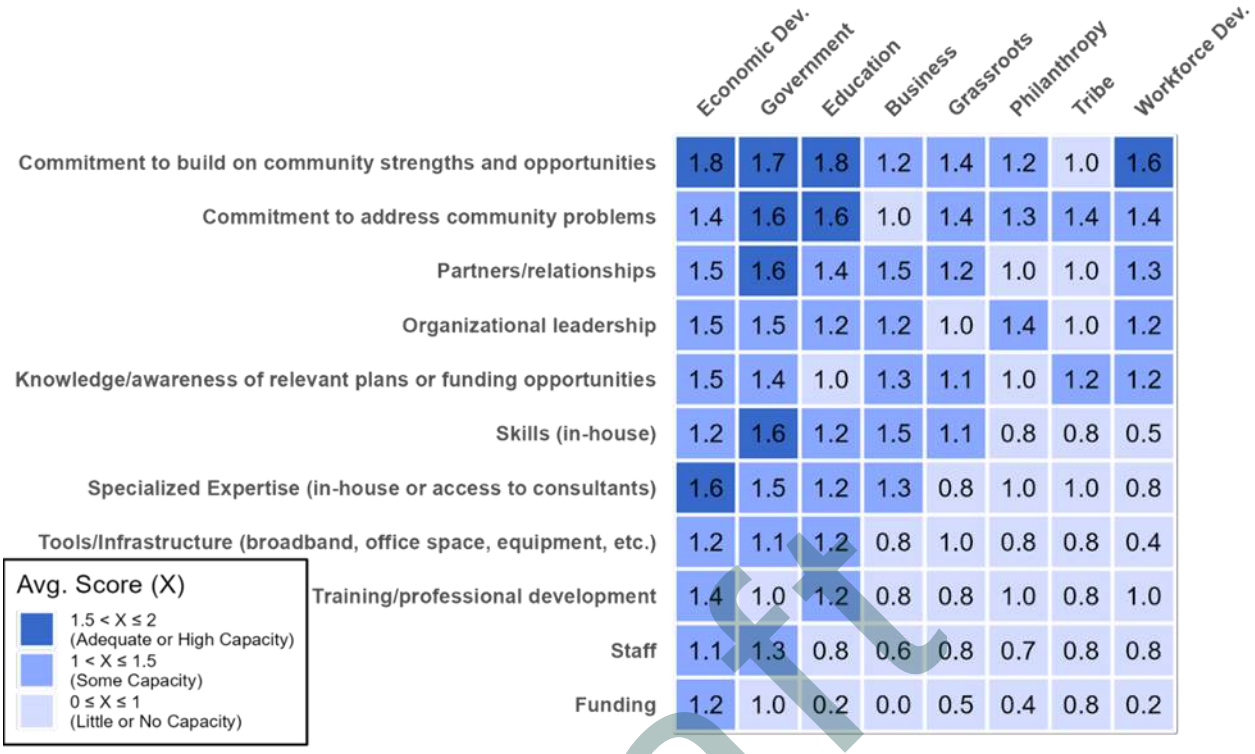
	Percentage (%)	Frequency (*n*)
0 - 5 staff members	42	32
6 - 10 staff members	16	12
11 - 25 staff members	16	12
26 - 100 staff members	13	10
More than 100 staff members	13	11

N=77

Respondents were asked to rate their organization's capacity to participate in economic planning and implementation processes along several indicators of organizational performance and operations.

Economic development, government, and education organizations reported the strongest overall organizational capacity (the greatest number of high and moderate ratings) to participate in economic development planning and implementation processes. Commitment to build on community strengths and address community problems, partnerships and relationships, leadership represent partners' strongest capacities generally (Figure 14).

Figure 14. Capacity of Partner Organizations



N=78. Scoring is based on the average score based on the following point system: "No/Limited Capacity"; 0 points, "Some Capacity"; 1 point, "Adequate/High Capacity"; 2 points.

Many partners experience capacity gaps in skills, expertise, infrastructure, training, staffing, and funding. Of note, workforce development organizations reported the lowest average levels of capacity in skills and tools of any organization type. Business organizations responding to this question reported they have no funded capacity to participate in economic development planning and implementation processes. Workforce and education partners reported the next lowest levels of funded capacity to participate in economic development planning and implementation processes.

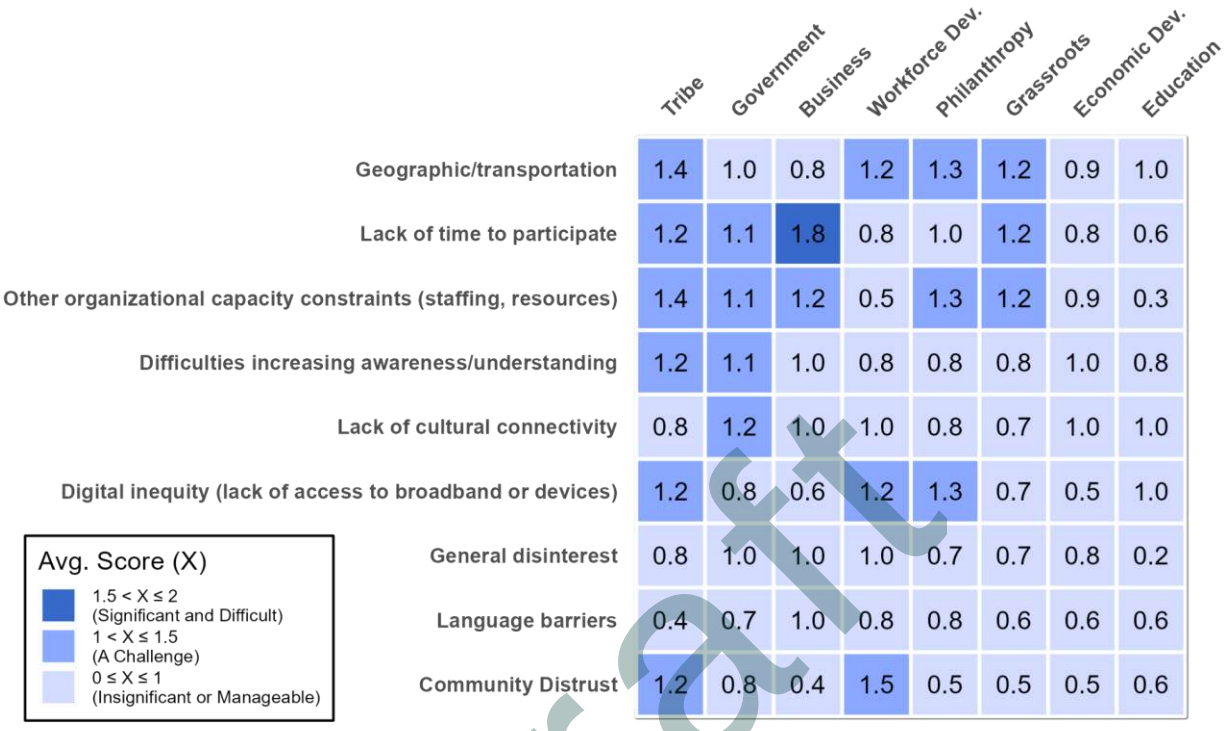
Barriers to Achieving Community Participation

The survey asked respondents to evaluate barriers that may prevent their organization's ability to achieve broader participation in economic development planning and in reaching their constituents/those they serve.

On average, Tribes, government and business organizations reported experiencing the greatest overall level of barriers preventing them from achieving broader community participation in economic development planning. Transportation, time, staffing, and resources pose barriers for most partners, followed by digital inequities related to lack of access to broadband or devices. On average, Tribal and workforce development organizations reported community distrust as a

challenge. Business organizations reported lack of time as a significant challenge to achieving broader participation.

Figure 15. Barriers Experienced by Partner Organizations



N=78. Scoring based on the average score based on the following point system: "Not a barrier at all"; 0 points, "A challenge, but manageable"; 1 point, "A significant and difficult challenge"; 2 points.

Capacity-Building Training

Survey respondents indicated their organization could benefit from training on a range of topics (Table 11, below). Many are interested in training on community investment models (67%) and RR RISE Basics (63%). These interests are closely followed by training on building community power (57%), Economic Development Basics (56%), Project Development (56%) and Public Funding Basics (54%). About half (51%) of all survey respondents would like training on climate resilience followed by training on working with Tribes (47%). Training on Employer-Worker Collaboratives received the fewest responses.

RR RISE co-sponsored the third State of the Redwood Coast Region Conference, an economic development summit for counties in the Redwood Coast Region, held in person for the first time in Ukiah in September 2023. The summit featured many sessions offering information and a labor market analysis on the regions' key industry sectors. Plenary sessions also covered

community investment models like solidarity economics and capital investment models.[22] Survey results indicate an interest in training on similar subjects.

Table 11. Training Needs

	Percentage
Community Investment Models	67
Redwood Region RISE Basics	63
Building Community Power	57
Economic Development Basics	56
Project Development	56
Public Funding Basics	54
Climate Resilience	51
Working with Tribes	47
Equitable, Collaborative, Participatory Decision-making	44
Carbon Neutrality	41
Apprenticeship and Career Pathways Programs	40
Cultural History of our Region	40
Board and Committee Leadership Responsibilities	33
Immigration in our Region	30
Employer-Worker Collaboratives	28

N = 107 for all percentages.

Listening Sessions and Local Tables

Listening sessions conducted with required partners and members of priority communities across the region highlighted a lack of trust in government and economic development planning agencies stemming from boom and bust cycles of extractive industry, failures to deliver on projects proposed in the past, and policies that present barriers to community and economic development processes, such as permitting, fees and taxes that create insurmountable hurdles for small businesses and grassroots organizations to navigate and satisfy.

Community members cited multiple barriers to participating in economic development planning processes including overwhelming and confusing information, lack of time, lack of access to/inability to access online and in-person events, lack of awareness or knowledge of events, and a lack of follow-up and action on their feedback. They are overwhelmingly concerned about developing solutions to meet existing needs, including access to health and behavioral health care; broadband; transportation; disaster readiness; fire and forest management, reliable energy; local, cultural and healthy foods; housing; and jobs in their communities. They report predatory lending, rising rents and costs of living, and a general absence of jobs and relevant training for jobs that do exist in their communities.

[22] Videos of plenary presentations are available at https://www.youtube.com/channel/UCXGptoz3DIBZp60-lQD_Ukg).

Community members see a need for local intermediary organizations to convene partners to build trust and develop community led solutions; policies friendlier to businesses, developers and community organizations; funding terms and processes that enable local businesses and agencies to implement needed projects; as well as coaching and training for local and emerging leaders that can build capacity for long-term progress. People who participated in Local Table meetings voiced a need for an inclusive community process built on norms that promote working together, using strong and clear communication techniques, including needs of all diverse residents and not only businesses, and conducting processes based on respect and compassion. Participants at every local table meeting expressed interest in working with Tribal communities and respect for traditional ecological knowledge.

These findings, based on direct feedback from community members, echo survey results suggesting there is a high level of commitment and willingness to partner to build on community strengths and solve community problems. They indicate community members express distrust of organizations leading economic development processes and point to a need for intermediaries with skills to convene diverse groups through difficult conversations to arrive at shared values, approaches and solutions to economic challenges. As with survey results, they indicate a primary obstacle to forming partnerships is the lack of capacity among nonprofits, especially those located within and/or serving key segments of priority communities and geographic areas.

Summary

Most RR RISE partner organizations are small, with few staff and low budgets. Commitment to build on community strengths and address community problems, partnerships and relationships, leadership represent partners' and communities' strongest capacities. Many partners experience capacity gaps in skills, expertise, infrastructure, training, staffing, and funding.

Tribes, government and business organizations reported experiencing the greatest overall level of barriers preventing them from achieving broader community participation in economic development planning. Transportation, time, staffing, and resources pose barriers for most partners, followed by digital inequities related to lack of access to broadband or devices. These barriers were independently confirmed by direct feedback provided in local planning table meetings.

Community members identified community distrust and a lack of trust in government/economic development agencies due to extractive boom and bust cycles of development and failure of governments and business to deliver on previously planned projects or to include community feedback in planning processes as challenges to progress. The number, nature and timelines of federal and state implementation opportunities are overwhelming and grant funding programs are not designed with the realities that structure rural economies in mind. Many local governments and community-based organizations do not have the expertise, experience, or capacity needed to capture, manage and/or use these resources without technical assistance and support.

Community members see a need for local intermediary organizations to convene partners to build trust and develop community led solutions; policies friendlier to businesses, developers and community organizations; funding terms and processes that enable local businesses and agencies to implement needed projects; as well as coaching and training for local and emerging leaders that can build capacity for long-term progress. People who participated in Local Table meetings voiced a need for an inclusive community process built on norms that promote working together, using strong and clear communication techniques, including needs of all diverse residents and not only businesses, and conducting processes based on respect and compassion. Participants at every local table meeting expressed interest in working with Tribal communities and respect for traditional ecological knowledge.

v. Clarify opportunities for collaborations and partnerships.

This study describes the number, types, purpose and capacity of partners participating in RR RISE. This section suggests opportunities for collaborations and partnerships that might facilitate progress as partners move into the next of planning to develop a vision, goals, strategies and projects that will guide regional economic development into the future.

Strengthening relationships between diverse partners, and between partners and communities. Most organizations participating in RR RISE are small and work at county levels. They reach all priority (disinvested) communities identified by the RR RISE Collaborative, and most often serve people living in remote areas, youth, communities of color, ethnic and racial minorities and LGBTQIA+ communities. Few organizations reported serving non-federally recognized Tribes, unions/union members and monolingual Hmong speakers. Survey results suggest additional outreach and research can help clarify how RR RISE priority communities are identified and engaged by organizations participating in economic development planning and implementation processes.

Research for this study showed, on average, the strongest planning and project partnerships exist between traditional economic development actors: education, government, economic development and workforce development agencies and businesses. Government and economic development partners also reported they have strong relationships with Tribes and community development organizations.

On average, workforce development agencies and businesses in this region don't partner with environmental justice organizations. Grassroots, business, and philanthropy organizations don't partner with labor organizations. Environmental justice and labor organizations can offer important contributions toward the larger goals of the RR RISE initiative. Additional outreach to engage their participation in RR RISE planning tables can help forge stronger relationships.

Existing partnerships with the potential to shift from exchanging information to collaborating on projects include education organizations with Tribes and with community development organizations; government and workforce development organizations with grassroots

organizations; and business organizations with economic development organizations. Outreach and additional focus on these groups to learn how they are working together, clarify their roles in local and regional economic development work, and identify how they might be resourced to collaborate on developing plans and projects may open additional opportunities to accelerate regional work.

From the perspective of ensuring an equitable, inclusive process, organizations and community members in the Redwood Coast Region express a high level of commitment to building on community strengths and addressing community problems. They are willing to form partnerships and relationships around economic development plans and projects that meet the needs of priority populations. Yet many partners experience capacity gaps in skills, expertise, organizational infrastructure, training, staffing, and funding. Transportation and time also pose barriers for most partners to achieve broader participation in the planning process, followed by digital inequities related to lack of access to broadband or devices.

A primary obstacle to forming partnerships in the region is the lack of capacity among nonprofits, especially those located within and/or serving key segments of priority communities and geographic areas. Tribal governments, communities, and tribal-serving organizations are among the least capacitated and simultaneously recognized as among the most innovative and integral partners to engage in economic development projects. Tribes and workforce development organizations reported community distrust is a challenge that prevents them from achieving broader participation in economic development planning.

Community members participating in listening sessions and Local Planning Table meetings also reported a lack of trust in government and economic development agency planning processes due to the history of extractive boom and bust cycles of development and failure of governments and business to deliver on previously planned projects or to include community feedback in planning processes. Listening sessions, interviews with members of priority communities and meetings of the Equity Council surfaced concerns about indigenous erasure, violence, exclusion and structural inequities that pose real barriers to priority populations' participation in economic development planning and project development.

The willingness expressed by partner organizations and community members to focus on strengths, form partnerships, and access training that presents new models of community investment and building community power signal opportunities that can help address challenges to engaging priority communities in the process of developing equitable economic development partnerships, plans and projects. Delving more deeply into imbalanced power dynamics and capacity constraints in dialog facilitated by skilled intermediaries, additional research to lift up the experience of priority communities, and ongoing outreach to include priority communities in decision-making processes can help uncover, name and address these challenges.

Strengthening regional partnerships within and across industry sectors

The Redwood Coast Region is a new state-designated planning area. Economic development partners in counties across the region do not routinely work together on plans or projects. RR RISE and the K-16 Education Collaborative represent the first efforts of counties across the region to organize and collaborate on plans and projects. Strong regional alignment across industry sectors, goals and strategies present abundant opportunities for partners to design projects with regional relevance. RR RISE Sector Tables create a space to catalyze partnerships, develop regional strategies and propose regional projects.

Convening groups around shared interest in growing research and development, education, business entrepreneurship and communications/marketing strategies can help incubate partnerships and build support networks across industry sectors. Participants in listening sessions and local planning table meetings acknowledged NIMBY-ism or community resistance to change and planned projects often presents a major challenge to progress. Responding to requests from county residents and priority communities to form and/or fund intermediary organizations with the capacity to train, coach and build leadership skills in diverse communities, facilitate respectful dialogue and build social networks focused on specific goals can help ensure local voices contribute to plans, project designs and formation of local and regional partnerships within and across industry sectors.

From the perspective of ensuring an equitable and inclusive planning process, partners across the region will need to address the tension between planning for strategies that build toward regional growth industries and strategies to meet critical infrastructure, talent and funding gaps that currently limit economic growth within their own communities. Partners from across the region have repeatedly voiced concern about the process of fairly identifying projects for funding. To ensure an inclusive planning process, partners must address power differentials that have created barriers to the participation of RR RISE priority communities in planning and decision-making, including building the capacity of organizations to achieve broader participation in RR RISE and of communities to organize in self-determined, sustainable ways.

Sector Tables create a structure and forum for this work. The investment of Catalyst Funds will help support partners in working together across sectors and counties to develop a shared vision, strategies and criteria for developing and selecting projects. Tools will present opportunities for partners to clarify their roles, strengths and limitations so that efforts can be coordinated and partners can contribute from their position of strength. This work presents an opportunity for partners to join in identifying resources needed to support cross-sector work on an ongoing basis and collaborate to build an inclusive social and planning infrastructure.

Regional and State Partnerships

RR RISE partners, including members of priority communities, point to federal and state policies and grant programs that are not designed to support rural regions' ability to compete or develop projects that meet their needs. They specifically call out shifting and unrealistic timelines, performance criteria, and disbursement schedules that do not account for the time and resources

required to form partnerships, ensure community participation, design responsive and complex regional projects, and deliver results.

Partners are burdened by competing demands to produce and implement local/county plans in divergent planning jurisdictions simply to access ongoing, much needed local funding, and the lack of coordinated or enabling policy to support local or regional implementation of plans and projects. The number, nature and timelines of federal and state implementation opportunities are overwhelming strained systems, and grant funding programs are not designed with the realities that structure rural economies in mind.

Many local governments, businesses and community-based organizations do not have the expertise, experience, or capacity needed to capture and/or use grant funded resources without assistance. That the state agencies leading the CA Jobs First grant program have not been able to hire regional staff to provide guidance to northern California and the Redwood Coast Region for this grant program is an indicator of the difficulties partners in this region experience when searching for talent. Partners expressed needs to build the awareness, knowledge, and experience in economic development planning and implementation processes to meet persistent and urgent local needs and begin to work at the scale contemplated by CA Jobs First and other grant programs.

Summary

Data gathered from RR RISE partners and community members across the region tracks closely with research conducted by nationally renowned rural scholar Anthony Pipa at Brookings[23] and by the Little Hoover Commission[24] documenting the historical policy impacts of federal and state underinvestment in rural regions. This work points to the need to prioritize stable, flexible funding specifically for rural regions that builds local leadership capacity, improves policy and funding coherence at federal and state levels, and invests in substantial, flexible grants to enable regions to capitalize on and preserve the beauty, quality of life and pride of place that are also critical to catalyzing economic growth.

While state policy focuses on building traded sectors, this region lacks a coordinated approach to industries holding that potential and capacity to build markets is critically and negatively impacted by the lack of physical infrastructure - transportation routes, water, housing, broadband – and services – healthcare, education – to effectively build markets that will engage and meet existing needs of the residents of this region, especially priority communities.

[23] (Pipa, A, 2003) A recipe for a rural policy renaissance [Podcast Transcript]. https://www.brookings.edu/wp-content/uploads/2023/03/Reimagine-Rural-Ep-8-policy-recipe.pdf

[24] Little Hoover Commission (2022). *Equitable economic development across California.* https://lhc.ca.gov/report/equitable-economic-development-across-california-0

Appendix A: Partnership Survey Questions

1. Email *

SECTION 1: Your Information

2. Welcome to the Redwood Region RISE Survey!
Your survey responses will help us learn about community members and organizations interested and/or available to participate in economic development planning and decision making in Redwood Region RISE (Resilient Inclusive Sustainable Economy): Del Norte, Humboldt, Lake, Mendocino Counties and Tribal Lands. This information is a required part of our region's plan, and your responses are very important! If you're not representing an organization/affiliation, this survey will take about five minutes to complete. For those representing an organization/affiliation it will take about twelve minutes to complete this survey.
We will use the survey results to prepare these parts of our regional plan:

- A searchable directory of people and organizations interested and available to participate in the Redwood Region RISE planning process.
- Graphics and charts that illustrate all combined survey responses.
- A written analysis of the take-aways.

You can choose not to include your name in the directory and still participate in this survey. Even if you choose to be listed in the directory, all responses in Sections 2 and 3 will be kept confidential.
If you have any questions about this survey, please contact: ccrp@humboldt.edu
Thank you for your time!
Please click NEXT to begin.

* Indicates required question
What is your name? (Required Question) *
3. Which County or area do you live in? Check all that apply.
Del Norte
Humboldt
Lake
Mendocino
Tribal Lands

4. If desired, please provide additional information about the area or Tribal Land that you live in. (For example, the name of the city, town or neighborhood in which you live.)

5. If applicable, what is your occupation or title?

6. Would you like to participate in economic development meetings and discussions in your community?

7. How would you like to contribute to the Redwood Region RISE planning process?
Check all that apply.
Attend Zoom meetings of the High Road Transition Collaborative (HRTC) on every last Thursday of the month
Participate on a Tribal Planning Table (Tribal members only)
Participate on a Local Planning Table
Receive the newsletter
Receive a mini grant to help Redwood Region RISE recruit community feedback from priority populations/members for Local Planning Tables (more information on this opportunity will be provided upon request)
Help us spread the word to encourage people to join the Local Table Meetings
Flyering/Promoting/social media/Giving out surveys for community feedback
Receive/attend update meetings a few times a year (in addition to or instead of HRTC meetings)
8. Do you represent an organization? Examples may include educational institutions, business associations, economic development, community organizations, and others.
Please note: If you select NO you will skip directly to Section 4, as Sections 2 and 3 pertain only to organizations.
Yes

No - Skip to question 22

SECTION 2: Organizations
You are answering these questions because in a previous question you indicated that you represent an organization.
9. What is the name of the organization that you represent?
10. What is your organization's primary physical address?
11. Which areas does your organization serve? Select all that apply:
Check all that apply.
Del Norte
Humboldt
Lake
Mendocino
Tribal Lands
12. At what geographic scale does your organization operate? Select all that apply:Check all that apply.
National
State
Regional (Del Norte, Humboldt, Lake and Mendocino Counties)
County
City
Neighborhood/Census Designated Place

13. If desired, please provide additional information about the areas or Tribal Lands your organization serves.

14. Please choose one response that best describes your organization:

Mark only one oval.
Business/Business Association
Economic Development Agency
Education or Training Center
Environmental Justice Organization
Federally/non-Federally Recognized Tribe
Government Agency
Grassroots/Community-Based Organization
Labor
Philanthropy
Workforce Development
15. Which of these priority communities does your organization primarily serve (if any)? Select all that apply:
Advocates for People of Color (e.g. Black Lives Matter, Asian Americans Advancing Justice, New Hmong Rising Association etc.)
Communities of Color
Immigrants with Documentation (e.g. work visas)
Individuals that live in extremely remote/rural areas of the Redwood Coast Region
Individuals who were Formerly Incarcerated
Individuals with Hearing Impairment
Individuals with Intellectual Developmental Disabilities
Individuals with Learning Disabilities
Individuals with Physical Disabilities
Individuals with Vision Impairment
Individuals without Broadband Access
Individuals without Documentation
Lesbian, Gay, Bisexual, Transgender, Queer, Asexual, Intersex + (LGBTQAI+)
Member of ethnic minority communities
Members of religions
Monolingual Hmong-Speakers
Monolingual Spanish Speakers
New Citizens
Non-federally recognized Tribal Nations
Seniors
Tribal Citizens
Tribal Governments
Unions
Workers

Youth
16. If not listed above, please describe the community your organization serves.
17. What is your organization's annual operating budget?
Mark only one oval.
$0 to $100,000
$100,000 to $500,000
$500,000 to $2 million
$2 million to $5 million
$5 million to $10 million
Over $10 million
I'm not sure.
18. How many full-time staff does your organization employ? Please provide approximate full-time equivalencies (FTEs).
Mark only one oval.
0 to 5
6 to 10
11 to 25
26 to 100
More than 100
19. I would like to be included in a directory of organizations available to partner on economic, community and environmental planning initiatives.
Mark only one oval.
Yes
No

SECTION 3: Partnerships
This section of the survey asks about your partnerships with other organizations in our region.
Important Instructions
As you answer the survey questions, please keep these instructions in mind:

- Please answer from the perspective of the type of partner that best describes your organization.
- Answer from the perspective of the primary address you use when doing economic development work within our region. If your organization has more than one office in our region, please use the main office address.
- Answer from the perspective that best describes the usual type and quality of relationship you have with other partners in one category.

20.
Mark only one oval per row.
The following questions are meant to gauge your or your organization's level of connection with the following organization types. Please evaluate your/your organization's level of involvement with the following organizations.
I/my organization interacts with partners on economic development issues as follows:

- I don’t know anyone at this type of organization.

- I know someone at this type of organization but don't regularly exchange information with them and have never worked with them.
- I regularly exchange useful information with a person in this type of organization but have not/do not work with them on a project.
- I regularly exchange useful information with a person in this type of organization and have worked with them on one or more projects.
- I'm in regular contact with people in this type of organization, have participated in a planning process with them before, and have worked with them on projects.

Economic Development Organizations
Community Development Organizations
Business/Business Associations
Education or Training Centers
Environmental Justice Organizations
Federally or nonFederally Recognized Tribes
Government Agencies
Grassroots or Community-Based Organization
Labor Organizations
Philanthropic Organizations

21. If desired, please provide further comment on the types of projects and plans that you have worked on with these partners (Optional).

SECTION 4: Capacity and Support
These questions ask you to describe your or your organization's capacity to participate in economic development planning and implementation processes and support that could help encourage broader community participation.
Mark only one oval per row.
Please evaluate your/your organization's capacities to participate in economic development planning and implementation processes:

- No/Limited Capacity
- Some Capacity
- Adequate/High Capacity

Knowledge/awareness of relevant plans or funding opportunities
Commitment to build on community strengths and opportunities
Commitment to address community problems
Staff
Partners/relationships
Skills (in-house)
Specialized Expertise (in-house or access to consultants)
Training/professional development
Funding
Organizational leadership
Tools/Infrastructure (broadband, office space, equipment, etc.)

23. If desired, please provide further explanation of your or your organization's capacities.

24. This question seeks to help us understand barriers that may prevent you or your organization's ability to achieve broader participation in economic development planning. Please evaluate the barriers, if any, that you or your organization face in reaching the people you serve/your constituents.

- Not a barrier at all
- A challenge, but manageable
- A significant and difficult challenge

Community Distrust
Difficulties increasing awareness/understanding
Digital inequity (lack of access to broadband or devices)
General disinterest
Geographic/transportation
Lack of cultural connectivity
Lack of time to participate
Language barriers
Other organizational capacity constraints (staffing, resources)
None of the above

25, If desired, please describe any other barriers not listed above or specific populations affected.

26. I/ my organization could benefit from access to the following types of training (choose all that apply)

- Redwood Region RISE Basics – what is required in this planning process and what types of projects can be promoted for funding.
- Economic Development Basics – the who, what, where, why and how economic development can create wealth.
- Public Funding Basics – how governments fund economic development projects
- Community Investment Models - how community members can drive change and attract resources
- Project Development - phases of major projects from conceptualization to implementation and opportunities for community input
- Apprenticeship and Career Pathways Programs – what they are and what is available in our region
- Cultural History of our Region
- Immigration in our Region
- Working with Tribes

- Building Community Power – what does community power look like and what does it mean to shift power to communities.
- Board and Committee Leadership Responsibilities – how to participate on a leadership board
- Equitable, collaborative, participatory decision-making
- Employer-Worker Collaboratives – what they are and how they work
- Carbon neutrality – what it means, what are CA's goals and how these goals affect our region.
- Climate resilience – strategies to achieve this goal.

27. If desired, please describe any other training opportunities that you or your organization may benefit from.

28. Please provide your best contact email if you would like to receive more information about Redwood Region RISE, and/or want to be included in our directory:

Appendices B – D

Appendix B. Memo Disinvested Communities RR RISE

Appendix C. ThinkPlace (2023). *Redwood Region RISE: Insights from listening session empathy interviews.* https://ccrp.humboldt.edu/sites/default/files/rr_rise_insights_report_-_12-15-23.pdf

Appendix D: Example Plans

An inventory of plans provided by RR RISE partners appears below. Many are in the process of annual or full updates.

RR RISE Plans Under Analysis

Area and Plan	Effective Dates	County, jurisdiction or organization
Del Norte County CEDS Plan	2019	Del Norte County
Crescent City Economic Development Strategic Action Plan	2021	City of Crescent City
Prosperity 2018: Humboldt CEDS	2018 - 2023	Humboldt County
Humboldt Rising: Community Outreach Report (CEDS update)	2022	Humboldt County
RCAA: Community Needs Assessment & Action Plan	2023	Humboldt County
City of Eureka Economic Development Strategic Plan	2021	City of Eureka
Lake CEDS	2016- expired, update in progress	County of Lake, Lake EDC
Mendocino/Sonoma CEDS	2022-2025	Mendocino and Sonoma Counties
County of Mendocino Economic Development Analysis	2007	Mendocino County
MOVE2030: Community Plan	March 2021	Mendocino County
MOVE2030: Economic Resiliency plan	March 2021	Mendocino County
Ta'm Resilience Campus		Blue Lake Rancheria
Hoopa Valley Tribe CEDS	2016-2020	Hoopa Valley Tribe
Hoopa Valley Tribe Strategic Energy Plan	2016	Hoopa Valley Tribe
Humboldt Regional Climate Action Plan	2021 (draft)	County of Humboldt
Karuk Climate Adaptation Plan	2019	Karuk Tribe
Karuk Tribe Comprehensive Economic Development Strategy	2021	Karuk Tribe
Wiyot Tribe Strategic Plan 2020-2024	2019	Wiyot Tribe

Yurok Tribe Climate Change Adaptation Plan	2014	Yurok Tribe
Yurok CEDS	2017	Yurok Tribe
Redwood Coast P-16 collaborative	2022	Cal Poly Humboldt lead; Mirrors RR RISE Region
California State Lands Commission	2021-2025	State of CA
2020 Regional Transportation Plan	2020	Del Norte County
2022 Lake County Regional Transportation plan/Active Transportation Plan	2022	Lake County
2022 Regional Transportation Plan & Active Transportation Plan	2022	Mendocino County
2008 Humboldt County Regional Transportation Plan (amended Jan. 2013)		Humboldt County
5-year transit development plan 2023-2028	2023-2028	Humboldt County

Appendix E: Example Projects

Projects Listed in the RR RISE Proposal https://www.westcenter.org/wp-content/uploads/2022/08/CERF_Proposal_Narrative_Redwood_Region_7.25.22.pdf

Important local and Regional projects and partnerships include:
Blue Economy: Major investments to diversify traditional maritime activity towards climate resilience and adaptation, including restoring fisheries, are occurring in Fort Bragg, Mendocino County. The Noyo Harbor Ocean Science Center and Multi-modal project includes an aquaculture demonstration project, world-class marine science and education facility, research laboratories, and other assets to support a transition to a restorative blue economy. Other investments include a Seawater Intake Project with potential to support desalination, Community Sustainability Plan addressing zoning, investment and infrastructure for commercial and recreational fishing, and marina redevelopment. The Georgia Pacific Mill Site is in planning to be redeveloped into a mixed-use site with opportunities for blue economy projects. Another major investment in the Region redevelops a coastal mill site: Nordic Aquafarms, an aquaculture firm, has been approved to redevelop a pulp mill in Humboldt Bay into a land-based finfish recirculating aquaculture system (RAS), the first of its kind permitted in the Region. The Klamath Dam removal and habitat restoration project in Del Norte is the world's largest.
Green/Regenerative Economy: The award-winning Blue Lake Rancheria microgrid allows the Rancheria campus to operate in tandem with or islanded from the main utility grid. It generates renewable energy and provides approximately $150,000 in annual electricity savings and has served as the inspiration for similar microgrid projects now launching in the Region. The California Energy Commission recently announced a 10.5-million-dollar grant to prepare Humboldt Bay for off-shore wind development. The Humboldt Wind Energy Area environmental assessment (federal approval by Bureau of Ocean Energy Management) was found to have no significant impact, moving the Region closer to launching investments in this area. The CORE

Hub was incubated by the Humboldt Area + Wild Rivers Foundation in partnership with Schatz Energy Lab at Cal Poly Humboldt, Redwood Coast Energy Authority, and Blue Lake Rancheria with a goal of making the Region "the first proven carbon sequestering rural area by 2030."

Projects and Initiatives Listed in Responses to CCRP March-April Partner Survey. https://ccrp.humboldt.edu/sites/default/files/hrtc_meeting_03.30.2023_presentation.pdf

Harvest Hub, Dockside Market, the huge need for a distribution center/shared export opportunities Cameo Network Local Entrepreneurship Toolkit Blue Economy/green hydrogen Agtech innovation Ukiah Climate Action Plan Arcata Gateway Plan Powers Creek District Revitalization Baduwa't Community mixed-use affordable housing project. We Are Up and the need for inclusive housing and opportunities for people with disabilities The Mattole Resilience, Education, and Research Center project CORE Hub Upstatecreativecorps.org The update to the Lake County CEDS Cradle-to-Career Collaborative on the North Coast City of Crescent City Beach Front Park The newly initiated Mendocino County, City of Fort Bragg and City of Point Arena Climate Change & Sea Level Rise Local Coastal Program Updates Mendocino County Net Zero Carbon Emissions program Noyo Ocean Collective	Blue Economy Symposium and Learning Festival. Noyo Harbor Blue Economy Visioning, Resiliency, and Implementation Plan, Formation of the community land trust, Housing Mendocino Coast Fort Bragg Municipal Broadband Fort Bragg Oneka Seawater Desalination Buoy Design Pilot Study Tribal EcoRestoration Alliance (TERA) Offshore wind leases A fire suppression/fire hydrant system in the Covelo, Mendo County Toma Resilience Campus at Blue Lake Rancheria Eureka Cultural Arts District Cal Forest WRX Alliance work on a forestry workforce development and wood products innovation campus Disaster preparedness, relief efforts-COAD, LTRG State funding for fuel reduction in regional forests. Regional online Rotary Club with a Cause dedicated to developing community sustainability and natural systems stewardship New Transportation Hub	Alexandre Family Regenerative Farm, NEW Redwood Experience Center (joint visitor center with Redwood Parks Conservancy, City of Crescent City, and Chamber of Commerce Municipal Citywide Broadband Network & Blue Launch of the Redwood Coast Chamber Foundation, Humboldt/Eel River Valley Long Term Recovery Group Care Response Unit (CRU) City of Clearlake: Homesteading Program, College Fees Paid Program North Coast Food Hub, Humboldt Bay and Noyo Harbour Fisherman's Dockside Market projects, Crescent City and Crescent City Harbour Revitalization Aquaculture innovation hub Current and upcoming funding for schools (LEAs and county offices of education) that support higher education and workforce development opportunities.

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CERF Report
Regional Economic Analysis
North State, Eastern Sierra and Redwood Coast

Summary Report

December 2023 - DRAFT

Economic Forensics and Analytics, Inc.
Petaluma, CA
eyler@econforensics.com

Executive Summary

This report on data for the Redwood Coast, Eastern Sierra and North State Community Economic Resilience Fund or CERF regions. These data provide benchmarking, current context and forecasting for economic development, workforce development and recommendations for future funding placement. These three regions comprise 21 counties, geographically similar in that these are rural counties. The Eastern Sierra counties connect Sacramento to the southern portions of the Central Valley along the foothills and mountain areas east of Interstate 5. The North State region are counties north of Nevada and Colusa counties to the Oregon border, including Butte and Shasta counties as regional hubs. The Redwood Coast counties include Del Norte, Humboldt, Mendocino, and Lake counties, connecting to the North State region on its eastern border. We considered each region since 2010 or 2011 to 2022 or 2023 as data allow.

Key Findings

Each region has unique assets and challenges that shape regional industry mix and also make the individual counties in each region slightly different in terms of industry mix and potential business and worker forecasts. Our criteria provides a filter to assess industries that provide economic development opportunities to 2030. Innovative clusters are described in the report, and are summarized here. The opportunity industries support these clusters.

The industries may exist or need to be developed to support growth in each cluster. These regions still rely on large employers in healthcare, government, and manufacturing for jobs and relatively-high wages. Low-wage jobs persist in these areas in personal services and leisure and hospitality. Such jobs may be at threat as technology changes, including jobs growth as a result of the pandemic in transportation and warehousing.

Our industry and cluster choices include an assessment of relative environmental concerns as there are more workers and more “value-added” dollars coming to these local areas due to more local products and services. We consider these changes in relative terms using 2022 technology and assessments; these should be reduced over time through technological change, some of which may be developed in these regions.

Economic Development Opportunities: Innovative Clusters

North State	**Redwood Coast**	**Eastern Sierra**
Construction	Construction	Construction
Healthcare	Healthcare	Healthcare
Craft Food and Beverage Manufacturing	The Blue Economy	Data and Energy Storage
Energy Products and Services	Forestry products and science	Recreation and Mountain Experiences

Economic Development Opportunities: Industries with Regional Competitive Advantages

North State	Redwood Coast	Eastern Sierra
Hospitals	Nursing and Residential Care Facilities	Hospitals
Nursing and Residential Care Facilities	Agriculture & Forestry Support Activity	Couriers and Messengers
Museums, Parks and Historical Sites	Construction of Buildings	Warehousing and Storage
Agriculture & Forestry Support Activity	Food Manufacturing	Nursing and Residential Care Facilities
Construction	Hospitals	Food Services and Drinking Places
Repair and Maintenance	Animal Production and Aquaculture	Construction of Buildings
Food Manufacturing	Food and Beverage Stores	Heavy and Civil Engineering Construction
Forestry and Logging	Waste Management and Remediation Service	Specialty Trade Contractors
Scenic and Sightseeing Transportation	Utilities	Social Assistance
Social Assistance	Real Estate	Food and Beverage Stores
Animal Production and Aquaculture	Amusement, Gambling & Recreation Ind	Accommodation
	Nonmetallic Mineral Product Mfg	Scenic and Sightseeing Transportation
	Social Assistance	ISPs, Search Portals, & Data Processing
	Beverage & Tobacco Product Manufacturing	Amusement, Gambling & Recreation Industries
	Administrative and Support Services	Crop Production

Opportunities come from recent trends, such as working from home may help provide local talent to these counties and regions not there before the pandemic. Housing prices have increased due to such migration, however, and changed local costs of doing business. Workforce development needs to utilize local universities and community colleges as partners with regional employers as a major opportunity. Rural areas, due to a smaller population and lower per-capita incomes, may lack the educational breadth and depth of larger areas throughout California. Partnerships that link high-school students to local and regional community-college programs, university programs, and finally job opportunities can help shape local residents into local workers and reduce “brain flight” and search costs for local employers.

Clusters are also considered with respect to driving income from outside sources, with less dependence on local residents and more of a viewpoint on national and global markets. Visitor strategies and driving more tourism to these regions is a major part of utilizing current “brand” equity and assets. Cannabis farming to retail may also be an expanding partner in regional tourism, but also in agricultural-based manufacturing and distribution. The North State region is less burdened by logistics and transportation constrains as the Redwood Coast and Eastern Sierra regions. However, less dependence on physical transportation and more on virtual networks and connectivity can help most current and nascent industries. The clusters are also based on rising-wage, high-road industries and potential growth per recent forecasts for the American economy.

The data we show here suggest inequities have increased. The regional snapshots below show that since 2019 poverty has increased in the North State and Eastern Sierra region, while falling slightly in the Redwood Coast. Per capita and median household incomes have both increased since 2019. Changing industry conditions and workforce development focused on households at or close to poverty can help lift up those local residents toward higher income levels and reduce housing burden and economic

uncertainty. Housing supply and mix complement these efforts. Our regional comparisons provide some insight as to how these counties and regions could become more dominant in respective marketplaces. Figure 1 below provides a snapshot for each region.

Figure 1: Data Snapshots, North State, Redwood Coast and Eastern Sierra Regions

North State Census Data Snapshot

Statistic	2022	2019
POPULATION		
Population Estimate (#)	453,478.0	464,350.0
Veterans (#)	28,886.0	29,051.0
Foreign born persons (%, 5yr)	7.1	7.0
Population age 25+ (#)	307,556.0	317,070.0
AGE AND SEX		
Persons under 5 years (%)	5.2	5.5
Persons under 18 years (%)	21.1	21.3
Persons 65 years and over (%)	20.0	19.8
Female persons (%)	50.3	50.4
INCOME AND POVERTY		
Median household income ($)	191,586.0	179,129.0
Per capita income in past 12 months ($)	102,231.0	94,046.0
Persons in poverty (%)	16.2	15.0
Children age less than 18 in poverty (#)	14,888.0	15,003.0
Children age less than 18 in poverty (%)	15.9	15.7
RACE AND ETHNICITY		
White alone (%)	73.2	83.1
African American alone (%, 5yr)	1.7	1.6
American Indian or Alaska Native alone (%, 5yr)	1.7	2.2
Asian alone (%)	2.6	2.2
Native Hawaiian and Other Pacific Islander alone (%, 5yr)	0.3	0.2
Two or More Races (%)	15.6	4.7
Hispanic or Latino (%)	17.5	12.2
White alone, not Hispanic or Latino (%)	68.7	73.5
HOUSING		
Housing units (#)	200,141.0	192,681.0
Owner-occupied housing units (%)	62.3	62.9
Median value of owner-occupied housing units ($)	1,109,900.0	859,300.0
Median selected monthly owner costs-with a mortgage ($)	5,423.0	4,962.0
Median selected monthly owner costs-without a mortgage ($)	1,815.0	1,438.0
Median gross rent ($)	3,545.0	3,153.0
FAMILIES AND LIVING ARRANGEMENTS		
Households (#)	178,332.0	175,675.0
Persons per household (#)	7.5	7.7
Living in same house 1 year ago, % of persons age 1+	84.9	81.6
EDUCATION		
High school graduate or higher, % of persons age 25+	91.3	89.6
Bachelor's degree or higher, % of persons age 25+	27.5	24.9
HEALTH		
With a disability, under age 65 years (#)	46,467.0	48,409.0
Persons without health insurance, under age 65 years (%)	7.1	6.2
LABOR FORCE		
In civilian labor force, persons age 16+ (%)	57.7	56.8
In civilian labor force, women age 16+ (%)	54.6	53.8
Employed, persons age 16+ (%)	52.9	51.3
Self employed (%)	12.4	12.6
TRANSPORTATION		
Mean travel time to work, workers age 16+ (Mins.)	21.2	23.9
Using public transportation (%)	0.7	1.1
Drive alone in private vehicle (%)	74.7	79.6

Source: American Community Survey, Summary Files
Note: Data are from the 1-year files unless indicated by the notation 5yr.

Redwood Coast Census Data Snapshot

Statistic	2022	
POPULATION		
Population Estimate (#, 5yr)	322,763.0	314
Veterans (#, 5yr)	18,303.0	21
Foreign born persons (%, 5yr)	8.5	
Population age 25+ (#, 5yr)	227,392.0	220
AGE AND SEX		
Persons under 5 years (%, 5yr)	5.2	
Persons under 18 years (%, 5yr)	20.2	
Persons 65 years and over (%, 5yr)	21.1	
Female persons (%, 5yr)	49.9	
INCOME AND POVERTY		
Median household income ($, 5yr)	236,624.0	191
Per capita income in past 12 months ($, 5yr)	131,381.0	108
Persons in poverty (%, 5yr)	17.7	
Children age less than 18 in poverty (#, 5yr)	12,881.0	14
Children age less than 18 in poverty (%, 5yr)	20.3	
RACE AND ETHNICITY		
White alone (%, 5yr)	73.2	
African American alone (%, 5yr)	1.5	
American Indian or Alaska Native alone (%, 5yr)	4.0	
Asian alone (%, 5yr)	2.5	
Native Hawaiian and Other Pacific Islander alone (%, 5yr)	0.2	
Two or More Races (%, 5yr)	10.7	
Hispanic or Latino (%, 5yr)	19.5	
White alone, not Hispanic or Latino (%, 5yr)	67.1	
HOUSING		
Housing units (#, 5yr)	149,102.0	150
Owner-occupied housing units (%, 5yr)	61.5	
Median value of owner-occupied housing units ($, 5yr)	1,423,500.0	1,128
Median selected monthly owner costs-with a mortgage ($, 5yr)	7,554.0	6
Median selected monthly owner costs-without a mortgage ($, 5yr)	2,374.0	1
Median gross rent ($, 5yr)	4,783.0	3
FAMILIES AND LIVING ARRANGEMENTS		
Households (#, 5yr)	125,069.0	124
Persons per household (#, 5yr)	10.2	
Living in same house 1 year ago, % of persons age 1+ (5yr)	84.8	
EDUCATION		
High school graduate or higher, % of persons age 25+ (5yr)	88.3	
Bachelor's degree or higher, % of persons age 25+ (5yr)	25.1	
HEALTH		
With a disability, under age 65 years (#, 5yr)	34,667.0	31
Persons without health insurance, under age 65 years (%, 5yr)	6.8	
LABOR FORCE		
In civilian labor force, persons age 16+ (%, 5yr)	55.8	
In civilian labor force, women age 16+ (%, 5yr)	52.5	
Employed, persons age 16+ (%, 5yr)	48.4	
Self employed (%, 5yr)	15.0	
TRANSPORTATION		
Mean travel time to work, workers age 16+ (Mins., 5yr)	19.5	
Using public transportation (%, 5yr)	1.4	
Drive alone in private vehicle (%, 5yr)	70.9	

Source: American Community Survey, Summary Files
Note: Data are from the 1-year files unless indicated by the notation 5yr.

Figure 1: (Cont.)

Eastern Sierra Census Data Snapshot	California Snapshot?

Statistic	2022	2019
POPULATION		
Population Estimate (#)	198,136.0	191,226.0
Veterans (#)	15,526.0	16,790.0
Foreign born persons (%, 5yr)	6.6	6.7
Population age 25+ (#)	152,125.0	148,810.0
AGE AND SEX		
Persons under 5 years (%)	3.8	3.2
Persons under 18 years (%)	16.8	16.0
Persons 65 years and over (%)	26.5	27.3
Female persons (%)	48.4	47.9
INCOME AND POVERTY		
Median household income ($)	69,757.0	65,239.0
Per capita income in past 12 months ($)	40,138.0	34,299.0
Persons in poverty (%)	12.7	10.9
Children age less than 18 in poverty (#)	4,652.0	4,782.0
Children age less than 18 in poverty (%)	14.6	16.3
RACE AND ETHNICITY		
White alone (%)	76.6	84.7
African American alone (%, 5yr)	1.2	1.4
American Indian or Alaska Native alone (%, 5yr)	2.4	2.6
Asian alone (%, 5yr)	1.7	1.5
Native Hawaiian and Other Pacific Islander alone (%, 5yr)	0.3	0.2
Two or More Races (%)	11.5	5.8
Hispanic or Latino (%)	17.1	14.2
White alone, not Hispanic or Latino (%)	72.6	76.3
HOUSING		
Housing units (#)	112,476.0	117,887.0
Owner-occupied housing units (%)	76.5	76.8
Median value of owner-occupied housing units ($)	438,100.0	322,900.0
Median selected monthly owner costs-with a mortgage ($)	2,118.0	1,783.0
Median selected monthly owner costs-without a mortgage ($)	753.0	574.0
Median gross rent ($)	1,239.0	1,131.0
FAMILIES AND LIVING ARRANGEMENTS		
Households (#)	79,679.0	76,616.0
Persons per household (#)	2.3	2.4
Living in same house 1 year ago, % of persons age 1+	89.1	89.3
EDUCATION		
High school graduate or higher, % of persons age 25+	92.4	90.4
Bachelor's degree or higher, % of persons age 25+	24.1	22.0
HEALTH		
With a disability, under age 65 years (#)	18,219.0	17,021.0
Persons without health insurance, under age 65 years (%)	5.7	7.1
LABOR FORCE		
In civilian labor force, persons age 16+ (%)	52.7	49.8
In civilian labor force, women age 16+ (%)	53.4	48.0
Employed, persons age 16+ (%)	47.0	44.8
Self employed (%)	14.4	15.2
TRANSPORTATION		
Mean travel time to work, workers age 16+ (Mins.)	24.9	27.1
Using public transportation (%)	1.5	0.8
Drive alone in private vehicle (%)	70.8	75.8

Source: American Community Survey, Summary Files
Note: Data are from the 1-year files unless indicated by the notation 5yr.

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Introduction

The data we provide in this report focus on regional employment and workforce, industry mix and forecasting nascent, diverse industries for these regions. The three regions considered here are:

- Eastern Sierra;
- North State;
- Redwood Coast.

The counties in each region are summarized as follows:

North State	Redwood Coast	Eastern Sierra
Butte	Del Norte	Alpine
Glenn	Humboldt	Amador
Lassen	Lake	Calaveras
Modoc	Mendocino	Inyo
Plumas		Mariposa
Shasta		Mono
Sierra		Tuolumne
Siskiyou		
Tehama		
Trinity		

Our focus will be on industries and occupations and incomes for the regions as ways to provide an overview of how we use the data to provide recommendations for new and growing industries as well as workforce development opportunities. What these snapshots provide are comparative data as a benchmark looking forward to 2030 with the pandemic shock also included. We include detailed reports on each of these counties and the regions in sum and on average when the data are available and allow such aggregations. Figure 1 shows data snapshots for each region as an overview of those reports and what data are included, as well as a way to see recent change (2019 compared to 2021, where 2019 acts as the pre-pandemic benchmark year and 2021 is the year of latest data) and the data variables included.

The main outcome of this study is to provide data as benchmarking and forecasting to the CERF planning efforts in these regions and for the included counties. We begin with a look at the industry mix by employment level.

Recent industry mix and employment trends provide a foundation: industries the county/region supported since 2010 to 2023

In each of the regions, we show the recent growth by major industry sector. Patterns emerge for each region in terms of industries supported, where construction and manufacturing are key foci for looking forward as additions to local agriculture as “goods-producing” industries. Such industries have a combination of external markets and larger multiplier effects on the local economy when employment growth takes place. Scientific jobs under professional services also has external markets, especially when there is a large employer that

services a global market. These tables provide historic perspective looking at the first quarter of each year shown back to 2010.

Agricultural jobs have yet to cover cannabis cultivation. Such farming is a large part of the Redwood Coast region's agricultural labor demand and also the associated demand for services businesses, such as fencing, plumbing, electricians, greenhouse installers, etc. We discuss cannabis is more detail below.

For each region, based on the larger data files attached to this summary report, Table 5 provides an industry mix overview as a way to understand recent and current (as of 2023) industry strengths. One of the key concerns of this report is what industries have been supported historically (since 2010) and shifts in some industries.

Eastern Sierra

Table 5. Nonfarm Employment Growth by 2-Digit NAICS Category (Q2 of each year, to 2023)

Region	Current Employment	Year over Year Change (#)	Annual Rate of Growth (%) Over last: Year	2 Years	3 Years	5 Years	Since: 2010	2000	1990
Ag, For, Fish, & Hunting	593	59	11.1	10.1	109.9	2.6	0.9		
Mining	344	20	6.2	10.9	128.0	22.4	2.4	0.8	−1.1
Utilities	819	87	11.9	9.1	11.8	7.8	8.3	13.8	11.3
Construction	3,493	63	1.8	4.0	9.6	4.6	6.9	0.3	0.3
Manufacturing	2,491	−27	−1.1	3.2	9.5	0.7	2.1	−0.3	−0.4
Wholesale Trade	436	72	19.7	6.6	6.6	2.3	0.4	−0.9	−1.0
Retail Trade	6,974	−169	−2.4	−1.0	3.3	−0.4	1.0	0.1	0.6
Trans. & Ware.	1,192	61	5.4	19.8	23.0	10.8	4.3	4.0	3.2
Information	491	44	9.9	13.6	8.1	0.9	−1.9	−1.7	−1.2
Fin & Ins.	563	−45	−7.4	−3.5	−4.7	−4.2	−2.3	−1.6	−1.7
RE, Rental, Leasing	867	−85	−8.9	−1.7	4.5	−0.9	0.7	0.0	0.8
Prof., Sci, & Tech.	489	−50	−9.2	−6.4	−2.5	−2.6	−5.3	−2.4	−0.9
Mgmt of Companies	41	41					−2.0	−4.0	−2.9
Admin, Support, & Waste	1,424	13	0.9	8.7	7.8	7.3	6.1	2.9	21.9
Educ. Services	4,554	278	6.5	81.2	61.3	27.9	10.4	20.9	16.9
Health Care & Soc. Asst.	7,955	1,808	29.4	25.1	17.7	12.7	9.6	18.0	18.2
Arts, Ent., & Rec	3,103	−338	−9.8	29.7	44.4	8.0	−0.0	1.4	3.3
Accom. & Food Srvcs	12,589	−266	−2.1	12.6	37.2	3.1	2.4	2.8	2.8
Other Srvcs	1,844	129	7.5	11.0	14.2	0.1	−0.2	−0.3	0.3
Public Admin	9,995	276	2.8	7.9	6.5	4.1	2.8	2.6	2.5
Other	64	64		754.2	2,111.1	−13.4	−0.6	−4.3	−3.0

Source: BLS, QCEW; Calculations by NEED

Redwood Coast

Table 5. Nonfarm Employment Growth by 2-Digit NAICS Category (Q2 of each year, to 2023)

Region	Current Employment	Year over Year Change (#)	Annual Rate of Growth (%) Over last: Year	2 Years	3 Years	5 Years	Since: 2010	2000	1990
Ag, For, Fish, & Hunting	1,609	−2,293	−58.8	−15.3	−6.8	−9.7	−3.6		
Mining	0	−38	−100.0	−50.0	−33.3	−20.0	−7.7	−4.3	−3.0
Utilities	972	35	3.8	5.7	7.7	3.0	1.9	9.3	8.5
Construction	5,154	141	2.8	5.8	8.5	4.3	5.4	1.5	0.7
Manufacturing	5,489	−13	−0.2	1.6	7.4	2.4	1.4	−2.0	−1.6
Wholesale Trade	1,826	−192	−9.5	−1.8	0.0	−0.9	0.4	6.1	3.6
Retail Trade	13,916	−530	−3.7	−1.6	1.6	−1.5	−0.1	−0.1	0.2
Trans. & Ware.	1,549	−69	−4.3	−7.4	4.1	1.0	1.4	−1.8	−1.3
Information	787	−38	−4.6	14.6	9.7	−0.1	−2.5	−1.9	−1.3
Fin & Ins.	1,816	−85	−4.5	−0.2	−1.1	−1.8	−0.9	−0.7	−0.7
RE, Rental, Leasing	1,341	−79	−5.6	1.5	4.4	−1.0	0.0	−0.1	0.5
Prof., Sci, & Tech.	2,184	−108	−4.7	−4.7	−0.8	−1.8	−1.5	0.2	1.0
Mgmt of Companies	717	99	16.0	8.3	9.1	12.0	1.9	−1.9	
Admin, Support, & Waste	2,704	−20	−0.7	−2.7	−1.2	−0.9	1.5	−0.6	1.9
Educ. Services	12,191	736	6.4	67.2	41.7	20.0	1.4	5.9	4.5
Health Care & Soc. Asst.	20,313	1,020	5.3	5.8	3.8	0.4	3.7	3.8	4.0
Arts, Ent., & Rec	2,695	215	8.7	23.8	83.0	10.6	2.8	0.2	5.6
Accom. & Food Srvcs	11,171	−225	−2.0	5.0	25.9	−0.0	1.7	0.2	0.9
Other Srvcs	3,371	88	2.7	6.1	9.4	1.3	−3.4	−1.5	−0.3
Public Admin	12,145	156	1.3	8.2	5.8	3.3	0.2	1.4	2.4
Other	78	76	3,783.3		2,555.6	−15.5	−4.4	−4.3	−3.0

Source: BLS, QCEW; Calculations by NEED

North State

Table 5. Nonfarm Employment Growth by 2-Digit NAICS Category (Q2 of each year, to 2023)

Region	Current Employment	Year over Year Change (#)	Annual Rate of Growth (%) Over last: Year	2 Years	3 Years	5 Years	Since: 2010	2000	1990
Ag, For, Fish, & Hunting	5,694	−385	−6.3	−2.0	−6.0	−1.7	127.8		
Mining	76	−2	−3.0	−3.3	−19.4	2.5		−4.3	−3.0
Utilities	2,327	57	2.5	8.9	6.5	5.9	6.0	2.6	1.5
Construction	11,219	105	0.9	2.2	3.6	3.9	6.8	1.8	0.7
Manufacturing	11,038	−336	−3.0	0.4	3.0	0.0	1.5	−0.8	−1.0
Wholesale Trade	4,767	−172	−3.5	−4.9	−0.6	1.3	0.7	0.6	0.2
Retail Trade	25,510	−1,029	−3.9	−1.4	2.6	−0.8	0.5	0.0	0.3
Trans. & Ware.	6,440	−159	−2.4	3.3	3.5	3.2	2.7	−0.5	0.8
Information	1,574	1	0.0	2.2	2.6	−3.1	−1.9	−2.1	−1.4
Fin & Ins.	3,768	−198	−5.0	−6.6	−4.7	−3.4	−2.8	−0.5	−0.6
RE, Rental, Leasing	2,744	−93	−3.3	7.0	5.7	0.9	0.7	−0.5	0.5
Prof., Sci, & Tech.	5,354	41	0.8	−0.0	1.7	−1.4	0.1	0.5	0.7
Mgmt of Companies	1,062	−28	−2.6	−1.9	−3.6	−2.6	−0.2	−1.2	13.4
Admin, Support, & Waste	6,752	−89	−1.3	−1.6	1.6	−3.7	1.4	−0.6	1.8
Educ. Services	22,540	1,193	5.6	81.0	57.0	27.0	10.3	2.9	3.3
Health Care & Soc. Asst.	42,819	2,499	6.2	4.9	4.4	1.0	3.4	4.4	5.8
Arts, Ent., & Rec	4,629	186	4.2	26.3	46.9	6.3	4.0	0.7	2.6
Accom. & Food Srvcs	19,624	−443	−2.2	1.3	12.9	−0.9	1.5	1.2	1.2
Other Srvcs	7,435	301	4.2	7.7	11.4	0.6	−2.3	−0.8	0.7
Public Admin	20,328	−287	−1.4	−2.5	−1.4	−0.8	−0.8	1.0	1.6
Other	117	114	3,410.0	1,900.0		−4.0	−3.5	−4.3	−3.0

Source: BLS, QCEW; Calculations by NEED

Summary

Regional strengths, as shown later when considering industry clusters, can be seen in Table 5 for each region. The Eastern Sierra region saw growth in goods-producing industries and some reduction in financial and professional services. Private education and health care increased steadily, with some reduction in government jobs (including public education). The Redwood Coast region lost agricultural jobs (though cannabis jobs are not officially tracked), gained construction and manufacturing employment, and lost services similar to the Eastern Sierra region. The North State saw growth across almost all major industry sectors since 2010, with financial and information (publishing and software) jobs as key differences. Construction and transportation jobs increased steadily, as did jobs in utilities, with government jobs fading a bit. As part of this data overview, we now want to consider where diversity may be found in terms of industrial changes and growth to 2030. Combinations of new and current industries can "cluster" to form regional competitive advantages and also to close supply-chain gaps that may regionally exist. We now try and identify potential industry clusters.

Industry Cluster Analysis

Economic development in the last two decades has focused on the creation of "clusters" or groupings of industries that may have long-term connections to the area in which they are located (Amador County and wine), connections to specific infrastructure or unique employers otherwise that support that cluster (agricultural science and equipment around almond farming in Butte and Tehama counties), or a local workforce and industries that already exist (restaurants and retail centered on tourism along the Mendocino and Humboldt coastal areas).

Identify economic development opportunities and driving forces in the region, such as emerging industries or innovative sectors.

The frontier of cluster development is based on manufacturing, technology or businesses that are seen as injecting innovation into a local area. For these three regions, the lack of a larger, urban area

(the Sacramento region has Sacramento in contrast but neighboring all three regions) is a challenge. Data should answer two key questions:

- In what industries have jobs grown since 2011 (which acts as our baseline year of post-Great Recession (2007-10) and pre-pandemic (2020-22))?
- What industries can these counties and regions support to 2030?

We will use a mix of criteria to rank key industries (at the NAICS-3 code level or the "industry" level of the North American Industrial Classification System or NAICS) based on their ability to grow and become "niche" industries in these regions. One criterion we consider is supply-chain relationships and how each of these regions may be able to development industry growth that creates vendor relationships regionally and (may) reduce local needs for goods and services from outside the region. Our snapshot of current major industries as well as industry trends and projections. Include an in-depth analysis of potential growth clusters based on the region's comparative advantages, market trends, workforce, infrastructure assets, policy trends, aligned state/federal investments, supply chain, and innovation ecosystem.

Criteria: To help determine industries that may emerge or growth from the current mix, we use the following criteria and consider industry sectors of focus at the NAICS-3 level (see Appendix 3 for list of NAICS-3 level industries, where construction is seen as its own industry sector in sum):

1. Forecasted jobs growth to 2030;
2. Avg Wage of industry to statewide average wage of all jobs and regional average;
3. Multiplier effects of jobs on other jobs (IMPLAN);
4. Output per worker (productivity);
5. Environmental impact;
6. Qualitative assessment of infrastructure support;
7. Workforce readiness risk (3 choices for each region: workforce readiness either detracts, adds or no real effects regionally on the industry in question).

Based on our assessment of the industries in each region, the following "clusters" have emerged based on a weighted average of the criteria above:

Redwood Coast:

Top Industries (NAICS 3) for Economic Development Activities, Redwood Coast

NAICS 3	Industry
622	Hospitals
623	Nursing and Residential Care Facilities
712	Museums, Parks and Historical Sites
115	Agriculture & Forestry Support Activity
23	Construction
811	Repair and Maintenance
311	Food Manufacturing
113	Forestry and Logging
487	Scenic and Sightseeing Transportation
624	Social Assistance
112	Animal Production and Aquaculture

Redwood Coast, DRAFT Industry Clusters to 2030

- **Construction**
  - Homes and commercial spaces that link to below industry clusters
- **Healthcare**
  - An aging and relatively isolated population means more specialty care and independence from larger areas that are some distance from population centers
  - Nursing and residential care centers combining places to live with care
- **The Blue Economy**
  - Support activities for aquaculture and science concerning the ocean or Clear Lake
  - Manufacturing of sea-based ingredients into packaged raw food or new food products
  - Construction and maintenance of new port and utility facilities
  - Support activities for enhanced tourism using the ocean as a place to visit (science learning centers, guided undersea tours, etc.
- **Forestry products and science**
  - Fire resilience science (what have recent fires taught about how to fight and prevent fires)
  - Carbon capture science/engineering using the forests
  - Forest maintenance

Caveats and Opportunities, Redwood Coast

Because the Redwood Coast has a mix of counties that are both coastal and central California, economic development around the ocean and Clear Lake should be seen as similar pursuits in terms of supporting science. Manufacturing is less likely to expand in this region unless tied to forestry or ocean-borne products. Healthcare and construction (which we see in other regions for this CERF funding also) are likely to see support from rising forecasts (construction) and also shifts to an older population (healthcare) and one that may be able to afford a wide array of specialty care. Recruitment of healthcare professionals to these rural areas may be one of the biggest challenges in supporting healthcare changes. This is a major opportunity to utilize CalPoly Humboldt for more healthcare professionals, science, and expand south into Mendocino and Lake counties as part of a regional change in all these industries. Cannabis is likely to remain a core industry in this region, as Humboldt and Mendocino counties remain historical centers of that industry, but unlikely to see a "cluster" expansion in terms of integrating supply chains.

Eastern Sierra

Top Industries (NAICS 3) for Economic Development Activities, Eastern Sierra

NAICS 3	Industry
622	Hospitals
492	Couriers and Messengers
493	Warehousing and Storage
623	Nursing and Residential Care Facilities
722	Food Services and Drinking Places
23	Construction
624	Social Assistance
445	Food and Beverage Stores
721	Accommodation
487	Scenic and Sightseeing Transportation
518	ISPs, Search Portals, & Data Processing
713	Amusement, Gambling & Recreation Ind
111	Crop Production

Eastern Sierra, DRAFT Industry Clusters to 2030

- **Construction**
  - **o** Homes and commercial spaces that link to below industry clusters
- **Healthcare**
  - **o** An aging and relatively isolated population means more specialty care and independence from larger areas that are some distance from population centers
  - **o** Nursing and residential care centers combining places to live with care
- **Data and Energy Storage**
  - o Available space allows for these areas to be a place of storage for electrons versus goods
  - o New residents that have jobs from home in technology businesses may act as conduits for new data-center decisions and provide for satellite campuses of current employers based on server and data storage
- **Recreation and Mountain Experiences**
  - o Using access to Yosemite, ski resorts and other mountain areas, create year-round outdoor experiences and link with local food, beverage, cannabis, and other lifestyle goods
  - o Utilize current infrastructure to package with regional partners, and consider ways to work across county lines to expand overnight stays of visitors and also expand the corporate retreat market.

Caveats and Opportunities, Eastern Sierra

Because the Eastern Sierra region is rural and faces seasonal and structural logistics issues in terms of transporting goods and services, industry clusters here should focus on moving people versus goods and data/energy storage as was to expand technology footprints versus attracting manufacturing that may need warehousing and dependable logistics. Construction and healthcare will remain foundational industries, especially if residential real estate demand continues, as well as work-from-home residents that migrate to these counties. Tourism, due to the natural resources in these counties, remain core "export" industries and match current strengths to growth over the remainder of the decade. Investments in transportation infrastructure and broadband connectivity would help education, healthcare, "information" (think software) and professional services employees and new businesses mix lifestyle and work in the Eastern Sierra region.

North State:

- **Construction**
  - **o** Homes and commercial spaces that link to below industry clusters
- **Healthcare**
  - **o** An aging and relatively isolated population may imply more specialty-care and additional services only available from larger areas that are some distance from this region's population centers
  - **o** Nursing and residential care centers combining places to live with care
- **Craft Food and Beverage Manufacturing: Resilient Ag and Food**
  - **o** Link more local farmers to local entrepreneurs in manufacturing and distribution to larger areas in California and beyond
  - **o** Think a center of excellence for agricultural practices combined with energy resilience and carbon capture
  - o Can be linked to tourism in terms agricultural tours, food tours, outdoor recreation/food/beer/wine/spirits/olive oils as examples

- **Energy Products and Services**
    - Biomass and solar: using space, infrastructure and natural resources to create energy
    - Regional resilience if natural disaster
    - Testing ground for the use of energy storage

Caveats and Opportunities

The North State region has larger cities and towns and better logistics than the Redwood Coast and eastern Sierra, even though Sacramento is close to the Eastern Sierra region. Agriculture and raw materials remain a use of the North State's natural resource endowments. Linking to craft entrepreneurship in food and beverage manufacturing, as well as wood products from recycled wood or from waste due to natural disasters combine new techniques with entrepreneurship. The links to southern Oregon and Sacramento provide a wide array of markets and distribution points, especially along interstates 5 and 70 and State HWY 99. Construction and healthcare remain as critical, foundation industries for continued rebuilding but also providing access to more remote populations.

Top Industries (NAICS 3) for Economic Development Activities, North State

NAICS 3	Industry
623	Nursing and Residential Care Facilities
115	Agriculture & Forestry Support Activity
23	Construction of Buildings
311	Food Manufacturing
622	Hospitals
112	Animal Production and Aquaculture
445	Food and Beverage Stores
562	Waste Management and Remediation Service
221	Utilities
531	Real Estate
713	Amusement, Gambling & Recreation Ind
327	Nonmetallic Mineral Product Mfg
624	Social Assistance
312	Beverage & Tobacco Product Manufacturing
561	Administrative and Support Services

Changes to provide support for different or more-diverse industries and employment opportunities

Asset assessment

Each of these regions has unique industries and workforce elements, where assets include infrastructure, entrepreneurial support and educational possibilities for a wide array of industries. Local area industries tend to grow based on local assets, including climate, land availability, major employers, local natural resources, university locations, railroad or logistics hubs, demographic shifts, and current/forecasted population characteristics.

Our work would look at each of the 21 counties as how their industry and occupational mix shows asset utilization **regionally** through local workforce and economic development. For example,

agricultural industries may exist in each region such that a regional strategy for food and beverage manufacturing can: (1) connect supply-chain partners and logistics opportunities to create jobs and to diversify local economies; (2) create jobs tied to unique regional assets that have higher-than-regional average wages and long-term prospects for regional residents. Such change can also support managerial jobs and other professional services across a wide array of educational levels.

Local universities can provide workforce through degrees, certificates and other training and support these regions becoming centers of excellence for products or industries where the region holds advantages. It is important, from an industry-diversification standpoint, that these counties also consider other (perhaps closely-related) industries to the 2022 industry mix or the status-quo forecasted mix to 2030.

Economic development assets generally have four categories:

- Infrastructure and natural resources
- Workforce availability and scope locally and regionally
- Industry mix locally and regionally
- Housing mix

Our focus here is on a set of options where the state of California can make investments and have them support changes in these regional economies to have long-term impacts on local residents and businesses. We are not recommending changes to local politics or zoning or permit systems and staffing, regardless of how local areas may view their relationship with city and county government. This section addresses:

- The impacts of recent trends, changes, and forces on the region's labor market;
- Factors such as technological advancements, globalization, or policy shifts and their effects on job availability, skill requirements, and industry competitiveness; and
- Emerging opportunities or challenges resulting from these impacts.

Transportation options where possible

Different from urban or larger suburban California areas, transportation options are a key issue for moving goods, services and people to and from many of the counties in these three regions. As discussed below, there may be major challenges in some counties versus others in expanding current transportation infrastructure. One of the ways new funding could help these counties diversify and retain new industries would be more options; broadband with faster speeds helps some industries, but not necessarily all, especially when tourism-based.

Broadband expansion using private-sector and municipal partners

Broadband expansion, especially to speeds that rivaled and stayed with those found in urban areas, would expand healthcare, education, technology, and many other professional services industries where a barrier to opening an office or cluster of workers within an industry living and working in these counties is an inability to have fast, reliable internet.

Wireless will not be as reliable as a fiber-optic connection, but the infrastructure necessary for cable internet is much more expensive than wireless. However, for many communities, an expansion of wireless networks

that may be local public utilities, would provide more possibilities and chances to engage in education or healthcare remotely that would not be possible before. Industry attraction, retention and expansion efforts without broadband availability may mean the difference between landing a new employer or not versus another community in California or in another state with better internet assets.

Utilizing scientific and professional communities

Community colleges and universities provide an educated workforce and workforce development in one place. For these regions, universities are widespread, but have regional (in some cases inter-regional) reach. Providing incentives for satellite campuses of public higher education provides an investment in local communities to gain access to lower-cost education, provides a local investment in assets that include high-speed internet (see above) and spaces where entrepreneurship may be fostered and embraced.

A lean toward science also considers how each of these regions have some specializations that may be a good partnership with a scientific community. For example, in the Redwood Coast region, using the ocean or regional lakes as scientific laboratories, raw materials of entrepreneurship concerning climate change technology, both of which can enhance medium-term tourism of a scientific community to this region provides the world with a marketing signal of investments made to become a place of best practices.

The North State is an agricultural area with a wide array of crop farming and animal ranching. There are also forestry options that lie between the coastal areas and the foothills that could be places of carbon capture science, fire-resiliency science and entrepreneurship toward goods and services to address global concerns where these counties and the North State region has first-hand experience.

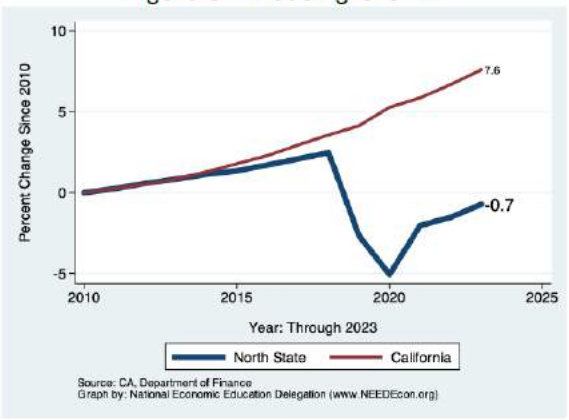
The Eastern Sierra counties are a blend of the above. There are lakes, forests, rivers, some agriculture. Logistics are an issue as many of the cities and towns in these counties are remote and linked to larger areas by one or two, two-lane roads.

For the Redwood Coast, the “Blue” economy links to programs at CalPoly Humboldt and various community-college campuses across multiple disciplines. The primary focus is on science an innovation, where using the ocean as a place to generate energy, new products, and also to engage in climate-change mitigation all can bring new ideas, firms and industries to the North Coast counties. Lake County can provide a complementary asset in terms of lake science (limnology) and extend the use of biomass and other energy and climate-addressing technologies and opportunities.

Continued Concerns over Housing Stock and Wildfire Effects

Counties in each of these three regions have experienced wildfires since 2015 that reduced housing stock local to the wildfire. For counties such as Butte, Lake, Shasta, and Mendocino lost hundreds of homes, but each region has some effects. Figure 32 from the data files provides that view in each of the regions.

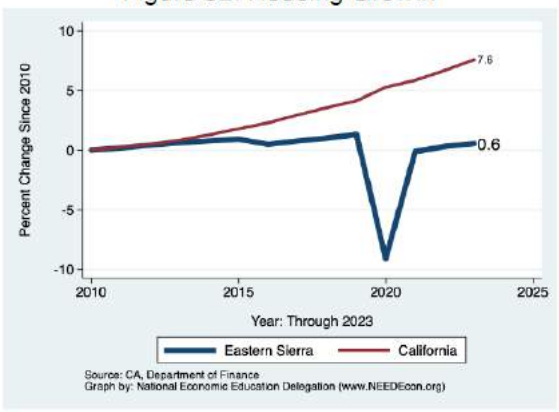
Figure 32: Housing Growth



North State:

The Camp Fire in 2018 shocked the housing stock and it may be 2030 before the stock is completely replenished.

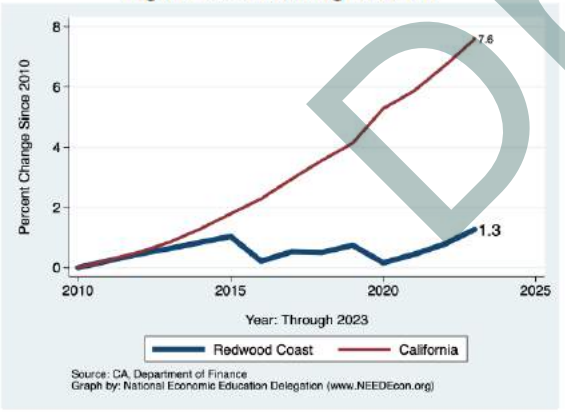
Figure 32: Housing Growth



Eastern Sierra:

The loss of housing stock was temporary, and came back quickly with new construction. Otherwise, the supply of homes in these counties has been relatively constant and see little change.

Figure 32: Housing Growth



Redwood Coast:

A mix of wildfires (Lake and Mendocino counties is most years between 2015 and 2021) and new construction has slightly increased the housing stock in sum since 2010.

For each region, new construction (in many counties) is simply filling gaps left by losses of housing stock. As these communities build and re-build, there needs to be some considerations of what mix of housing best fits nascent and growing industries to fit employer and employee needs.

The Cannabis Conundrum and Broader Thinking

When recreational adult-use for cannabis became legal in 2018, there was a large amount of optimism about the economic and social benefits of that change. An increase in the supply of cannabis reduced prices and

shifted economic outcomes for many traditional farmers that may have been part of the medicinal and others in the illegal (now known as the unregulated) market. For the Redwood Coast counties, as well as some in the North State, the shift was primarily on cultivation; distribution and manufacturing increased in a regulated form for larger areas around California with links but not large amounts of investments in rural parts of California. Retail is also focused on population centers as customers are there versus rural areas. The Eastern Sierra counties do not have as much of a current footprint (or industry history) as the coastal and forested areas of northwestern California. The lower wholesale prices and increased cost of doing business in the pandemic's aftermath have acted as two problems for smaller, craft farmers and businesses to remain as going concerns. See Table XX below for the most recent, active license list for perspective on current, regulated cannabis businesses and their distribution in these regions.

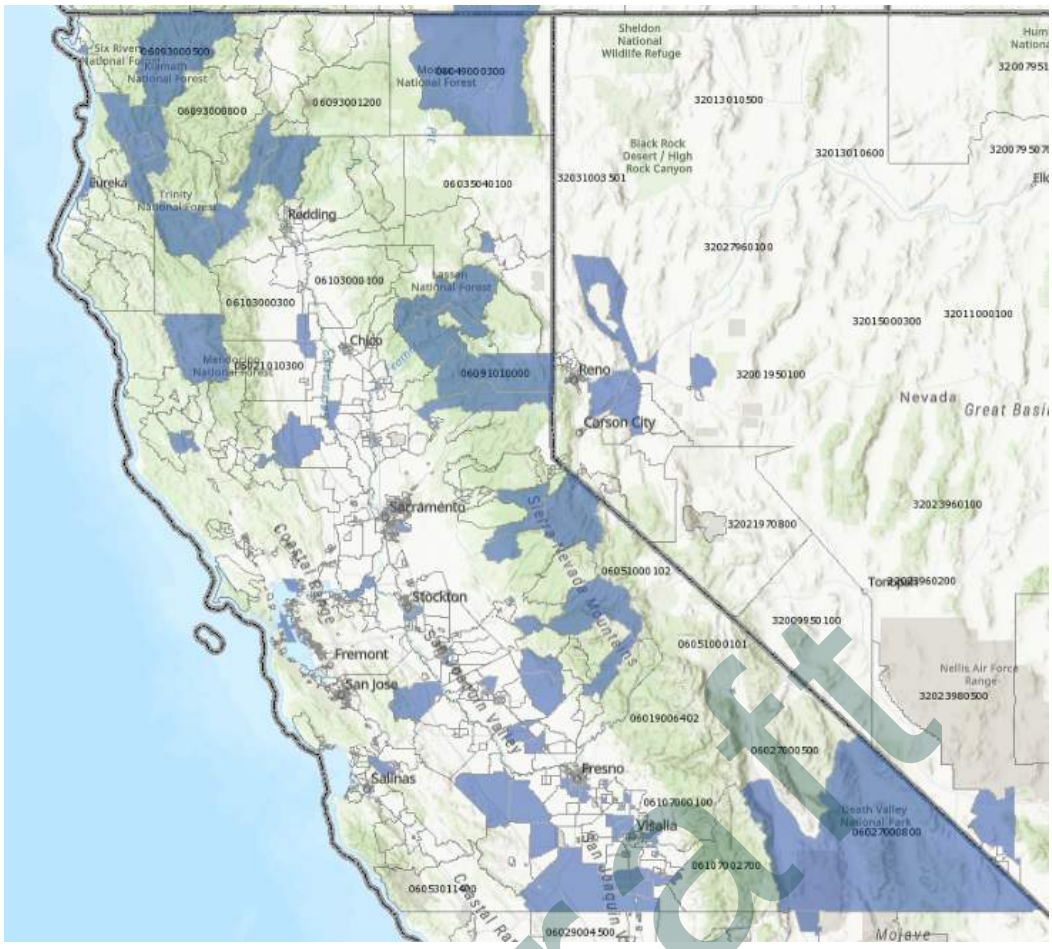
However, from an industry-cluster perspective, cannabis should be seen as here to stay. For each region, primarily the Redwood Coast and North State (based on historic advantages and current industry investments), there are likely some ways to better integrate and expand the cannabis supply-chain partners, – especially manufacturing distribution and tourism. Retail may expand as tourism expands; economic development centered on cannabis should use the California wine industry as a model, combining lifestyle, tourism and products into one point of sale.

This broader thinking could help support local, craft farming and manufacturing, provide place-based marketing that tells a story about the medicinal and recreational use of cannabis in one place, and integrates local products and revenues from dirt to consumer. Such integration means partnering on different ways to look at logistics, warehousing, freight, retail, and local regulatory environments to augment continued conversion of unregulated farming (which likely supports unregulated manufacturing, distribution and sales), as well as providing incentives for local entrepreneurship in the cannabis space. Such outcomes could also shift agriculture and manufacturing for the Eastern Sierra counties over time.

Local government and its business friendliness is almost an infrastructure category for site selectors and business owners when considering a location. Opportunity Zones exist throughout the region, now known as "Qualified" opportunity zones (QOZs).

If the QOF investment is held for at least 5 years, there is a 10% exclusion of the deferred gain. If held for at least 7 years, the 10% exclusion becomes 15%. If the investor holds the investment in the QOF for at least 10 years, the investor is eligible for an adjustment in the basis of the QOF investment to its fair market value on the date that the QOF investment is sold or exchanged. As a result of this basis adjustment, the appreciation in the QOF investment is never taxed. A similar rule applies to exclude the QOF investor's share of gain and loss from asset sales.

Figure XX: Map of QOZs, 2023



Source: [CDFI Fund]

Because this is a federal program, utilizing opportunity zones as a place for outside investment to come in needs to target businesses that most likely need federal tax liability relief. Because the tax relief is specific to the assets in the QOZ, the business or the assets must create a federal tax liability to take advantage of the tax relief.

1. **Profitability**: what industries have the best profit potential regionally?
2. **Brand equity**: how do certain industries make the region unique nationally and globally?
3. **Distribution network**: are the logistics and broadband assets in place for industries and workers to grow and be more productive?
4. **Employee productivity**: are higher education assets in place for training and new workforce?
5. **Market growth rate**: what industries are poised to grow both in market revenue and jobs?

Wages and High-Road Jobs

A snapshot of labor and workforce dynamics in the region, including an overview of major employers, occupations, and wages, the impacts of the recent trends, changes, and forces on the labor market, and projected labor trends in existing key industries. Figures 18 and 19 in the regional data files provide a summary of average wage changes for weekly wages since 1990 in inflation-adjusted terms for each region, California and the United States and a look at recent wage growth by region.

Redwood Coast

Figure 18: Average Weekly Wages

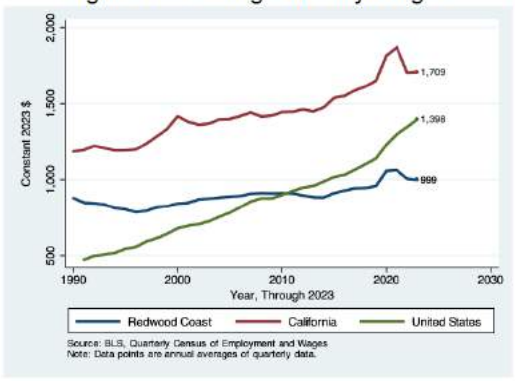
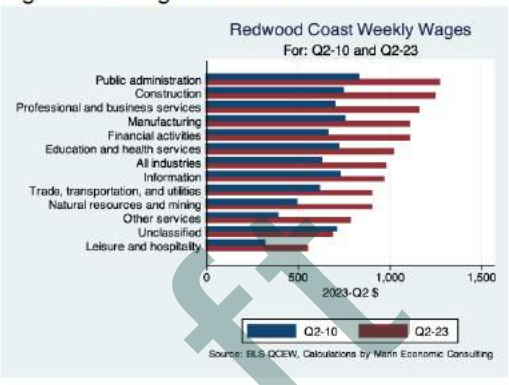


Figure 19: Wage Growth Since the Recession



North State

Figure 18: Average Weekly Wages

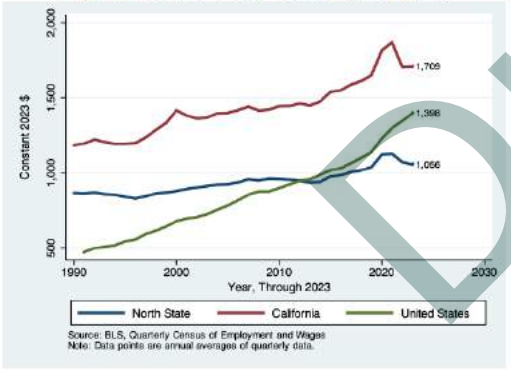
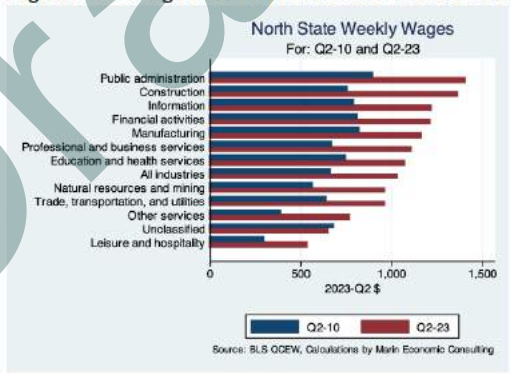


Figure 19: Wage Growth Since the Recession



Eastern Sierra

Figure 18: Average Weekly Wages

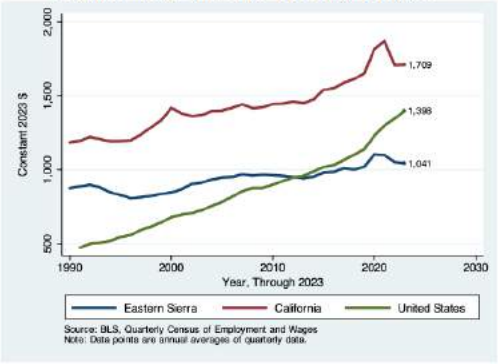
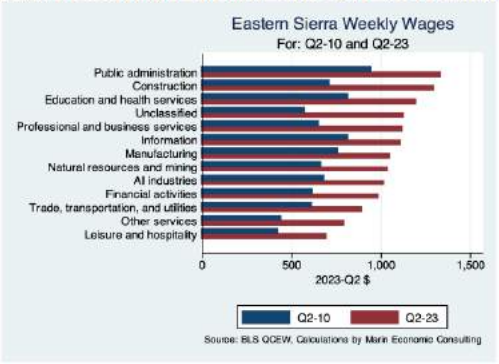


Figure 19: Wage Growth Since the Recession



We should expect wages rising across most industries in these regions due to three major factors:

1. Lingering inflation at higher levels than experienced since before 2010;
2. Labor supply concerns, especially in healthcare and personal services;
3. New union contracts where there is a large union presence (higher education, public safety, construction).

Housing affordability is tied to household incomes. Increasing wages is a key goal of most economic development planning efforts as linked to regional workforce development. As wages rise, housing tenure (home ownership versus rental) becomes a concern in terms of wages keeping up with local housing prices. For more remote areas, as we see later, housing prices tend to be lower and wages follow. Rental prices are less easy to assess, but regionally will provide comparisons. Wage workers are now getting returns from employers due to higher prices, changing work conditions, and general political support for workers. The opportunity cost of those changes will be pressure on local costs of living, including rental prices. Rising wages alone is not a cure-all for local cost of living rising faster than wages can chase. Links to housing policy and general community development are also critical.

Mapping state and national employment trends (also occupations) to regionals and comparing to each

Identify major low-wage and high-wage industries and occupations in the region.

These rural areas are not unique to having a mix of low-wage and high-wage industries and occupations. The data below show for each region how some industry sectors and occupations have changed over time in terms of their wage level versus the industry averages or occupational median respectively since Quarter 2 2010. Data shown here are in 2023 dollars. All three regions have seen inflation adjusted wages rise since 2010, even with increased inflation. In all three regions, high wage jobs are primarily working for government or construction; other personal services (such as hair/nail salons, fitness centers, non-profits outside healthcare) and leisure and hospitality jobs (hotels, events and restaurants).

Figure XX: Average Wages by Region, 2010 and 2023 Quarter 2, 2023 $

Figure 19: Wage Growth Since the Recession

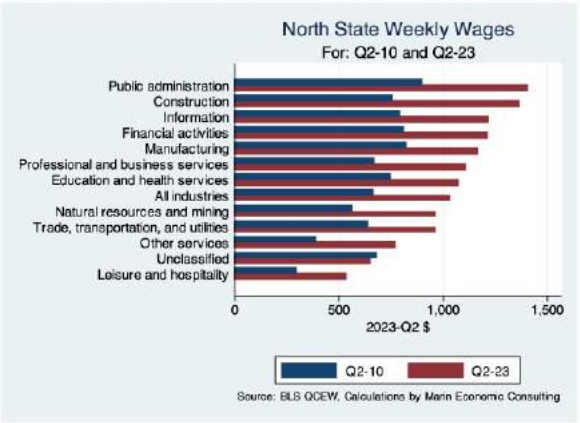


Figure 19: Wage Growth Since the Recession

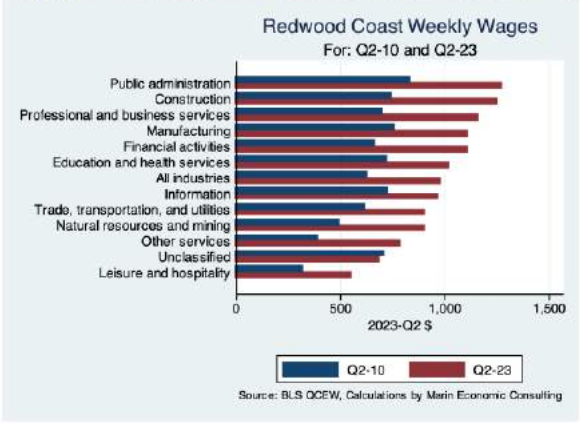
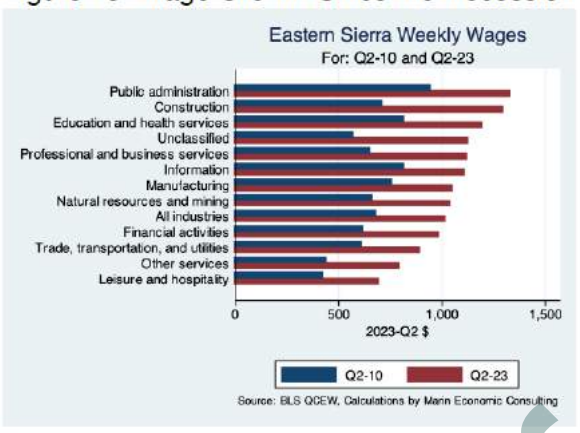


Figure 19: Wage Growth Since the Recession



Note: Source reports available from CERF Team on each region; these are Figure 19 from those reports.

Figure XX: Average Wages by Region, 2010 and 2023 Quarter 2, 2023 $

North State

Table 7. Quarterly Summary for Q 2 – 2023

Sector	Levels in Q 2 – 2023 Employment	Wages	Relative to: Bay	U.S.
Public administration	20,328	1,406.3	0.7	0.9
Construction	11,219	1,367.2	0.9	1.0
Information	1,574	1,220.2	0.3	0.4
Financial activities	6,512	1,212.1	0.5	0.6
Manufacturing	11,038	1,164.6	0.5	0.8
Professional and business services	13,416	1,110.4	0.5	0.6
Education and health services	67,701	1,071.9	0.8	0.9
Natural resources and mining	10,261	961.0	1.1	0.8
Trade, transportation, and utilities	39,166	960.3	0.7	0.8
Other services	7,435	772.0	0.8	0.8
Unclassified	117	654.6	0.5	0.5
Leisure and hospitality	24,471	538.0	0.7	0.9
Total	213,263	1,034.0	0.6	0.8

Source: BLS, QCEW; Calculations by NEED

Redwood Coast

Table 7. Quarterly Summary for Q 2 – 2023

Sector	Levels in Q 2 – 2023 Employment	Wages	Relative to: Bay	U.S.
Public administration	12,145	1,275.2	0.7	0.8
Construction	5,154	1,247.5	0.8	0.9
Professional and business services	5,683	1,159.2	0.5	0.7
Manufacturing	5,489	1,110.3	0.5	0.7
Financial activities	3,157	1,108.1	0.5	0.6
Education and health services	34,061	1,023.7	0.8	0.8
Information	787	970.0	0.2	0.4
Trade, transportation, and utilities	19,416	906.3	0.7	0.8
Natural resources and mining	4,852	902.4	1.0	0.7
Other services	3,371	789.1	0.8	0.8
Unclassified	78	688.1	0.5	0.5
Leisure and hospitality	13,866	554.8	0.8	0.9
Total	108,058	982.1	0.6	0.7

Source: BLS, QCEW; Calculations by NEED

Eastern Sierra

Table 7. Quarterly Summary for Q 2 – 2023

Sector	Levels in Q 2 – 2023 Employment	Wages	Relative to: Bay	U.S.
Public administration	9,995	1,333.8	0.7	0.9
Construction	3,493	1,298.6	0.8	0.9
Education and health services	13,006	1,194.6	0.9	1.0
Unclassified	64	1,126.7	0.8	0.8
Professional and business services	3,060	1,119.9	0.5	0.6
Information	491	1,110.6	0.3	0.4
Manufacturing	2,491	1,053.1	0.4	0.7
Natural resources and mining	1,272	1,037.5	1.2	0.8
Financial activities	1,429	985.0	0.4	0.5
Trade, transportation, and utilities	9,474	890.3	0.7	0.8
Other services	1,844	794.9	0.8	0.8
Leisure and hospitality	16,039	692.3	0.9	1.2
Total	62,718	1,018.1	0.6	0.8

Source: BLS, QCEW; Calculations by NEED

The top and bottom seven (7) occupations are shown in terms of average wages per hour (using a 2,000-hour year) and occupational median wages per hour. Because of the lack of consistency of occupational wage data at the regional level, we look at main counties within each region as a regional benchmark for wages. For the regional considered here, there are five data "areas" to show:

- Eastern Sierra and Mother Lode region (our Eastern Sierra region counties in sum);
- North Coast region (our Redwood Coast regions in sum);
- Chico MSA (Butte County);
- Redding MSA (Shasta County); and
- North Valley-Northern Mountains region (our North State region less Butte and Shasta counties but including Colusa and Nevada counties).

Because there are consistency problems with the data, we will show changes between 2019 and 2023 and show high-wage to low-wage occupational categories based on median wages.

Table XX: Median Wages and Dollar Changes 2019 to 2023, Selected Regions and California, 2023$

	2023 Median Wages						2019-2023 Change in $, Inflation Adjusted					
Occupations	Chico	Redwood Coast	Redding	Eastern Sierra	North State	CA	Chico	Redwood Coast	Redding	Eastern Sierra	North State	CA
Total all	$21.42	$21.90	$21.84	$22.22	$22.99	$24.73	$1.07	$1.05	$1.03	$1.01	$1.04	$1.01
Management	$46.51	$46.45	$47.97	$45.55	$44.93	$63.90	$1.00	$1.04	$0.98	$0.96	$0.97	$0.93
Business and Financial Operations	$32.75	$31.85	$34.58	$33.48	$33.04	$39.64	$1.03	$1.00	$0.99	$0.97	$0.95	$0.93
Computer and Mathematical	$40.87	$36.60	$42.42	$37.62	$36.04	$64.25	$1.09	$1.03	$1.10	$0.89	$0.91	$1.08
Architecture and Engineering	$41.13	$41.27	$47.78	$42.13	$39.20	$51.73	$0.95	$0.98	$0.90	$0.91	$0.96	$0.94
Life, Physical, and Social Science	$34.42	$35.25	$33.05	$28.29	$27.92	$44.09	$1.08	$1.01	$0.92	$0.94	$1.07	$0.97
Community and Social Services	$24.70	$24.41	$24.15	$29.21	$24.51	$29.09	$0.99	$0.95	$0.89	$1.10	$0.91	$0.98
Legal	$30.53	$46.92	$39.72	$39.67	$46.15	$63.21	$0.96	$1.12	$0.68	$0.75	$0.97	$1.09
Education, Training, and Library	$29.11	$30.98	$29.92	$30.32	$30.00	$31.51	$1.08	$0.93	$0.95	$0.94	$0.92	$0.97
Arts, Design, Entertainment, Sports, and Media	$23.47	$23.47	$22.85	$21.95	$23.67	$38.35	$1.07	$1.03	$0.94	$0.93	$1.01	$1.13
Healthcare Practitioners and Technical	$51.32	$51.04	$50.20	$53.01	$52.17	$52.77	$1.09	$1.19	$0.99	$1.03	$1.06	$1.04
Healthcare Support	$15.32	$15.00	$15.00	$16.37	$15.50	$16.86	$0.81	$0.75	$0.76	$0.80	$0.77	$0.82

Protective Service	$28.30	$31.15	$30.41	$38.16	$33.19	$23.54	$0.89	$0.88	$1.03	$1.03	$0.90	$0.86
Food Preparation and Serving-Related	$15.69	$16.85	$15.92	$16.96	$16.87	$17.39	$1.11	$1.15	$1.13	$1.16	$1.15	$1.18
Building and Grounds Cleaning and Maintenance	$18.11	$17.98	$17.74	$17.93	$18.35	$18.82	$1.16	$1.13	$1.17	$1.06	$1.06	$1.05
Personal Care and Service	$15.92	$17.16	$16.11	$17.04	$17.49	$17.57	$1.14	$1.21	$1.14	$1.16	$1.22	$1.20
Sales and Related	$17.16	$17.50	$16.97	$17.56	$17.55	$19.04	$1.05	$1.16	$1.09	$1.09	$1.05	$1.05
Office and Administrative Support	$21.08	$21.44	$21.10	$21.80	$22.00	$23.58	$1.05	$1.04	$1.03	$1.04	$1.02	$1.04
Farming, Fishing, and Forestry	$16.60	$18.09	$22.23	$20.23	$16.98	$16.65	$1.11	$1.04	$1.02	$1.15	$1.16	$1.19
Construction and Extraction	$28.32	$30.30	$29.61	$30.77	$29.92	$30.75	$1.11	$1.07	$1.00	$1.02	$1.02	$0.97
Installation, Maintenance, and Repair	$27.84	$24.80	$25.92	$24.31	$25.35	$29.50	$1.19	$1.07	$1.00	$0.94	$0.95	$1.03
Production	$20.65	$22.11	$20.69	$23.08	$22.38	$21.20	$1.07	$1.06	$1.01	$1.06	$1.09	$1.07
Transportation and Material Moving	$18.35	$18.90	$18.48	$19.06	$20.31	$20.05	$1.05	$0.92	$0.94	$0.97	$0.93	$1.05

Source: California EDD, Changes are positive unless signified by a negative (-) sign.

Multiplier Effects: Once Clusters form and Grow

Industry clusters can be seen in two ways:

- A set of employers that all come from a similar industry and use regional workers that are trained for such work (scientific community, technology workers, tourism); or
- A set of employers than support vertical integration of an industry's supply chain, where core industries are surrounded by vendors, distributors, and potentially retailers (tourism, agriculture, construction, light manufacturing (food and beverage).

Some clusters exist in these three regions, primarily in the support of vertical integration. Such a strategy is likely the best possible outcome for these rural regions due to a lack of an urban center.

Because these counties are rural to suburban cities and towns, classic industries are based on agriculture or natural resources.

The two key assets for these counties would be an expansion of broadband internet (moving toward gigabit speeds as possible) and transportation. Broadband would allow expansions of many industries, especially in professional services for works that wanted to live in a rural area and had an ability to work remotely. Such a change would allow for telehealth and an expansion of what regional healthcare could offer, higher education would have a reach to more remote areas.

The second asset is transportation options. More remote areas have few options other than two-lane roads coming in or through their county. Some of those roads may be restricted in terms of use by specific types of vehicles or be unsafe during some parts of the year. Rail as a both a passenger and freight option may be an option for mountainous counties (eastern North State and Eastern Sierra counties). Interstate 5 connects many of these counties to the Oregon Border north of

An analysis of pre-pandemic trends and recent changes to labor markets and business mix provides a foundation for the forecast and industry/occupation recommendations, but also shows where older, classic industries may be restricting growth in others. The utilization of local universities and community colleges as training engines is critical on the workforce development side throughout these regions.

Table XX: Multiplier Effects, $1,000,000 of new Revenue in these industries create additional regional revenues, Largest Multipliers in 2022 Dollars and Economic Relationships Regionally

Industry	Redwood Coast	Industry	North State
Textile Product Mills	9.29	Oil and Gas Extraction	2.96
ISPs, Search Portals, & Data Processing	3.31	ISPs, Search Portals, & Data Processing	3.31
Petroleum & Coal Products Manufacturing	3.00	Support Activities for Mining	2.43
Oil and Gas Extraction	2.96	Insurance Carriers & Related Activities	2.13
Financial Investment & Related Activity	2.49	Museums, Parks and Historical Sites	1.70
Support Activities for Mining	2.43	Funds, Trusts & Other Financial Vehicles	1.72
Insurance Carriers & Related Activities	2.13	Financial Investment & Related Activity	2.49
Performing Arts and Spectator Sports	2.07	Water Transportation	1.83
Apparel Manufacturing	1.89	Internet Publishing and Broadcasting	1.84
Internet Publishing and Broadcasting	1.84	Administrative and Support Services	1.81
Water Transportation	1.83	Performing Arts and Spectator Sports	2.07
Membership Organizations & Associations	1.81	Membership Organizations & Associations	1.81
Administrative and Support Services	1.81	Animal Production and Aquaculture	1.74
Truck Transportation	1.75	Food Manufacturing	1.44
Industry	**Eastern Sierra**		
Petroleum/Coal Products Manufacturing	3.00		
Water Transportation	1.83		
Financial Investment & Related Activity	2.49		
Museums, Parks and Historical Sites	1.70		
ISPs, Search Portals, & Data Processing	3.31		
Management of Companies and Enterprises	1.51		
Insurance Carriers & Related Activities	2.13		
Performing Arts and Spectator Sports	2.07		
Oil and Gas Extraction	2.96		
Membership Organizations & Associations	1.81		
Telecommunications	1.70		
Merchant Wholesalers, Nondurable Goods	1.48		
Funds, Trusts & Other Financial Vehicles	1.72		
Administrative and Support Services	1.81		

Sources: IMPLAN® and EFA. Note: $1 million of revenue growth in "Industry" means $1 million x associated multiplier for each region. This suggests there are supply-chain partners that could experience revenue growth based on focused economic development activities.

Challenge: Climate Change and Industries that

Mitigating and supporting adaptation to climate change; increasing environmental sustainability; building community and economic resilience. We show data here (and also in Appendix 2) that ranks the estimated environmental detriment of worker growth by major industry group (NAICS 3). Table XX provides the industries that have better "scores" on emissions, water use, and other metrics in each

region versus the state on average. Manufacturing tends to be "cleaner" in these regions than the state overall.

Table XX: Industries and Environmental Effects versus California on Average

Eastern Sierra	North State	Redwood Coast
Oil and Gas Extraction	Mining (except Oil and Gas)	Oil and Gas Extraction
Scenic and Sightseeing Transportation	Oil and Gas Extraction	Scenic and Sightseeing Transportation
Hospitals	Wood Product Manufacturing	Hospitals
Museums, Parks and Historical Sites	Petroleum & Coal Products Manufacturing	Museums, Parks and Historical Sites
Crop Production	Leather and Allied Product Manufacturing	Crop Production
Construction	Chemical Manufacturing	Construction
Educational Services	Nonmetallic Mineral Product Mfg	Educational Services
Repair and Maintenance	Fabricated Metal Product Manufacturing	Repair and Maintenance
Forestry and Logging	Beverage Manufacturing	Forestry and Logging
Motor Vehicle and Parts Dealers	Utilities	Motor Vehicle and Parts Dealers
Food and Beverage Stores	Primary Metal Manufacturing	Food and Beverage Stores

Table XX+1: Industries With Largest Environment Effects per Value Added Income

Eastern Sierra	North State	Redwood Coast
Oil and Gas Extraction	Mining (except Oil and Gas)	Oil and Gas Extraction
Scenic and Sightseeing Transportation	Oil and Gas Extraction	Scenic and Sightseeing Transportation
Hospitals	Wood Product Manufacturing	Hospitals
Museums, Parks and Historical Sites	Petroleum & Coal Products Manufacturing	Museums, Parks and Historical Sites
Crop Production	Leather and Allied Product Manufacturing	Crop Production
Construction	Chemical Manufacturing	Construction
Educational Services	Nonmetallic Mineral Product Mfg	Educational Services
Repair and Maintenance	Fabricated Metal Product Manufacturing	Repair and Maintenance
Forestry and Logging	Beverage Manufacturing	Forestry and Logging
Motor Vehicle and Parts Dealers	Utilities	Motor Vehicle and Parts Dealers
Food and Beverage Stores	Primary Metal Manufacturing	Food and Beverage Stores

Challenge: workers and sectors at risk of displacement

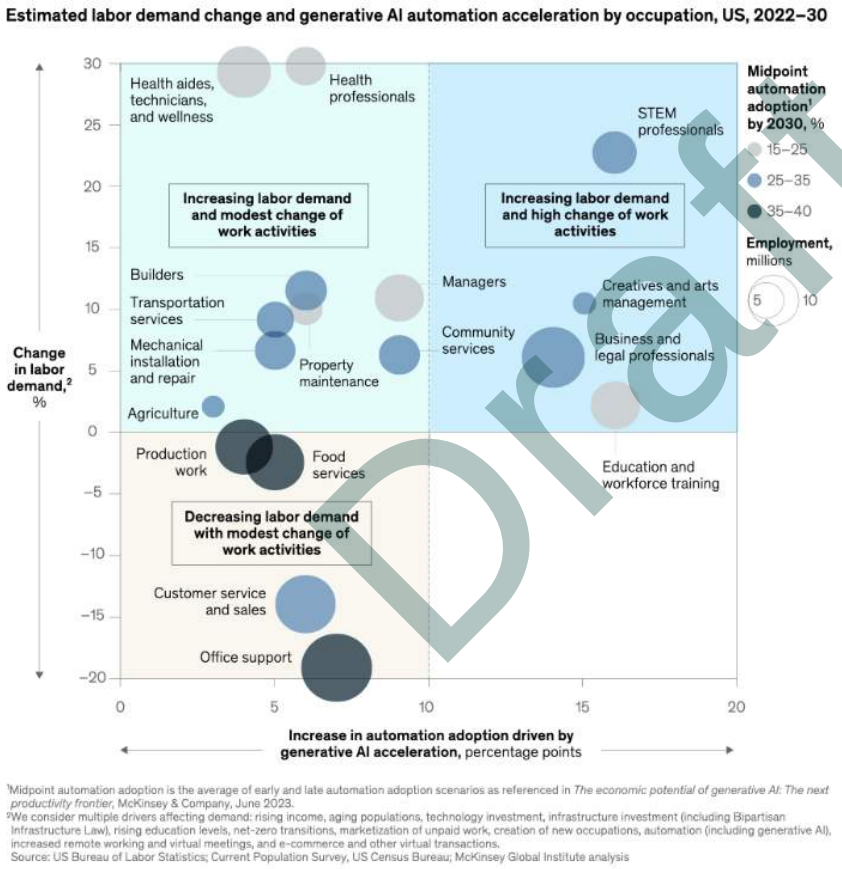
Three trends exist that may affect the long-term stability of some jobs and industry sectors:

- A lack of full return to office and commercial spaces in downtown/urban areas;
- Automation that has become more human-like in its ability to perform tasks;
- Shifting demographics and skills of available workers.

There is a large amount of debate in economic and social policy circles about the importance of recent technological developments, such as artificial intelligence or AI (which is not new, just suddenly leaping forward into a more refined and potentially worrying state). Autonomous vehicles are a way to see AI moving beyond mobile phone and personal/office computer applications, such as chatbots. These changes have started thinking about where jobs may be displaced and what industries are more at risk. A consensus of thinking suggests the following industries may be most at risk, some of which may have already happened. For each industry, our team provides rationale and application to our three regions of study. Notice a central theme is the perceived repetition of tasks; if tasks can be converted to an algorithm, AI has a better chance of displacing workers.

Figure XX provides a graphic from a recent report by McKinsey and Co. on labor demand to 2030 and what sectors are most at risk[1]. The bottom-left quadrant is the highest risk.

Figure XX



Customer service across industries

For years, new technology applications such as chatbots have slowly replaced workers such as administrative assistants or call center employees with a self-thinking chat service. Using data from call centers and customer interactions, these chatbots are refined with a larger database of answers to

[1] See McKinsey and Co., "Generative AI and the future of work in America," July 26, 2023.

customer questions where a mobile or web-based interface can answer needs versus an employee. Automated responses to frequently asked questions is a critical aspect of such services to date; as AI "learns" more quickly, the responses will be more dynamic and wider in scope. This will be true in all industries that otherwise would have workers answering phones or e-mails or walk-in customers. Healthcare may be the one industry where this is less likely, but coming nonetheless.

Bookkeepers/Data Entry Specialists

Using AI for bookkeeping and data entry . AI-powered bookkeeping services provide an efficient accounting system and flexibility and security, considering that they are available as cloud-based services. Using ai algorithms, AI will ensure the data is collected, stored, and analyzed correctly. Using an AI accounting service is significantly less costly than paying an employee's salary to do the same job.

Salespeople and the "Traveling" Sales Representative

The more AI can use data from social media, industry trends and myriad other data sources to learn buying tendencies, the more targeted marketing can become and the less direct sales leads will be needed to draw in customers and clients. It is in this area where shaping of marketing campaigns and the "art" of marketing will likely remain with humans versus technology; emotional intelligence may not be as easily learned by algorithms versus spending by category, click-through rates, and other search engine optimization (SEO) metrics. However, the more social media (from Instagram to Linked In) can generate sales leads, the less a person needs to travel, bring lunch to an office with a product demonstration, and all the classic tactics of supporting accounts.

Education and Research

How teaching is done and research is compiled have already begun to use AI. For education, bespoke education based on expertise programming the learning experience for current and potential students have ways to completely revolutionize training and teaching. On the student side, AI is now able to provide editing, first drafting, and answers to homework and (potentially) exam questions. On the research side, AI acts as an extension of search-engine capabilities; its ability to find specific types of research that acts as background for a practitioner or academic may make the research process more efficient. Further, finding datasets that may take days or weeks to find in a library or database otherwise, may now be found and complied with just a few sentences. These developments are likely to threaten the size of faculty and research teams in both the private and public sectors.

Warehousing/Logistics/Transportation

Autonomous trucking, buses, taxis, and other Online sales is a steadily growing industry and comes with an increasing need for processes and automated systems that efficiently get orders onto trucks for delivery. One area of focus for streamlining the process has been the use of automation. Basic automation and artificial implementation in a warehouse allow for easy access to computerized systems to locate packages and direct staff, and future AI may even perform mechanized retrieval and loading to increase shipping capacities.

Banking and Insurance: New and Current Clients

The tasks of assessing risk for borrowers at banks and insured clients can be formulaic, while somewhat different from firm to firm. Once the algorithm is set, underwriting for loan approval or insurance approval can be repetitive. Competition over borrowers and clients can lead to more investments in fast-decision making and completing tasks quickly. We have already seen some beginnings of these movements in two ways: (1) we have seen finance and insurance jobs be reduced across California, some of which has to be due to technology replacing workers; and (2) for years, mobile technology has been evolving in such a way to reduce the flow of people into bank branches and also making "pre-approval" decisions on lending using a borrower's phone. More functions like these will continue to change finance, banking and insurance.

Retail and Hospitality

Self-checkout at grocers and other retailers are meant to reduce the retailer's use of workers through technology. Those points-of-sale have become more sophisticated and act as extensions of marketing and the consumer experience. The key is the repetitive aspects of the checkout experience; customers now scan their items and all have that skill that is repeated thousands of times per day by classic "checkers".

Customers having retail experiences that are classically human interactions with fewer salespeople on the sales floor are coming; car purchases are more virtual now as well, as dealers are reducing the number of cars and trucks on the lot and working with potential buyers to shape their new car at the factory. This reduces the number of sales staff people needed, especially when the sales experience can be unnerving for customers.

For hospitality businesses, the pandemic created a shock from which the hotel and event industry is unlikely to return. Check-in and check-out at hotels is becoming more automated, thus the number of staff needed is being reduced. However, the "experience" aspect of the overnight stay may keep workers in place for some properties; the more the customer pays for an overnight stay, the more human experience may be needed to provide a better experience. Events have become more automated; this is true from movie theaters to concerts and conferences. Tickets are virtual and a QR code is scanned to retrieve badges or entrance credentials into an event. This is not a short-term trend.

Why is this important for these regions?

Wage growth is a concern for new and growing industries for two key reasons:

1. Wage growth should reflect regional scarcity of labor resources or policy changes to minimum wage laws or a mix, which signals the cost of doing business changing for local employers; and
2. Wage growth should reflect the local cost of living in terms of rental or ownership costs for housing.

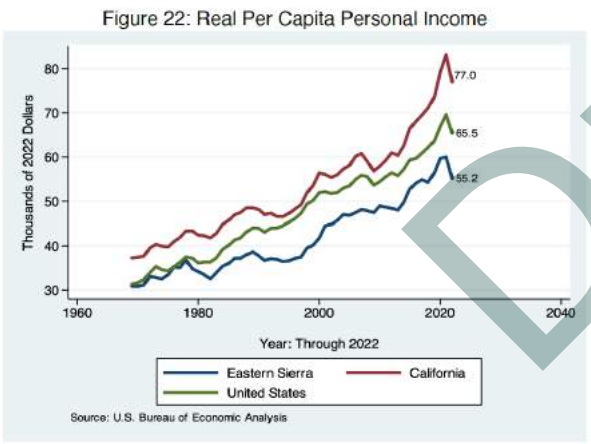
When new and current business consider location or growth choices respectively, local cost of living will influence those decisions, especially if the workers to be hired are wage workers versus salaried and renting versus owning a home.

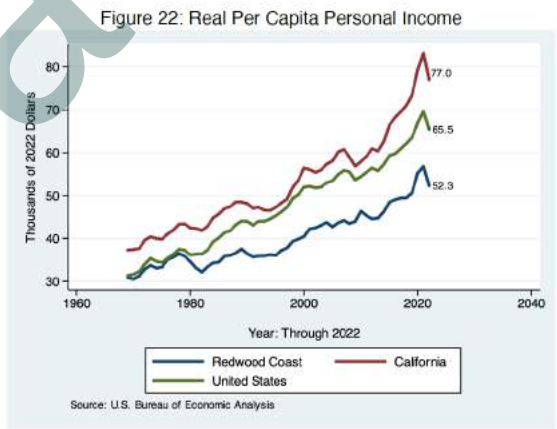
Economic Well-Being and Cost of Living

Median household income (MHI) and per-capita income are ways to measure economic well-being in communities. Comparing these normalized measures to their past and also to other places can show progress in a county or region for local residents. Such measure should reflect changes in local industry mix toward high-wage jobs when rising or toward low-wage jobs when falling. Changes can also reflect demographic shifts.

Cost of living changes in local economies are generally driven by housing costs, where the costs of other goods and services are likely moving due to broader economic forces (costs of food, gasoline, clothing, utilities as examples) outside the region. We show two ways to consider costs of living changes here. First is a general measure for California and the US, the Consumer Price Index (CPI). We also show a regional index called the Gross Regional Product (GRP) deflator, or how nominal GRP is converted to real GRP. At the state or national levels, economist use similar measures to consider changes in prices; we will do the same here to look at differences within the three regions; housing prices are considered in a later section. Notice how recent changes in inflation reduced real (inflation-adjusted income levels.

Figure XX: Per Capita Personal Income, 1985 to 2022, 2022 Dollars, Selected Regions, California and United States





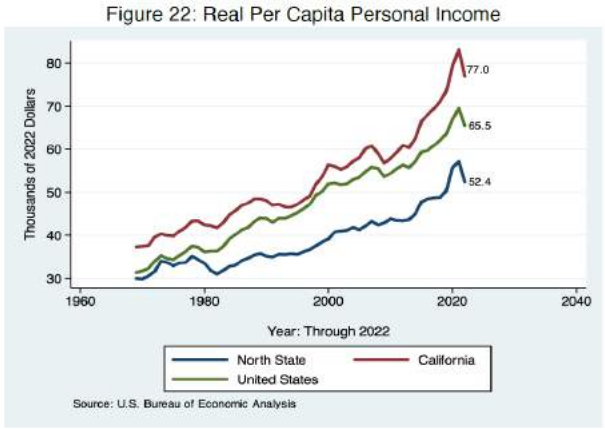


Table XX: Median Household Income, 2023 Dollars, and Change in GRP Deflator (Cost of Living), Selected Counties, California and the United States

	2010	2019	2022	% Chg 2010-22	% Chg 2019-22		Inflation 2019-22
US	$69,632	$74,577	$77,907	11.9%	4.5%		13.4%
California	$83,706	$88,299	$94,780	13.2%	7.3%		11.2%
Eastern Sierra							
Alpine County	$64,221	$74,819	$104,288	62.4%	39.4%		9.1%
Amador County	$71,878	$73,672	$77,195	7.4%	4.8%		14.6%
Calaveras County	$73,662	$74,125	$79,951	8.5%	7.9%		14.2%
Inyo County	$64,607	$67,268	$65,401	1.2%	-2.8%		15.5%
Mariposa County	$61,290	$57,297	$61,899	1.0%	8.0%		14.8%
Mono County	$76,599	$73,071	$84,604	10.5%	15.8%		15.1%
Tuolumne County	$64,961	$70,545	$72,635	11.8%	3.0%		16.2%
North State							
Butte County	$59,760	$61,659	$68,152	14.0%	10.5%		16.6%
Glenn County	$59,311	$58,251	$66,036	11.3%	13.4%		26.1%
Lassen County	$72,716	$66,137	$61,377	-15.6%	-7.2%		14.8%
Modoc County	$50,195	$53,409	$56,681	12.9%	6.1%		31.3%
Plumas County	$60,127	$64,971	$70,009	16.4%	7.8%		18.8%
Shasta County	$59,600	$64,159	$70,485	18.3%	9.9%		16.6%
Sierra County	$62,129	$61,203	$63,020	1.4%	3.0%		12.3%
Siskiyou County	$52,260	$53,097	$55,584	6.4%	4.7%		21.3%
Tehama County	$55,434	$52,243	$60,876	9.8%	16.5%		21.9%
Trinity County	$51,107	$47,938	$48,797	-4.5%	1.8%		20.2%
Redwood Coast							

Del Norte County	$51,442	$53,146	$63,062	22.6%	18.7%		14.0%
Humboldt County	$55,530	$56,383	$59,692	7.5%	5.9%		16.2%
Lake County	$52,133	$55,208	$58,019	11.3%	5.1%		16.3%
Mendocino County	$58,557	$60,344	$63,254	8.0%	4.8%		16.2%

Sources: Census Bureau, Bureau of Economic Analysis and EFA

What do the 2030 state and national forecasts say and why?

The national and state forecasts to 2030 are as follows in terms of four major variables:

1. Income generation: what will economic growth look like to 2030 and when should we expect recession?
2. Labor market changes: what industries are expected to hire more workers and which ones will hire less?
3. Changes in interest rates and housing markets: medium-term demand for housing
4. Changes in commercial real estate utilization: threats and opportunities.

Table XX: National Forecast, Fastest Growing Industries (NAICS-3), 2022-30, % Change

NAICS 3	Industry	2022	2030	% Change
519	Other Information Services	189,200	225,800	19.3%
492	Couriers and Messengers	1,129,000	1,331,600	17.9%
624	Social Assistance	4,256,100	4,903,500	15.2%
518	ISPs, Search Portals, & Data Processing	466,300	531,700	14.0%
493	Warehousing and Storage	1,936,800	2,191,100	13.1%
621	Ambulatory Health Care Services	8,121,900	9,182,900	13.1%
335	Electrical Equipment and Appliances	403,200	446,500	10.7%
312	Beverage & Tobacco Product Manufacturing	324,000	358,300	10.6%
562	Waste Management and Remediation Service	476,700	509,200	6.8%
713	Amusement, Gambling & Recreation Ind	1,643,700	1,740,400	5.9%
531	Real Estate	1,819,000	1,925,900	5.9%
512	Motion Picture & Sound Recording Ind	458,700	485,300	5.8%

Source: Bureau of Labor Statistics and EFA, see Appendix 3 for more on NAICS-3 Industries

What industries are work-from-home (WFH) and can these counties continue to attract such talent through low-cost housing, broadband and relative access to an urban area + quality of life?

The Census data on commuting and how people get to work include data on working from home. While these data are one to two years old, they show what has happened since the pandemic and the shifts in remote work. Combined with mobility data (where people moved from these regions and also who came to these regions), we can conclude new residents to these regions (and individual counties) that moved from other places and worked remotely once they arrived. Rural California saw an increase in its population in 2020 and 2021, which then shifted down again in recent California Department of Finance estimates.

We consider such migration opportunities for these regions: (1) there are new industries in technology businesses that would not have come to these regions otherwise; (2) the earning power of those new residents should provide large multiplier effects on the local economy; (3) there are potential workforce development and economic development opportunities using these new residents as a "cluster" of new industries.

The caveats are that we need to think in "net" terms: if people left these regions, what are the net gains and how do those net changes shift long-term economic opportunities if the changes are relatively large. Smaller, rural areas have more risk exposure.

Eastern Sierra

Table 17. Eastern Sierra Migration and Telecommuting
(Share of the Working Population that Works From Home (%).)

Year	All Workers	Migrated Into Region	Intra-State Migrants	Inter-State Migrants
2015	9.3	1.7	10.6	
2016	6.2	5.6	6.5	
2017	7.2	5.1	9.0	
2018	7.8	6.2	6.2	16.5
2019	10.4	4.3	5.2	
2020	13.9	13.6	16.4	15.2
2021	14.4	14.7	27.4	7.5
2022	13.6	15.4	21.6	18.3

Source: ACS Public Use Microdata Sample (PUMS), various years.

North State

Table 17. North State Migration and Telecommuting
(Share of the Working Population that Works From Home (%).)

Year	All Workers	Migrated Into Region	Intra-State Migrants	Inter-State Migrants
2015	6.2	4.2	3.1	1.1
2016	6.7	6.6	15.1	10.3
2017	6.7	5.4	10.0	4.4
2018	8.8	7.1	12.5	6.8
2019	7.8	3.9	5.9	1.8
2020	14.1	15.7	17.5	24.4
2021	14.6	17.5	31.3	12.9
2022	12.9	10.9	13.9	18.6

Source: ACS Public Use Microdata Sample (PUMS), various years.

Redwood Coast

Table 17. Redwood Coast Migration and Telecommuting
(Share of the Working Population that Works From Home (%).)

Year	All Workers	Migrated Into Region	Intra-State Migrants	Inter-State Migrants
2015	6.2	4.2	3.1	1.1
2016	6.7	6.6	15.1	10.3
2017	6.7	5.4	10.0	4.4
2018	8.8	7.1	12.5	6.8
2019	7.8	3.9	5.9	1.8
2020	14.1	15.7	17.5	24.4
2021	14.6	17.5	31.3	12.9
2022	12.9	10.9	13.9	18.6

Source: ACS Public Use Microdata Sample (PUMS), various years.

Source: Table 17 in regional reports, 2022 data

Brief overview of each county and regional assessment

Each of these regions have unique industries and workforce elements (local universities, community colleges, demographics), but the assets are more about infrastructure and entrepreneurial and educational cultures. Local area industries tend to grow based on local assets, including climate, land availability, major employers, local natural resources, university locations, railroad or logistics hubs, etc.

Our work would look at each of the 21 counties as how their industry and occupational mix shows how they have utilized certain assets **regionally** through local workforce and economic development. For example, what agricultural mix exists in each region such that a regional strategy for food and beverage production can connect supply-chain partners and logistics opportunities to create jobs and to diversify local economies.

Further, what cities or parts of each region have shown an ability to grow and retain manufacturing helps tell which areas could begin to develop more and expanding businesses that make agricultural products retain a larger dollar level of value-added services regionally. Further, local universities could provide a workforce and also new technologies to agriculture where these regions could become centers of excellence for farm products where they hold competitive or comparative advantages.

Eastern Sierra

A theme of the Eastern Sierra region is foothill or mountainous towns and cities, rural populations and economies that rely on tourism.

Alpine County

Alpine is one of the smallest counties in California in terms of population, and is driven primarily by tourism. Kirkwood Ski Resort and Bear Valley are key economic drivers for Alpine County, and then summer hiking and camping as a seasonal trade-off. Hotels and restaurants that complement these visitors also serve the small county population. Wildfires have affected Alpine County as with other counties in the CERF regions (see more below).

Forecasts from CalTrans and California Department of Finance predict little change or decline of Alpine County's population to 2030. We should view Alpine County like a small, rural town where the assets are visitor-based and seasonal; the population is relatively older and thus labor force participation is relatively low (54 percent). As our data snapshot shows in Appendix 1, labor force participation has increased since before the pandemic (2019), suggesting new residents of Alpine County may be working more than previous residents.

Amador County

Just south of El Dorado County, Amador is set of communities in the Sierra foothills, where manufacturing remains a large part of the county economy. This spans from food and beverage manufacturing to lumber-based goods production. Amador is a center of "foothills wine", with wineries sprinkled throughout the western portion of Amador County. This adds a tourism element to Amador that is beyond its mountain/ski access and hiking. Government employment remains a foundation of Amador County with a local state prison and city/county/state employment otherwise from education to public works. Amador County is aging more quickly than the state average, as many other communities in the Eastern Sierra region.

Calaveras County

Similar to Amador County, Calaveras is a gateway to the Sierras and ski resorts during the winter and then hiking and camping during the summer. Agriculture has been a large part of Calaveras County; wineries, cattle and poultry are key farm industries. Healthcare and tourism are the large employers, and similar to Alpine County, Calaveras has a small and aging population.

When considering new industries or ways Calaveras can provide assets for the Eastern Sierra region, closing supply-chain gaps that exist for agriculture, which means an expansion of roadway or rail infrastructure. Further, we can consider the changing population and work-from-home residents where expanded broadband can help provide more diversity in terms of technology workers and perhaps more start-ups that want to live in the foothills and mountains but work global. The nearest, international airport is Sacramento.

Inyo County

Inyo County is another small county in the foothills of the Sierras. The dominant industries beyond personal and professional services are manufacturing and utilities/natural resources. Geothermal energy and spring water are two key industries tied to Inyo County. Similar to other Eastern Sierra region counties, Inyo has access to ski resorts and camping in winter and summer respectively. Inyo is also an aging community and population change likely provided small change in work-from-home residents.

Tourism is a key aspect of Inyo County's economy, as Death Valley National Park is in Inyo, as well as access to Mammoth ski resorts areas. From a land area standpoint, Inyo stretches from the southern portion of Sacramento Valley's reach down Interstate 5 to the northern portion of the Los Angeles basin, albeit with much of the county unpopulated and unlikely to see change soon short of current communities. This concentrates any new activity in places such as Bishop and Independence.

Mariposa County

Yosemite as a place to camp and hike and enjoy winter activities is a large part of Mariposa County's economy. We consider this an asset and has likely led to change in terms of Mariposa's population over the last three years (2020 to 2023). Because of tourism, leisure and hospitality and healthcare are two key industries in Mariposa County for its residents.

Like other parts of the Eastern Sierra region, Mariposa County has an aging population, which affects its labor force outlook and the way its industries evolve. The evolution and permanence of work-from-home residents and how local economic and workforce development may build on those new residents is a key factor in leaning Mariposa County toward new or expanding industries.

Mono County

Over the last five years, Mono County has had a strategy of community and economic development simultaneously with gigabit internet and selling the idea of mountain living and recreation while working remotely. The pandemic shifted the way workers considered and were allowed to work from home, shifting Mono County's population and economic opportunities.

Because of its geography and proximity to multiple tourism destinations, Mono County's workforce is primarily based on hospitality jobs (hotels, restaurants). This leaves Mono County somewhat vulnerable to seasonality in terms of revenue generation for its employers and support for residents (Mammoth ski resort as an example, with some hiking in summer). Construction is Mono County's goods-producing industry. Since 2020, home building has increased to welcome more residents; there should be slower growth of construction toward 2030.

Tuolumne County

Like other counties between the Lake Tahoe region and Yosemite, Tuolumne County acts as a gateway to winter and summer tourism based on skiing and hiking. Similar to other communities in the Eastern Sierra, residents are older on average and jobs are primarily to serve visitors. The Hetch Hetchy reservoir and associated facilities also act as a job center for government workers and utilities. Healthcare, as with other rural areas of California, is an important job center for relatively large wages and providing infrastructure for support the local population.

Construction of new homes in the post-pandemic environment continues for Tuolumne County. Much like other parts of the Eastern Sierra region, changes in population shifted work-from-home residents. How much of this change can become an expansion of specific industries remains to be seen, but could be seen as part of a larger regional strategy. A key aspect is broadband access (preferable an expansion of gigabit internet similar to Mono County) and how that acts as an incentive for local workers in global industries to remain in place.

Summary for Eastern Sierra

The counties in this region have common themes from an economic and demographic standpoint, reflections of rural and mountainous counties and cities in the North State and Redwood Coast regions:

- Agriculture and tourism and healthcare are key, private-sector industries that support both incomes for local employers from outside the region and also support local residents;
- Residents are aging, as local housing prices have attracted older residents looking for lower costs and less need to have an urban setting close for labor-market choice;

- Access to larger markets (Sacramento, Fresno, Stockton) critical to driving more visitors and gaining access to customers for new and expanding businesses.

North State

This region is a mix of foothills communities north of the Eastern Sierra region, but also north of the Sacramento region. These counties are generally rural counties, where tourism, government employment, healthcare, and agriculture (especially for Butte, Glenn, Tehama counties) are dominant industries.

Butte County

From a statewide and national standpoint, the Camp Fire in 2018 shifted economic, demographic, housing, and planning for Butte County far into the 2030s. Paradise, a city of almost 27,000 people in 2018, lost most of its housing stock and its population migrated. Chico, Butte County's largest city, absorbed most of those residents, with many moving around regionally including the county seat of Oroville. That shift changed the demand for housing, pricing, permit activity, construction demand, and Butte County's focus on recovery versus expansion in 2019. The pandemic further changed Butte County's direction in 2020, especially with the reduced number of students at Chico State University; Butte County, in 2023, remains under its 2019 level of employment.

Butte County is a regional hub, as is Shasta County (see more below) for the foothill/mountain communities to the north and east and the agricultural communities in Tehama, Glenn (see more below) and Colusa counties. Butte County has a diverse economy, with some manufacturing and professional services and healthcare due to its regional reach and the university's presence. Housing will remain one of the larger economic and community development issues for Butte County to 2030.

Glenn County

Agriculture is a large part of Glenn County. Ties to regional agriculture and Interstate 5 running along the western border of Glenn County have also expanded manufacturing and logistics/warehousing in the county economy. Migration from Butte County after the Camp Fire of 2018 changes the county's workforce and demand for housing. The pandemic expanded these changes, especially as migration patterns throughout California drew new residents to Glenn County. Toward 2030, we should expect that growth to slow as housing development fades and population change begins to match regional demand and competition.

Healthcare and public education provide some workforce balance in Glenn County and also essential services. There is not much employment in professional services versus what is available regionally. Rice and walnut production should remain the main agricultural outputs, alongside of cattle, in Glenn County. Planning for Glenn County for new manufacturing should consider regional agricultural links for food and beverage manufacturing as a first step.

Lassen County

The primary employer for Lassen County is government. This suggests a lack of diverse choice for county residents and labor force outside the public sector. Government jobs stretch from prison employment to military base employees and service people to teachers to city and county staff. There has been a long-term threat of base reductions, prison closures, and other shocks due to state and national budget concerns. However, average wages and salaries in Lassen County are somewhat higher than the state average while home prices remain relatively low due to the large government employment footprint. Tourism provides some balance to Lassen County, related to the Sierra mountains or to prison or military visitors.

Lassen County exposure to government employment can draw from economic development lessons in other communities that faced a base realignment and closure or BRAC. While a recent court ruling may have kept California Correctional Center open for now, using the original date as a reason to reconsider long-term economic diversity and development can use lessons drawn and build Lassen County toward 2030. Like other rural parts of California, Lassen County also has climate-change issues (wildfire threats, for example) and an aging population that could restrict economic development in many ways.

Modoc County

As the most remote county in this region, Modoc County relies primarily on personal services and construction activity as its drivers (healthcare, utilities and construction are industries that provide relatively-high wages). Tourism is also an industry for Modoc County that provides services to both visitors and local residents and may not be as diverse without those visitors. Agriculture and government remain the largest industry employers.

Modoc County National Forest and local agriculture provide links to the North State region in terms of carbon capture, alternative energy, and other science-based businesses and residents. Logistics to and from Modoc County remain somewhat primitive, as there is a minimum of 2.5 hours to a regional airport from Alturas, the county seat.

Plumas County

In the foothills east of Butte and Shasta counties, Plumas is much like its neighbors north and south where tourism, government employment, and some agriculture and natural resource employment define the regional economy. Wildfires in 2021 affected Plumas County and a large amount of the forest to its and north and west. This could provide construction employment during a relatively-light rebuilding phase, but Plumas County should assume not all housing units will be rebuilt and there will be some migration pattern that changes the regional workforce.

Healthcare, education and government employment are the county's driver. Manufacturing has historically been based on lumber products. Visitors do come to Lake Almanor, via State Highway 32 from Chico and its regional airport otherwise. Communities such as Chester could become a place where a mix of lake science, local workers and regional education can form a community of grant-driven

support. Data suggests that residents of Plumas County access labor markets in Redding and Chico. Because of its geography, Plumas County has three small areas of activity, all somewhat isolated from Chester in the north toward Quincy and smaller communities closer to Nevada County.

Shasta County

As a regional hub, Shasta County has many of the elements of the surrounding counties and is a center for professional services from Solano County to the Oregon border. Mount Shasta and Lake Shasta both act as regional tourism draws during winter and summer respectively. Wildfires in 2018 also affected Shasta County, the Carr Fire. The Camp Fire in Butte County was more devastating, but Shasta County lost over 1,600 structures. Subsequent years of fires chipped away at housing units; the pandemic provided a positive change in demand for housing that motivated an increase in construction employment.

Forestry and natural resource related jobs are more the focus of Shasta County than agriculture. Shasta County is a place where farmers find goods and services regionally. Healthcare and government employment (including education), and as a regional hub, Shasta County (specifically Redding) does not want to lose that regional strength. Redding has been undergoing a downtown revitalization project that has provided more spacing for entrepreneurial activities and also a more vibrant center of activity for Shasta County.

Sierra County

This county is one of the smallest labor markets in California. Proximity to both Nevada County and to Reno provide some outbound commuting historically from Sierra County. Like other small counties, healthcare and government employment are foundations for both providing services to local residents and also providing job opportunities. Agriculture is another major industry, but also relatively small versus other counties. Cattle and cattle feed from crops (hay and alfalfa as examples) are main farm industries. There are some tourism assets also exist, with some locally-owned restaurants and hotels, but very few.

Siskiyou County

Running north from Shasta County, Siskiyou County is a mix of its surrounding counties: a mix of agriculture and natural resources employment with healthcare and government jobs. Mount Shasta is in Siskiyou County, where some tourism spending for visitors to that site becomes spending in Siskiyou County. Wildfires have also menaced this county, with similar effects to Shasta County in terms of residential home losses and subsequent changes to construction demand. The pandemic changed the county population and potentially provided some change in the entrepreneurial possibilities in Siskiyou County looking forward. Interstate 5 goes through the county toward Oregon, providing that asset in terms of logistics and warehousing.

Tehama County

Between Shasta and Butte County, Tehama has its identity with being bisected by Interstate 5, providing a community where people live that utilize Redding and Chico as places to work. Tehama is an agricultural county, with Red Bluff as its county seat. Corning plays a large role in olives and olive oils in the North State, adding to Tehama as an agricultural place. Almonds and walnuts are also important crops in Tehama County. Healthcare and government employment are again key industries for Tehama and regional residents within Tehama County. Construction has increased since the pandemic, as well as a reaction to the fires throughout the region that displaced residents of adjacent counties. Tehama County has not been absent from fire damage, but has avoided large, devastating fires since 2015 to 2023.

Trinity County

Trinity County is a mix of its western and eastern neighbors and have connections to Shasta County in terms of where its population lives proximate to Shasta County and potential job centers. Lumber (like Shasta and Mendocino counties) has a long history in Trinity County, from raw lumber to manufactured products. Healthcare and government employment, including US Forest Service, are also large employers. Cannabis farming is also important as demanding agricultural workers, an export product, and a customer to vendors regionally. Being a smaller county, visitor-supporting and professional services employers are located but sparsely in Trinty County. Fires have also created losses of homes and construction demand more for replacement than for expansion of housing units.

Summary

The North State region represents a diverse set of communities. With strong roots in agriculture and forestry from almonds and walnuts, to olives and dairies, closing supply-chain gaps and continuing to be a place with harvesting world-class commodities remains a critical part of this region's future. This includes manufacturing and transportation, especially with US Interstate 5 going through many of the region's counties and close to main population centers. Healthcare is likely to see demand growth as these counties age and as more remote cities and towns need access to more healthcare options. Continued recovery of housing stock after the 2018 Camp Fire remains an issue in terms of housing choice and complementing workforce development.

Redwood Coast

This region is dominated by ties to agriculture and natural resources, from dairies to cannabis to lumber to fishing. Lake County is more like its central California neighbors (Colusa and Yolo and Napa counties), though ties to Mendocino County exist because the two counties' largest cities are relatively close (Ukiah and Lakeport).

Del Norte County

Del Norte County is a rural, coastal county on the Oregon border, where employment is primarily tourism

or government or healthcare based. Manufacturing and construction do exist in limited ways; natural resources jobs are focused primarily on forestry and a small amount of cannabis is grown in a regulated way. Del Norte's population is aging, a reflection of rural California, and jobs are concentrated in government at all levels. Tourism provides some diversity to complement healthcare and government employment (approximately 65 percent of jobs in Del Norte County). Transportation infrastructure is a major challenge; the airport in Cresent City currently flies to Oakland International Airport. US Highways 101 and 190 are the main roadways to and through Del Norte County. Expanding manufacturing in Del Norte may be costly due to that lack of logistics, even for cannabis-based products. The connection to changes in Humboldt County, especially those coming in terms of the "Blue Economy" (see more below), could be an extension of scientific and aqua-agriculture efforts to comes.

Humboldt County

The continued growth of CalPoly Humboldt based on new investment from the state of California and economic development activity aimed at creating a "Blue Economy" for the Redwood Coast region with Arcata and Eureka at the center. Such efforts should stretch to Mendocino and Del Norte counties; Lake County may also find ways to complement those efforts through biomass and wind energy efforts and perhaps lake science (limnology) becoming connected to efforts along the coast. Cannabis will remain a large part of Humboldt County's image and economic diversity, as it is also (along with Mendocino County) seen as a centerpiece of harvesting cannabis. How that supply chain and craft commodities and products can use Humboldt as a brand to expand both cultivation and supply-chain partnerships in Humboldt County, including tourism, are major opportunities.

The Blue Economy is based on specific industries where the coastline and ocean are places to do science, visit, and grow agricultural commodities. For growth across subindustries to come, there will need to be expanded ways to get to and stay in Humboldt County, as well as move goods to and from the coastline.

Lake County

Lake County has Clear Lake dominating its geographic center and representing a unique asset. Along with Humboldt County's Blue Economy initiatives, Lake County can use Clear Lake as a scientific asset alongside of classic tourism. Energy production from the lake, whether it is biomass or wind energy or other source, is another angle for Lake County to seek some economic diversity. Historically, Lake County has been a place where a nascent wine industry with similar terroir and locations to Napa County. Cannabis has also expanded in Lake County, adding to agriculture there that has wide breadth and history. Major employers are all levels of government and healthcare, much like rural California counties to the east of Lake County (Colusa, Glenn, e.g.).

Mendocino County

Also a coastal county, Mendocino County has many ties to Sonoma County in terms of providing a place for local residents to work. Between Humboldt and Sonoma counties, Mendocino County is somewhat split between an interior (agriculture and manufacturing and forestry) economy like rural Sonoma County and a coastal community (Fort Bragg and the village of Mendocino to Point Arena) that is a

microcosm of Humboldt County. Cannabis is also a major part of economic and social life in Mendocino County, especially after forestry and fishing changed their economic importance in the 1990s. Mendocino County also did not recover the total number of workers lost in the Great Recession (2007-10) period when the pandemic hit (2020), and has recovered somewhat since 2020.

Mendocino County's main assets are its location, having access to Sonoma County's population and supply-chain relationships. There is a long history of tourism in Mendocino County also; industries such as cannabis can use the current infrastructure and potential partnerships to expand how travel and cannabis can be more complementary and Mendocino County can be a more complete gateway to such experiences throughout northern California. Connections to Humboldt County and the Blue Economy are critical ways for forging more complete partnerships in the Redwood Coast region.

Summary

A movement toward new industries are likely to be based on this region's coastal communities through the "Blue Economy". This mix of new commodity harvests and product manufacturing, and energy generation that uses the ocean as a farm and also as a place for science as related to efforts at CalPoly Humboldt. Lake County may complement those efforts using Clear Lake and Lake County's geography to attract a worldwide audience for energy generation and science. Cannabis is and will remain a large part of these counties' cultures and economic future; enhancing how these counties can integrate supply chains and become a place where the world comes to experience entrepreneurship and history around cannabis is the interior of this region's next step. Agriculture, forestry and ocean-based products are ways to take advantage of the wide array of spaces in this region. Healthcare will also see more growth as this region ages and also tries to reach more remote areas.

Conclusion: What are the main opportunities and threats to the identified industry clusters?

Each region has specific opportunities and threats. Below we provide conclusions from the national, state and regional data as well as general trends happening that may affect industry choice in terms of economic development and workforce development in terms of jobs and links to education. The North State, Redwood Coast and the Eastern Sierra regions represent most of rural California. Each of the counties within these regions face similar jobs and industry challenges and opportunities through the 2020s and beyond. Our analysis shows that the key industries in these three regions have changed little since 2000, through three recessions and volatile housing and equity markets.

Opportunities: due primarily to the assets these counties and regions possess:

- Natural resources and land for agriculture;
- Lack of proximity to an urban center, thus smaller hub cities and towns exist in certain counties;
- Climate that supports specific types of agriculture;
- Some basic road transportation and rail infrastructure;
- Some basic internet options, focused on neighborhoods and town/city centers or government/education/healthcare facilities.

Threats: Lack of assets and statewide, national and international competition

- Rural communities without direct access to local markets;
- Natural-resource based communities, which tend to lag national trends and depend on weather and global markets as factors in revenues and costs;
- Roadway and internet access limited when compared to larger suburban or urban areas;
- Competition rising for tourism dollars;
- Aging populations based on lower-cost housing and cost of living.

Appendix 1 Main Employers by County by Region

Data Courtesy of NorTEC in Chico, California, as of 2022 (latest data available)
Business names are, in some cases, “doing business as” names and may not match local business fronts.

Eastern Sierra

Alpine	Employees	Amador	Employees
Kirkwood Meadows Public Util Dist	27	Sutter Health	1,636
Sorensen's Resort, LLC	25	State of California	1,038
Mountain Springs Kirkwood, LLC	19	County of Amador	472
Mad Dog Cafe	17	Amador County Unified School District	433
Alpine County Office of Education	16	Specialty Granules LLC	245
Woodfords Fire Department	16	Urban Park Concessionaires	216
Cj's Woodfords Station, Llc.	15	PG&e Corporation	176
Kirkwood Ski Education Foundation	15	Volcano Communications Company	110
ARI Makinen Enterprises, Inc	13	Walmart Inc.	103
Kirkwood Meadows Public Utility District Public Facilities Corporation	13		

Calaveras	Employees	Inyo	Employees
Meridian Gold Inc.	474	City of Los Angeles	1,986
County of Calaveras	417	State of California	616
Commonspirit Health	329	County of Inyo	513
Bear Valley Ski Co.	325	Bishop Unified School District	376
Calaveras Unified School District	232	County of Los Angeles	372
East Bay Municipal Utility District, Water System	220	Government of The United States	316
Mark Twain Union Elementary School District	194	Frontier Communications Parent, Inc.	291
State of California	186	Xanterra Holding Corporation	215
Vallecito Union School District	122	Inyo County Office of Education	184
Calaveras County Special Education (selpa)	107	Edison International	170
Kautz Vineyards, Inc.	100	Lone Pine Unified School District	133
Avalon Health Care, Inc.	100	Albertsons Companies, Inc.	132
		Cg Roxane LLC	100

Mariposa	Employees	Mono	Employees
John C Fremont Healthcare District	265	Southern Mono Healthcare District	350
Pioneer Market	50	Snowcreek Property Management	50
35-A District Agricultural Association	50	Double Eagle Resort	45
John C Fremont Hospital Foundation	43	Mammoth Community Water District	42
Recology Mariposa	30	Skadi, Incorporated	39
Yosemite Bug Hostel LLC	24	Convict Lake Resort, Inc.	38
Devoe Enterprises	24	Cerro Coso Community College	37
Yosemite Mountain - Sugar Pine Amusement Company	24	The Village At Mammoth Community Association	35
Wawona Property Management, Inc.	22	Westin Monache	35
Dieter H. Dubberke, Incorporated	22	Footloose, Incorporated	35
Mariposa Lodge	22	Mammoth Lakes Fire Protection District	35
Mercy Medical Transportation Inc	22		
The Grizzlies Den LLC	20		
Haztech Systems, Inc.	20		

Tuolumne	Employees
Adventist Health System/West, Corporation	1,099
County of Tuolumne	1,030
Walmart Inc.	271
Tuolumne ME-Wuk Tribal Council	250
Government of The United States	226
State of California	219
Yosemite Community College District	200
United States Postal Service	169
J. S. West and Company	161
Sonora Union High School District	141
Sierra Pacific Industries Inc.	138
Save Mart Supermarkets LLC	118
Avalon Health Care, Inc.	102
Sonora School District	100

North State

Butte	Employees	Glenn	Employees
Welltower Inc. (Senior Living)	5,162	Walmart Inc.	489
State of California	2,896	Willows Unif School District	381
Enloe Medical Center	2,851	Glenn County Office of Education	300
County of Butte	1,514	County of Glenn	245
Oroville Hospital	1,453	State of California	200
Chico Unified School District	1,226	Orland Unified School District	174
Orohealth Corporation A Nonprofit Healthcare System	1,164	PG&e Corporation	122
Walmart Inc.	613	Chedraui Usa, Inc.	110
Associated Students of California State University, Chico	602	Rumiano Cheese Co.	106
PG&e Corporation	501	Government of The United States	105
Sierra Nevada Brewing Co.	477	United States Postal Service	83
Butte-Glenn Community College District	426	Lake Elementary School District	75
		Select Harvest Usa, LLC	65
		Sierra Nevada Cheese Company, Inc.	58

Lassen	Employees	Modoc	Employees
County of Lassen	462	Atlas Operations Group	85
Sierra-Cascade Nursery, Inc.	400	Surprise Valley Health Care District	72
Government of The United States	382	Teach Inc	34
State of California	287	Super 8 Motel	32
Big Valley Joint Unified School District	220	Shasta View Academy, Inc.	31
Lassen Union High School District	215	I'Sot (inc)	30
Lassen Community College	180	Pizza & Pasta Place, Inc.	29
Susanville School Dist	150	Surprise Valley Electrification Corp.	27
City of Susanville	141	California Property Owners Association	24
United States Postal Service	107	Alturas Rural Fire Protection District	24
Walmart Inc.	95	Antonios Cucina Italiana	23
Fall River Joint Unified School District	75	Strong Family Health Center	23
D-M-L-S Corporation	75	Likely Volunteer Fire Protection District	23
		Tulelake Basin Joint Union School District	22
		Alturas Ranches, LLC	20

Plumas	Employees	Shasta	Employees
United States Postal Service	481	County of Shasta	1,700
Waste Management, Inc.	308	State of California	1,115
Eastern Plumas Health Care Foundation, Inc.	270	Phoenix Parent Holdings Inc.	1,056
County of Plumas	268	Ocadian Care Centers, LLC	899
Sierra Pacific Industries Inc.	227	Prime Healthcare Foundation, Inc.	850
Feather River Community College District	223	Commonspirit Health	843
State of California	213	City of Redding	834
Plumas Hospital District	200	Shasta-Tehama-Trinity Joint Community College District	716
Plumas Unified School District	189	Global Medical Response, Inc.	639
Government of The United States	139	Knauf Insulation, Inc.	624
Seneca Healthcare District	130	Redding Rancheria	599
North State Grocery, Inc.	111	Peterson Holding Company	586
Collins Pine Company	107	Enterprise Elementary School District	579
R Joy Inc	100	PG&e Corporation	554
		Walmart Inc.	548
		Vibra Healthcare, LLC	503

Sierra	Employees	Siskiyou	Employees
United States Postal Service	89	County of Siskiyou	723
County of Sierra	83	Siskiyou Hospital, Inc.	560
Eastern Plumas Health Care	68	State of California	419
City of Loyalton	28	Government of The United States	358
Government of The United States	25	Siskiyou Joint Community College District	250
Sierra County Office of Education	19	Yreka Union School District	178
Sierra City Fire District	15	Walmart Inc.	164
Rhonda's Lil' Frosty	14	Lake Siskiyou Golf Resort Inc	140
Herrington's Sierra Pines	13	United States Postal Service	130
Tahoe Heating	10	C & K Market, Inc.	129
Sierra Valley Cogen LLC	10	Siskiyou Union High School District	101
Incorporated Senior Citizens of Sierra County	10	Siskiyou Development Company, Inc.	100
		Siskiyou Opportunity Center Inc	100

Tehama	Employees	Trinity	Employees
Walmart Inc.	1,673	County of Trinity	294
The County of Tehama	708	State of California	222
Sierra Pacific Industries Inc.	555	United Parcel Service, Inc.	158
Paskenta Band of Nomlaki Indians	493	Trinity River Lumber Company	145
Urban Park Concessionaires	373	Mountain Communities Health Care District	142
Crain Walnut Shelling, LP	369	Government of The United States	132
Red Bluff Union Elementary School District	368	Trinity County Office of Education	111
State of California	321	Tops Industries	73
Roman Catholic Bishop of Sacramento	313	Weaverville Elementary School	65
Bell-Carter Olive Packing Company, Inc.	300	Mountain Valley Unified School District	61
Sunsweet Growers Inc.	300	Ninja Credit Consultants LLC	39
Corning Union Elementary School District	241	Douglas City Elementary School District	36
Commonspirit Health	228	Ace Hardware Corporation	34
Outback Contractors, Inc.	221		
Red Bluff Joint Union High School District	208		
Rolling Hills Casino	203		

Redwood Coast

Mendocino	Employees	Lake	Employees
State of California	1,008	County of Lake	645
Adventist Health System/West, Corporation	936	Adventist Health System/West, Corporation	605
County of Mendocino	867	Sutter Health	463
City of Ukiah	701	State of California	426
Ukiah Unified School District	684	Konocti Unified School District	296
Mendocino Forest Products Company LLC	336	Walmart Inc.	261
Mendocino-Lake Community College District	321	Kelseyville Unified School District	246
Mendocino Coast District Hospital	320	Lakeport Unified School District	181
The Ensign Group Inc	315	Middletown Unified School District	158
Fort Bragg Unified School District	270	Heart Consciousness Church, Inc.	110
Willits Unified School District	251	United States Postal Service	103
Walmart Inc.	250	Evergreen At Lakeport, L.L.C.	100
Fetzer Vineyards	245		
Mendocino Community Health Clinic, Inc.	235		
Avista Corporation	205		
Hopland Band of Pomo Indians Inc.	201		

Humboldt	Employees	Del Norte	Employees
County of Humboldt	1,685	Del Norte County Unified School District	580
State of California	1,512	County of Del Norte	543
St. Joseph Hospital	847	Sutter Health	530
Providence St. Joseph Health	623	State of California	292
American Hospital Management Corporation	513	Walmart Inc.	171
Eureka Unified School District	485	Yurok Tribe	144
Government of The United States	457	Del Norte County Regional Occupational Program	118
Southern Humboldt Joint Usd	409	United States Postal Service	91
The Sun Valley Group Inc	350	City of Crescent City	85
The Hoopa Valley Tribe	325	Vista Remi Inc	78
Redwoods Community College District	289	The Home Depot Inc	71
Bear River Casino	286	Snoozie Shavings, Inc.	51
PG&e Corporation	285		
City of Eureka	270		

Appendix 2: Environmental Measures per Dollar of Value-Add (Gross Regional Product)

The tables in the Appendix can be used as a way to estimate environmental changes as an industry expands, contracts or comes to these regions. We show the state of California here also in Table AXX.X + 4.

1. Estimate Value Added by Industry Growth or Decline
2. Find Industry NAICS 3 Code on Table for specific region below
3. Multiply Value-Added Change by environmental measure to estimate change to local area from economic growth or decline.

Table A2.1: Eastern Sierra Environmental Metrics per $1 Million of Dollars of Value Added, 2022

	Non-Hazardous Waste	Greenhouse Gases		Non-Hazardous Waste	Greenhouse Gases
Industry	**kg**	**kg**	**Industry**	**kg**	**kg**
Construction	828,551	272,654	Truck Transportation	20,482	2,039,321
Crop Production	8,566	719,927	Transit and Ground Passenger Transport	11,786	40,028
Animal Production and Aquaculture	3,030	631,133	Pipeline Transportation	1,993	1,561,738
Forestry and Logging	21,060	777,761	Scenic and Sightseeing Transportation	7,139	31,675
Fishing, Hunting and Trapping	4,167	916,610	Postal Service	25,892	68,065
Agriculture & Forestry Support Activity	13,472	27,428	Couriers and Messengers	20,254	303,603
Oil and Gas Extraction	3,132	1,774,507	Warehousing and Storage	22,350	5,062
Mining (except Oil and Gas)	3,897	1,766,750	Motion Picture & Sound Recording Ind	6,652	1,427
Support Activities for Mining	18,191	890,861	Broadcast and Telecomm	12,430	3,252
Utilities	235,998	5,986,795	Internet Publishing and Broadcasting	6,230	308
Food Manufacturing	49,313	824,165	Telecommunications	6,525	3,394
Beverage & Tobacco Product Manufacturing	3,078	30,639	ISPs, Search Portals, & Data Processing	7,832	3,304
Textile Mills	19,804	427,705	Monetary Authorities - Central Bank	9,218	9,769
Textile Product Mills	35,964	298,448	Credit Intermediation & Related Activity	19,298	21,968
Apparel Manufacturing	13,966	10,124	Financial Investment & Related Activity	21,858	23,808
Leather and Allied Product Manufacturing	53,801	140,977	Insurance Carriers & Related Activities	16,034	1,033
Wood Product Manufacturing	77,557	1,231,865	Funds, Trusts & Other Financial Vehicles	394	223,194
Paper Manufacturing	533,483	13,743,908	Rental and Leasing Services	12,419	44,801
Printing and Related Support Activities	15,541	193,675	Lessors, Nonfinancial Intangible Assets	2,788	6,232
Petroleum & Coal Products Manufacturing	86,155	97,184,854	Professional and Technical Services	20,250	2,272
Chemical Manufacturing	14,928	1,432,621	Management of Companies and Enterprises	14,511	12,461
Plastics & Rubber Products Manufacturing	26,146	351,249	Administrative and Support Services	43,707	13,078
Nonmetallic Mineral Product Mfg	15,867	4,860,387	Waste Management and Remediation Service	7,651	258,018
Primary Metal Manufacturing	34,924	6,571,062	Educational Services	27,228	54,971
Fabricated Metal Product Manufacturing	44,546	333,446	Ambulatory Health Care Services	6,449	2,775
Machinery Manufacturing	9,633	55,321	Hospitals	9,438	16,829
Computer and Electronic Product Mfg	8,798	27,630	Nursing and Residential Care Facilities	19,969	8,953
Electrical Equipment and Appliances	10,582	68,150	Social Assistance	40,740	7,064
Transportation Equipment Manufacturing	(13,094)	(84,105)	Performing Arts and Spectator Sports	32,263	4,456
Furniture and Related Product Mfg	51,182	155,385	Museums, Parks and Historical Sites	164,628	19,264
Miscellaneous Manufacturing	17,444	46,832	Amusement, Gambling & Recreation Ind	281,767	80,908
Motor Vehicle and Parts Dealers	42,939	12,088	Accommodation	95,784	53,740
Food and Beverage Stores	120,655	4,699	Food Services and Drinking Places	47,689	10,441
General Retailers	46,990	1,780	Repair and Maintenance	6,801	1,396
Air Transportation	5,987	1,911,766	Personal and Laundry Services	22,261	15,158
Rail Transportation	15	588,715	Membership Organizations & Assocs	17,860	38,202
Water Transportation	45,223	13,175,465			

Sources: IMPLAN® and EFA, Negative numbers means waste is exported to another region or captured or recycled in net

Table A2.2: North State Environmental Metrics per Millions of Dollars of Value Added, 2022

	Non-Hazardous Waste	Greenhouse Gases		Non-Hazardous Waste	Greenhouse Gases
Industry	**kg**	**kg**	**Industry**	**kg**	**kg**
Construction	747,295	242,962	Truck Transportation	17,331	1,725,611
Crop Production	8,653	758,358	Transit and Ground Passenger Transport	13,638	46,319
Animal Production and Aquaculture	3,032	629,023	Pipeline Transportation	862	675,795
Forestry and Logging	26,284	970,692	Scenic and Sightseeing Transportation	7,535	33,430
Fishing, Hunting and Trapping	4,755	1,058,724	Postal Service	27,369	71,949
Agriculture & Forestry Support Activity	12,347	25,137	Couriers and Messengers	17,822	267,149
Oil and Gas Extraction	3,723	2,109,133	Warehousing and Storage	31,798	7,203
Mining (except Oil and Gas)	2,242	476,140	Motion Picture & Sound Recording Ind	7,492	1,580
Support Activities for Mining	21,123	1,043,502	Broadcast and Telecomm	13,100	4,054
Utilities	135,325	4,204,091	Internet Publishing and Broadcasting	11,662	1,631
Food Manufacturing	36,934	708,964	Telecommunications	14,303	7,748
Beverage & Tobacco Product Manufacturing	4,245	47,816	ISPs, Search Portals, & Data Processing	32,147	13,561
Textile Mills	28,580	617,254	Monetary Authorities - Central Bank	7,889	8,361
Textile Product Mills	63,365	449,384	Credit Intermediation & Related Activity	16,185	18,425
Apparel Manufacturing	125,527	92,059	Financial Investment & Related Activity	10,125	11,062
Leather and Allied Product Manufacturing	111,775	292,889	Insurance Carriers & Related Activities	13,169	848
Wood Product Manufacturing	52,879	413,114	Funds, Trusts & Other Financial Vehicles	376	213,068
Paper Manufacturing	5,892	78,958	Rental and Leasing Services	11,402	47,687
Printing and Related Support Activities	20,125	250,809	Lessors, Nonfinancial Intangible Assets	1,496	3,345
Petroleum & Coal Products Manufacturing	1,259	2,572,377	Professional and Technical Services	17,172	2,078
Chemical Manufacturing	8,620	2,641,185	Management of Companies and Enterprises	9,467	8,129
Plastics & Rubber Products Manufacturing	11,850	122,343	Administrative and Support Services	32,931	12,179
Nonmetallic Mineral Product Mfg	13,973	1,866,889	Waste Management and Remediation Service	9,017	304,093
Primary Metal Manufacturing	77,869	8,430,165	Educational Services	35,023	71,030
Fabricated Metal Product Manufacturing	36,094	203,597	Ambulatory Health Care Services	5,972	2,150
Machinery Manufacturing	13,570	67,076	Hospitals	8,222	14,662
Computer and Electronic Product Mfg	6,452	36,126	Nursing and Residential Care Facilities	11,923	5,343
Electrical Equipment and Appliances	6,409	33,191	Social Assistance	36,275	6,195
Transportation Equipment Manufacturing	25,525	107,916	Performing Arts and Spectator Sports	32,108	4,554
Furniture and Related Product Mfg	34,654	67,261	Museums, Parks and Historical Sites	273,062	31,953
Miscellaneous Manufacturing	19,311	53,174	Amusement, Gambling & Recreation Ind	299,262	86,828
Motor Vehicle and Parts Dealers	39,875	11,226	Accommodation	93,526	52,470
Food and Beverage Stores	119,872	4,669	Food Services and Drinking Places	52,526	11,465
General Retailers	47,440	1,797	Repair and Maintenance	6,845	1,496
Air Transportation	3,106	991,975	Personal and Laundry Services	19,251	11,779
Rail Transportation	30	1,206,080	Membership Organizations & Associations	14,527	27,919
Water Transportation	1,857	540,986			

Sources: IMPLAN® and EFA, Negative numbers means waste is exported to another region or captured or recycled in net

Table A2.3: Redwood Coast Environmental Metrics per $1 Million of Dollars of Value Added, 2022

	Non-Hazardous Waste	Greenhouse Gases		Non-Hazardous Waste	Greenhouse Gases
Industry	**kg**	**kg**	**Industry**	**kg**	**kg**
Construction	1,265,215	416,669	Truck Transportation	23,270	12,321,268
Crop Production	8,074	9,770,657	Transit and Ground Passenger Transport	15,220	146,175
Animal Production and Aquaculture	3,038	3,876,715	Pipeline Transportation	3,461	14,586,905
Forestry and Logging	15,771	1,212,313	Scenic and Sightseeing Transportation	7,165	85,138
Fishing, Hunting and Trapping	4,549	16,438,565	Postal Service	26,345	146,409
Agriculture & Forestry Support Activity	11,277	121,811	Couriers and Messengers	23,383	848,522
Oil and Gas Extraction	2,544	998,394	Warehousing and Storage	27,345	7,312
Mining (except Oil and Gas)	8,173	37,576	Motion Picture & Sound Recording Ind	9,299	2,007
Support Activities for Mining	28,281	2,176,015	Broadcast and Telecomm	9,151	5,897
Utilities	388,011	4,857,974	Internet Publishing and Broadcasting	7,300	1,154
Food Manufacturing	60,941	12,391,568	Telecommunications	10,792	8,765
Beverage & Tobacco Product Manufacturing	4,537	70,611	ISPs, Search Portals, & Data Processing	33,344	2,207
Textile Mills	340,757	255,918	Monetary Authorities - Central Bank	8,067	32,831
Textile Product Mills	424,961	89,486	Credit Intermediation & Related Activity	11,961	172,854
Apparel Manufacturing	283,691	6,061,175	Financial Investment & Related Activity	14,246	28,206
Leather and Allied Product Manufacturing	(3,594,066)	33,582	Insurance Carriers & Related Activities	14,390	2,068
Wood Product Manufacturing	42,748	3,071,329	Funds, Trusts & Other Financial Vehicles	281	209,786
Paper Manufacturing	115,530	13,652,281	Rental and Leasing Services	14,597	162,425
Printing and Related Support Activities	14,529	1,018,683	Lessors, Nonfinancial Intangible Assets	11,014	16,465
Petroleum & Coal Products Manufacturing	31,560	79,170,293	Professional and Technical Services	15,906	2,785
Chemical Manufacturing	21,293	10,319,479	Management of Companies and Enterprises	11,175	31,975
Plastics & Rubber Products Manufacturing	26,045	7,419	Administrative and Support Services	64,272	26,364
Nonmetallic Mineral Product Mfg	10,525	93,951	Waste Management and Remediation Service	10,570	579,087
Primary Metal Manufacturing	20,482	28,910,279	Educational Services	54,212	86,398
Fabricated Metal Product Manufacturing	22,141	800,360	Ambulatory Health Care Services	6,014	4,667
Machinery Manufacturing	14,186	358,524	Hospitals	7,949	38,315
Computer and Electronic Product Mfg	1,700	-	Nursing and Residential Care Facilities	11,453	15,302
Electrical Equipment and Appliances	9,172	27,437	Social Assistance	37,271	22,469
Transportation Equipment Manufacturing	5,859	(63,029)	Performing Arts and Spectator Sports	48,240	3,721
Furniture and Related Product Mfg	24,964	604,937	Museums, Parks and Historical Sites	82,903	91,028
Miscellaneous Manufacturing	35,627	46,620	Amusement, Gambling & Recreation Ind	535,426	60,454
Motor Vehicle and Parts Dealers	41,772	26,643	Accommodation	77,195	32,997
Food and Beverage Stores	116,952	8,731	Food Services and Drinking Places	47,016	15,321
General Retailers	48,847	4,195	Repair and Maintenance	7,122	2,608
Air Transportation	768	1,849,808	Personal and Laundry Services	21,229	64,617
Rail Transportation	33	1,554,333	Membership Organizations & Associations	19,099	56,560

Water Transportation	3,054	41,998,110			

Sources: IMPLAN® and EFA, Negative numbers means waste is exported to another region or captured or recycled in net

Table AXX.4: Statewide for California Environmental Metrics per Millions of Dollars of Value Added, 2022

	Non-Hazardous Waste	Greenhouse Gases		Non-Hazardous Waste	Greenhouse Gases
Industry	**kg**	**kg**	**Industry**	**kg**	**kg**
Construction	704,175	227,096	Truck Transportation	23,764	2,366,116
Crop Production	10,362	921,447	Transit and Ground Passenger Transport	15,546	52,799
Animal Production and Aquaculture	4,472	940,438	Pipeline Transportation	1,853	1,451,828
Forestry and Logging	24,868	918,210	Scenic and Sightseeing Transportation	8,699	38,593
Fishing, Hunting and Trapping	4,410	997,999	Postal Service	25,325	66,576
Agriculture & Forestry Support Activity	14,450	29,420	Couriers and Messengers	22,247	333,472
Oil and Gas Extraction	3,200	1,812,831	Warehousing and Storage	30,755	6,966
Mining (except Oil and Gas)	43,266	14,106,053	Motion Picture & Sound Recording Ind	5,151	1,057
Support Activities for Mining	17,509	862,387	Broadcast and Telecomm	12,505	3,847
Utilities	1,036,096	6,585,573	Internet Publishing and Broadcasting	6,054	1,039
Food Manufacturing	52,832	1,133,381	Telecommunications	6,937	2,807
Beverage & Tobacco Product Manufacturing	57,188	600,337	ISPs, Search Portals, & Data Processing	6,692	2,823
Textile Mills	72,183	1,253,454	Monetary Authorities - Central Bank	8,919	9,452
Textile Product Mills	42,556	204,491	Credit Intermediation & Related Activity	8,003	9,110
Apparel Manufacturing	141,369	105,005	Financial Investment & Related Activity	6,615	6,961
Leather and Allied Product Manufacturing	40,034	108,609	Insurance Carriers & Related Activities	9,739	627
Wood Product Manufacturing	52,598	461,173	Funds, Trusts & Other Financial Vehicles	283	160,300
Paper Manufacturing	7,834	608,564	Rental and Leasing Services	11,485	43,248
Printing and Related Support Activities	12,938	106,375	Lessors, Nonfinancial Intangible Assets	579	1,295
Petroleum & Coal Products Manufacturing	1,234	2,572,010	Professional and Technical Services	13,078	1,437
Chemical Manufacturing	7,564	2,165,095	Management of Companies and Enterprises	7,516	6,454
Plastics & Rubber Products Manufacturing	13,994	162,786	Administrative and Support Services	34,520	10,882
Nonmetallic Mineral Product Mfg	23,354	3,841,803	Waste Management and Remediation Service	9,833	331,583
Primary Metal Manufacturing	19,896	3,067,494	Educational Services	29,053	58,367
Fabricated Metal Product Manufacturing	33,746	279,180	Ambulatory Health Care Services	6,550	2,329
Machinery Manufacturing	20,344	92,537	Hospitals	8,208	14,636
Computer and Electronic Product Mfg	4,939	13,128	Nursing and Residential Care Facilities	14,888	6,710
Electrical Equipment and Appliances	7,479	61,687	Social Assistance	37,490	6,303
Transportation Equipment Manufacturing	8,793	43,875	Performing Arts and Spectator Sports	34,293	5,213
Furniture and Related Product Mfg	47,387	82,926	Museums, Parks and Historical Sites	90,627	10,605
Miscellaneous Manufacturing	82,660	278,343	Amusement, Gambling & Recreation Ind	231,254	64,982
Motor Vehicle and Parts Dealers	45,955	12,937	Accommodation	71,845	40,303
Food and Beverage Stores	135,761	5,288	Food Services and Drinking Places	52,312	11,482
General Retailers	46,791	1,773	Repair and Maintenance	7,436	1,594
Air Transportation	4,143	1,323,131	Personal and Laundry Services	21,486	12,919
Rail Transportation	33	1,321,306	Membership Organizations &	13,609	28,045

			Associations		
Water Transportation	3,823	1,113,833			

Sources: IMPLAN® and EFA, Negative numbers means waste is exported to another region or captured or recycled in net

Appendix 3: NAICS-3 Industries

Table A3.1 is a list of industries that represent regional employers for each region. The North American Industry Classification System (NAICS) codes industries from 2-digit (industry sectors) to 6-digit (business types) codes, where 3-digit codes represent industries with associated sectors of the economy. The recommended industry clusters are based on our assessment of forecasts and current mixes and other criteria based on 3-digit NAICS code industries.

Table A3.1: NAICS-3 Code Industries, 2022

NAICS 3	Industry	NAICS 3	Industry
111	Crop Production	483	Water Transportation
112	Animal Production and Aquaculture	484	Truck Transportation
113	Forestry and Logging	485	Transit and Ground Passenger Transport
114	Fishing, Hunting and Trapping	486	Pipeline Transportation
115	Agriculture & Forestry Support Activity	487	Scenic and Sightseeing Transportation
211	Oil and Gas Extraction	488	Support Activities for Transportation
212	Mining (except Oil and Gas)	491	Postal Service
213	Support Activities for Mining	492	Couriers and Messengers
221	Utilities	493	Warehousing and Storage
23	Construction	512	Motion Picture & Sound Recording Ind
311	Food Manufacturing	516	Internet Publishing and Broadcasting
312	Beverage & Tobacco Product Manufacturing	517	Telecommunications
313	Textile Mills	518	ISPs, Search Portals, & Data Processing
314	Textile Product Mills	519	Other Information Services
315	Apparel Manufacturing	521	Monetary Authorities - Central Bank
316	Leather and Allied Product Manufacturing	522	Credit Intermediation & Related Activity
321	Wood Product Manufacturing	523	Financial Investment & Related Activity
322	Paper Manufacturing	524	Insurance Carriers & Related Activities
323	Printing and Related Support Activities	525	Funds, Trusts & Other Financial Vehicles
324	Petroleum & Coal Products Manufacturing	531	Real Estate
325	Chemical Manufacturing	532	Rental and Leasing Services
326	Plastics & Rubber Products Manufacturing	533	Lessors, Nonfinancial Intangible Assets
327	Nonmetallic Mineral Product Mfg	541	Professional and Technical Services
331	Primary Metal Manufacturing	551	Management of Companies and Enterprises
332	Fabricated Metal Product Manufacturing	561	Administrative and Support Services
333	Machinery Manufacturing	562	Waste Management and Remediation Service
334	Computer and Electronic Product Mfg	611	Educational Services
335	Electrical Equipment and Appliances	621	Ambulatory Health Care Services
336	Transportation Equipment Manufacturing	622	Hospitals
337	Furniture and Related Product Mfg	623	Nursing and Residential Care Facilities
339	Miscellaneous Manufacturing	624	Social Assistance
423	Merchant Wholesalers, Durable Goods	711	Performing Arts and Spectator Sports
424	Merchant Wholesalers, Nondurable Goods	712	Museums, Parks and Historical Sites
425	Electronic Markets and Agents/Brokers	713	Amusement, Gambling & Recreation Ind
441	Motor Vehicle and Parts Dealers	721	Accommodation
444	Building Material & Garden Supply Stores	722	Food Services and Drinking Places
445	Food and Beverage Stores	811	Repair and Maintenance

481	Air Transportation	812	Personal and Laundry Services
482	Rail Transportation	813	Membership Organizations & Associations
		814	Private Households

Regional and County Overviews

The data analysis files provide snapshots of each region using economic and social and demographic data from 2021 as compared to 2019 (pre-pandemic). This give us the latest data and a benchmark as of October 2023 (the time of this writing). Each snapshot provides an overview of major data categories to be considered from here, including:

- Demographics:
    - Age and gender mix of population;
    - Income and poverty levels of the population;
    - Race and Ethnicity mix of regional population;
    - School enrollment (as a way to consider labor force to come);
    - Educational attainment of population (regional labor force "skills" level assessment based on education);
- Employment
    - Labor force data (employment, unemployment of regional residents);
    - Industry employment of regional employers (private-sector, non-profits, and government);
    - Location Quotients;
    - Occupations worked by regional residents;
    - Low-wage and high-wage industries and occupations are contrasted;
    - Status Quo Forecasts for Employment and Occupations;
- Household Income and earnings
    - Per-capita income growth (change in spending capacity for local businesses) in both current dollars and inflation-adjusted terms over time.
    - Poverty and Inequality measures (how local households are doing, and also as an indicator of government services demand);
        - These data help provide perspective and review of inequities in economic development across different areas of the region.
- Housing characteristics and utilization
    - Housing costs and affordability measures;
    - Permits to build new residential units;
    - Age of current housing stock;
    - Housing stock and mix;
    - Household composition (families versus single users of housing units);
- Work-from-Home and Commute Patterns;
    - Migration patterns from population change;
    - Use of intra-region and areas outside the region for work for households;
- Gross Regional Product (GRP)
    - Regional rank for growth of GRP after inflation in 2022 for all 14 regions in California
    - Composition of GRP in each region.

Our team has included the county-specific and regional files for each region.

Data Sources

The majority of the data presented in this report are from the American Community Survey (ACS). For larger geographies, the 1-year Summary Files provide the data. For smaller communities, roughly those with less than 65,000 in population in 2021, the 5-year Summary Files provide the data.

The ACS data are supplemented by building permit data from the U.S. Census Bureau, population and housing data from the California Department of Finance, and home price and rental rates from Zillow.

U.S. Census Bureau. American Community Survey 1-year and 5-year Summary Files. https://www.census.gov/programs-surveys/acs/data/data-via-ftp.html. The 1-year data are released in September each year and the 5-year data are released in January.

Zillow Research Data https://www.zillow.com/research/data/
U.S. Census Bureau. Building Permits Data, updated annually in February. https://www.census.gov/construction/bps/current.html

State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State — January 1. Sacramento, California, May. https://dof.ca.gov/forecasting/demographics/ estimates/

State of California, Department of Finance, E-2. California County Population Estimates and Com- ponents of Change by Year, July 1, 2010-2021. Sacramento, California, December. https://dof.ca.gov/forecasting/demographics/

State of California, Department of Finance, E-1 Population Estimates for Cities, Counties and the State with Annual Percent Change — January 1. Sacramento, California, May. https://dof.ca.gov/forecasting/demographics/

About Economic Forensics and Analytics, Inc. (EFA)

Economic Forensics and Analytics, Inc. (EFA) is an independent research and consulting firm located in Sonoma County, California. EFA has a wide range of clientele in the private and public sectors throughout the state of California. EFA provide clients with economic impact reports for economic development support. For government and businesses alike, EFA can also provide economic impact analysis using the latest data and a proven method of describing the effects of decisions. EFA's president, Robert Eyler, PhD, has a doctorate in economics from the University of California at Davis. See more at www.econforensics.com.

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California's Redwood Coast:
Exploring the Roots of Health Disparities

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California Center for Rural Policy at Cal Poly Humboldt

RANCHO
Rural Association of Northern California Health Officers

Cal Poly Humboldt.

CCRP
California Center for Rural Policy

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EXECUTIVE SUMMARY

The population of the Redwood Coast (comprising Del Norte, Humboldt, Mendocino, and Lake counties) faces many challenges including striking health disparities compared to the whole of California. These health disparities include elevated premature death, rates of disability, and behavioral risk factors. This report aims to identify high-impact health determinants contributing to these health disparities between the Redwood Coast and the state, and to provide targeted policy recommendations for closing these gaps.

Multiple data sources suggest that these disparities in health outcomes primarily stem from elevated tobacco use, substance use, and mental health challenges. The consequences of these disparities include elevated lung cancer, respiratory diseases, motor vehicle deaths, drug-induced and liver diseases, and suicides.

The region has a higher proportion of populations at risk for tobacco use, substance use and mental health challenges, including those living in poverty, homeless individuals, people with lower levels of educational attainment, people living alone, and those who have experienced multiple adverse childhood experiences (ACEs). While these challenges are experienced broadly in the region, people of color, disabled groups, and lesbian, gay, and bisexual individuals face particularly pronounced health and socioeconomic challenges.

The region also experiences adverse disparities in access to healthcare, which appears to disproportionately impact those with lower incomes and people with mental health challenges. Moreover, Redwood Coast adults who have mental health challenges are at far higher risk of experiencing delayed care.

In light of these findings, this report underscores three **policy focus areas**, with a particular focus on serving the at-risk populations:

1. Smoking Prevention, Education, and Cessation
2. Substance Use Prevention and Treatment
3. Suicide Prevention and Access to Mental Health Care

Addressing these concerns in the Redwood Coast is imperative to bridge healthcare disparities and enhance the overall well-being of its residents.

DATA SOURCES AND METHODS

This report draws from a wide array of data sources, as detailed below. In this section, we offer a brief overview of the primary data methods and constraints, while a more extensive examination can be found in Appendix A.

Data Sources

- U.S. Census Bureau American Community Survey (ACS)
- California Department of Finance (DOF)
- The California Health Information Survey (CHIS)
- County Health Rankings & Roadmaps (CHRR)
- U.S. Health Resources & Services Administration (HRSA)
- Center for Disease Control (CDC) PLACES Data
- California School Climate, Health, and Learning Surveys (CalSCHLS)
- Kidsdata.org
- California Department of Public Health (CDPH), County Health Status Profiles
- CDPH, Overdose Surveillance Dashboard
- CDPH, Chronic Hepatitis C California Surveillance Report
- CDPH, California Blood Lead Data, 2021

- Cal Fire Wildfire Perimeters and Prescribed Burns (Cal Fire)
- California Office of Traffic Safety (OTS)
- UC Berkeley Transportation Injury Mapping System (TIMS)
- CalEnviroScreen 4.0

Key Data Methods and Limitations

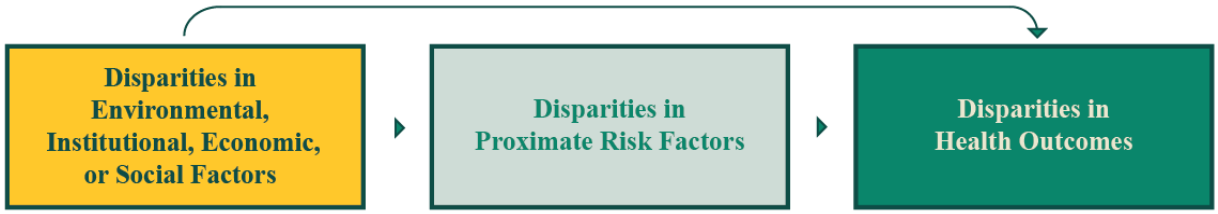
- 95% confidence intervals are presented wherever the necessary information is available. Generally, these are illustrated with horizontal bars. Wide confidence intervals indicate a greater level of uncertainty.
- Some data points are not shown either because they have been suppressed by the data provider or because of high levels of statistical uncertainty.[1]
- Data that are generated using statistical modeling (i.e. small area estimation techniques) are denoted as SAE. SAE data is limited and should not be used to measure impacts of local area policy interventions.
- California Health Information Survey (CHIS) data include only Humboldt, Mendocino, and Lake counties, referred to in these visualizations as HML. Del Norte is aggregated with a broader seven county California region, therefore including Del Norte would substantially skew the data for the region.
- The word "significant" is used deliberately throughout this report to indicate a statistically significant difference.

Section 1. CONCEPTUAL FRAMEWORK

The conceptual framework of this report takes inspiration from the Bay Area Regional Health Inequities Initiative (BARHII) framework, which posits a flow from upstream factors such as social, living environment, and institutional inequities to downstream factors such as health behaviors, diseases, and ultimately mortality rates (BARHII).

Figure 1.1

Conceptual Framework



[1] Usually because of extremely wide confidence intervals (e.g. a sample proportion that includes 0 or 100%) or because the data provider denotes the estimate as statistically unstable.

To maintain focus on the most salient health determinants, this report works backwards from these upstream disparities in health outcomes, looking first at regional disparities in mortality rates, diseases, and disabilities to identify where disparities exist between the region and state averages, such as for example disparities in lung cancer rates (see "Overview of Health Outcomes"). This analysis produces a set of health outcomes where there is significant and adverse disparity between the region and the state to provide a focused approach to identify immediate or 'proximate' downstream factors contributing to these disparities, such as health behaviors including tobacco use (see "Proximate Risk Factors").

Subsequently, the report looks further upstream to identify the institutional, economic, and/or social factors that may contribute to these disparities in proximate risk factors, such as the role of poverty in tobacco use, as well as considering the potential for direct relationships with these deeper factors on health such as the link between poverty and chronic stress (see "Economic, Social, Institutional, and Environmental Factors"). Because of the potentially vast array of such factors, focus is maintained on those factors commonly raised in the region's community health assessments.

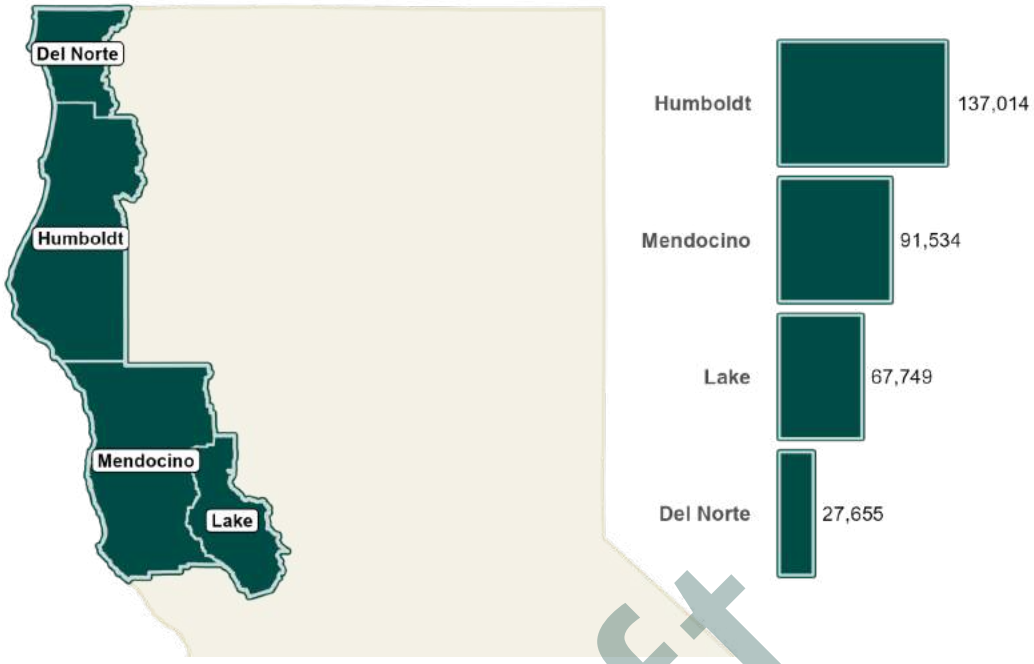
The report further examines the health consequences from environmental factors, such as wildfires (see "Environmental Factors").

By identifying health factors displaying substantial and adverse disparities between the Redwood Coast region and the state, the aim of this report is to uncover opportunities for directing focus and allocating resources towards high-priority and impactful health determinants. The report concludes by presenting a list of policy focus areas and corresponding resources based on the most compelling and high-impact disparities in health factors.

Section 2. OVERVIEW OF THE REGION

The Redwood Coast, situated in the northwesternmost region of California comprises four of the state's most remote and rural counties (see Appendix B). The total population of the region is 323,952….

Figure 2.1
Redwood Coast Region and Population (2017 - 2021)

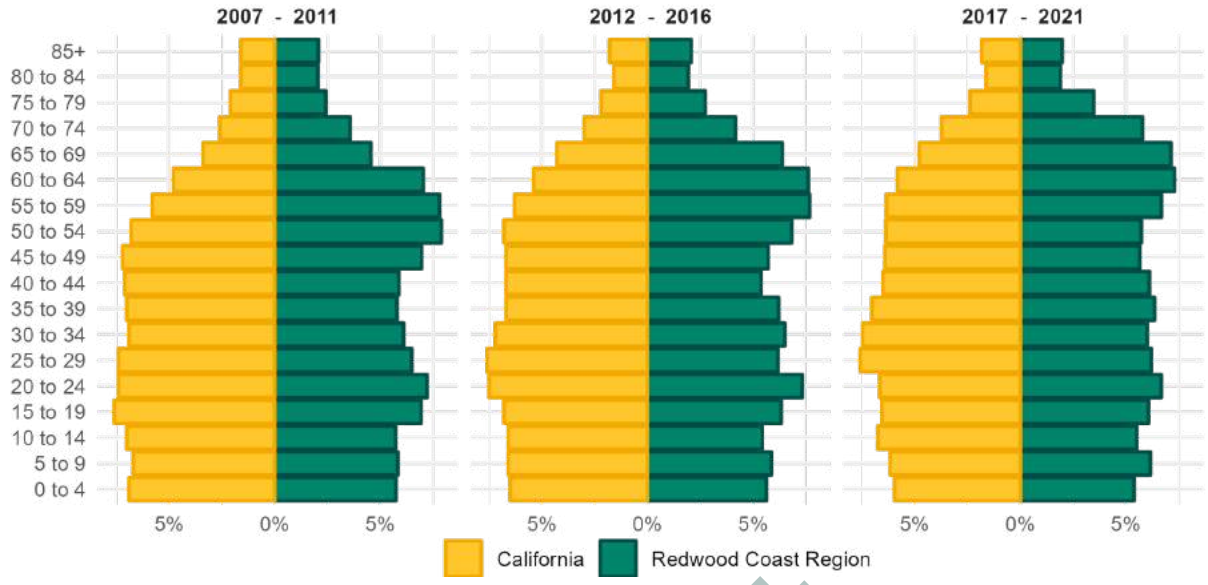


Note. Data sourced from the ACS.

Population Dynamics

The Redwood Coast population is considerably older compared to the state average. Across the region the median age is significantly higher than the state median (see Appendix B). The higher median age in the region is influenced by a significant and sizable group of older residents advancing in age. From 2007 to 2011, this cohort ranged from 45 to 64 years old, and more recently, between 2017 and 2021, their age range shifted to 55 to 74 years old. Such a population distribution exerts downward pressure on population growth among other implications such as additional strain on healthcare resources. As shown in Appendix B, the population has declined in recent years, driven in large part by higher deaths, and recent California Department of Finance (DOF) projections predict future decline in the Redwood Coast population.

Figure 2.2
Age Distribution (2007 - 2021)

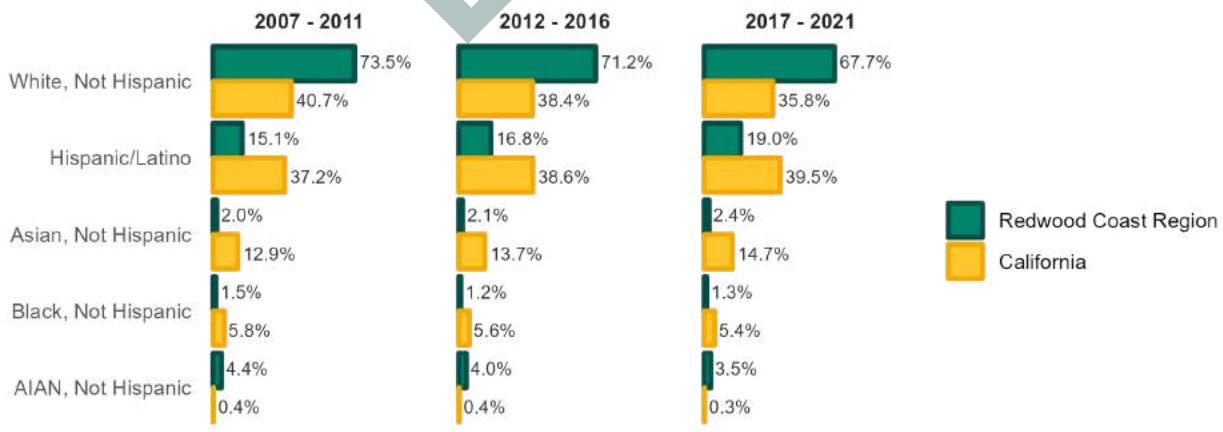


Note. Data sourced from the ACS.

As shown below, the region is primarily populated by white, non-Hispanic individuals, who constitute 67.7% of the total regional population— almost double the statewide proportion of 35.8% for this group. Hispanic or Latino individuals constitute a further 19.0% of the population, a share that is growing but small relative to the state population. While other minority groups are underrepresented compared to the state population, the American Indian and Alaskan Native (AIAN) population is proportionately higher than the state population, representing 2.4% of the Redwood Coast population as opposed to only 0.3% of the statewide population.

Figure 2.3

Race and Ethnicity (2007 - 2021)



Note. Data sourced from the ACS.

Takeaways

1. The region's population is significantly older compared to the state. The region's aging population structure has important implications for future population change and healthcare needs.
2. The population is primarily white, non-Hispanic. The population is composed of a relatively small population of people of color or Hispanic populations; however, the AIAN population is larger in the Redwood Coast relative to the state population.

Section 3. OVERVIEW OF HEALTH OUTCOMES

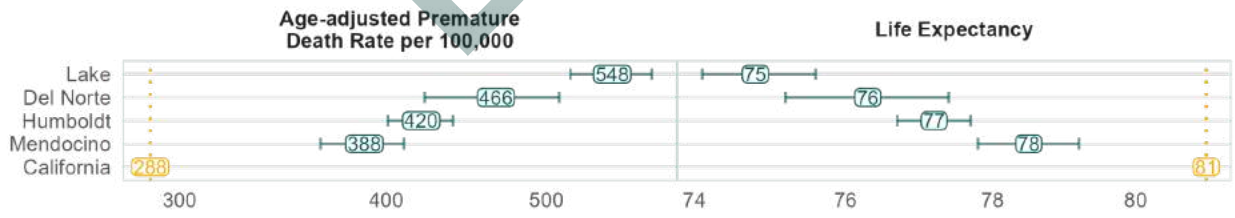
Life Expectancy and Mortality Rates

Life expectancy is a fundamental metric that reflects a broad spectrum of health factors, indicating the cumulative influence of wide-ranging health determinants. Disparities in life expectancy, therefore, serve as a good starting point for uncovering signals of disparities in health determinants between geographies and populations.

As shown below, life expectancy at birth is significantly lower than the statewide average, and age-adjusted premature deaths per 100,000 are significantly higher across the region.[2] Additional data presented in Appendix C indicate that premature death is elevated among AIAN and Black communities in the Redwood Coast region. These data also show that premature death is on a long-term downward trajectory in all but Lake County.

Figure 3.1

Premature Death and Life Expectancy (2018 - 2020)



Note. Data sourced from CHRR.

Disaggregating mortality rates by cause of death allows for a targeted examination of the determinants of health that specifically contribute to the elevated causes of premature death and lower life expectancy within the region.

[2] Defined as the number of deaths occurring before age 75 per 100,000 population. This is in distinction to the Years of Potential Life (YPLL) indicator which is presented in Appendix C. YPLL is defined as the number of years of life lost due to deaths prior to age 75. For instance, the death of a 40 year old would amount to 35 YPLL.

As shown below, the region experiences higher age-adjusted mortalities across most causes of death. However, these data show a clear regional pattern of substantially higher death rates in several categories, including **unintentional injuries, all cancers, drug-induced deaths, chronic lower respiratory disease, lung cancer, chronic liver disease and cirrhosis, suicide, motor vehicle traffic crashes, coronary heart disease, prostate cancer,[3] and firearm-related deaths**.

There is also an alarmingly high rate of stroke mortalities in Humboldt County. This phenomenon is persistent over time and does not appear to be a statistical aberration. See Appendix C for a discussion of Humboldt's elevated stroke mortality rate.

Figure 3.2

Age-Adjusted Mortality Rates per 100,000 (2019 - 2021)

	Lake	Del Norte	Humboldt	Mendocino	CA
Accidents (Unintentional Injuries)	135*	78*	74*	106*	43
All Cancers	170*	182*	173*	160*	125
Drug Induced Deaths	78*	30	37*	56*	21
Chronic Lower Respiratory Disease	49*	57*	45*	32	26
Lung Cancer	41*	48*	33*	31*	22
Chronic Liver Disease and Cirrhosis	54*	31*	25*	17	14
Suicide	24*	26*	20*	24*	10
Motor Vehicle Traffic Crashes	30*	19	16*	29*	11
Coronary Heart Disease	112*	66	98*	98*	79
Prostate Cancer	19	35*	29*	24	18
Firearm Related Deaths	12	17*	14*	14*	8
Female Breast Cancer	20	21	26*	19	18
Colorectal Cancer	14	15	13	16*	12
Cerebrovascular Disease (Stroke)	32	41	98*	35	37
Homicide	7	7	8	9	6
Influenza and Pneumonia	11	22*	8*	12	12
Diabetes	15*	43*	22	20	23
Alzheimer's Disease	15*	14*	14*	13*	37

Difference from State (X)

- 90 < X
- 60 < X ≤ 90
- 30 < X ≤ 60
- 5 < X ≤ 30
- 0 < X ≤ 5
- X ≤0

Note. Data sourced from the California Department of Public Health and the California Conference of Local Health's *County Health Status Profiles* report data. The color scale denotes differences (X) between the region's mortality rate and the corresponding state rate. Gold and yellow indicate higher mortality rates compared to the state. Asterisks (*) denote a statistically significant difference compared to the state rate. None of these causes include deaths where COVID-19 is the underlying cause of death.[4]

[3] Per 100,000 males.

[4] According to CDPH, "Deaths where COVID-19 was coded as the underlying cause of death are only included for all causes of death and are not included in any of the specific mortality health indicators. However, deaths where COVID-19 was listed as a significant condition contributing to death but not the underlying cause of death may be included for these health indicators" (2022).

An analysis of trends in these mortality rates is available in Appendix C. These data indicate rising unintentionally injury deaths, drug-induced deaths, chronic liver disease, prostate cancer, all cancers, motor vehicle deaths, and breast cancer.

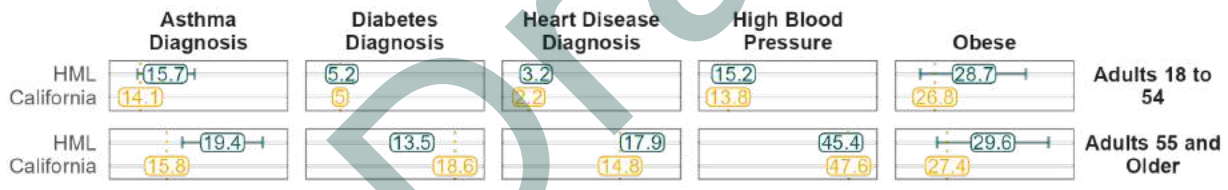
Health Conditions

County-level morbidity data are more limited when compared to mortality data, highlighting data gaps in understanding health disparities in rural areas. To address these limitations, both CHIS and CDC PLACES datasets are employed to identify signals of health disparity.

As shown below, CHIS data reveals moderately elevated rates of asthma, heart disease, and obesity, although these data do not include Del Norte.[5] Conversely, rates of diabetes and high blood pressure are similar to or lower than the state averages. CDC PLACES data presented in Appendix C, although limited to small area estimation (SAE) techniques,[6] suggests elevated age-adjusted rates across almost all estimated health conditions including chronic obstructive pulmonary disease (COPD), tooth loss, depression, coronary heart disease, and multiple other conditions.

Figure 3.3

Morbidities, Percent of Population (High Blood Pressure 2019-2022, All Other 2011-2022)[7]



Note. Data sourced from the CHIS. Humboldt, Mendocino, and Lake (HML) counties only.

Both approaches point to a higher prevalence of respiratory diseases, heart disease, obesity, and a relatively low prevalence of diabetes and high blood pressure regionally.

Disability Rates

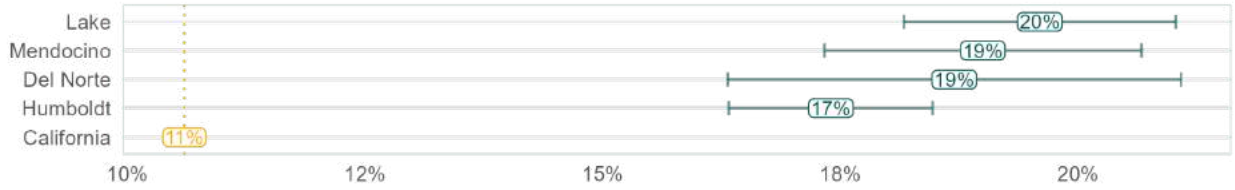
As shown in the figures below, disability[8] rates are higher than the state rate across the region. While the aging population is a contributing factor, it is noteworthy that even among individuals

[5] All CHIS data include only Humboldt, Mendocino, and Lake (HML) counties.
[6] See Appendix A for a discussion on the limitations of these techniques.
[7] See Appendix C for an alternative data source on health conditions produced using Small Area Estimation (SAE) techniques. Though limited, these data suggest elevated levels of all morbidities presented, including those above, except diabetes and high cholesterol.
[8] Including both physical and mental health disabilities

aged 18 to 34, disability rates are significantly higher than the state average (see Appendix C). This suggests that factors beyond the aging population play a role in the region's elevated disability rates. Potential contributing factors are explored further in the next section.[9]

Figure 3.4

Disability Rates (2017 - 2021)



Note. Data sourced from the ACS.

Takeaways

1. The most substantial adverse health disparities between the region and the state are evident in rates of unintentional injuries deaths, all cancers, drug-induced deaths, chronic lower respiratory disease, chronic liver disease and cirrhosis, lung cancer, coronary heart disease, suicide, motor vehicle traffic crash, prostate cancer, and firearm-related deaths.
2. Rates of disability are much higher than state averages in the region, even among young adults.

Section 4. PROXIMATE RISK FACTORS

This section explores the potential factors contributing to the health disparities between the Redwood Coast region and the state, as identified in the previous section. The aim is to identify and quantify the proximate risk factors, which are directly linked to these health outcomes, such as the role of smoking in lung cancer. A more comprehensive analysis of the underlying factors (e.g. poverty) potentially related to these proximate risk factors will be explored in the subsequent section. Identifying proximate factors allows for a more focused approach to exploration of deeper factors as well as a more focused approach to policy solutions.

Smoking

As shown in the previous section, evidence demonstrates higher mortality rates from cancer, lung cancer, chronic lower respiratory disease, and heart disease compared to state averages.

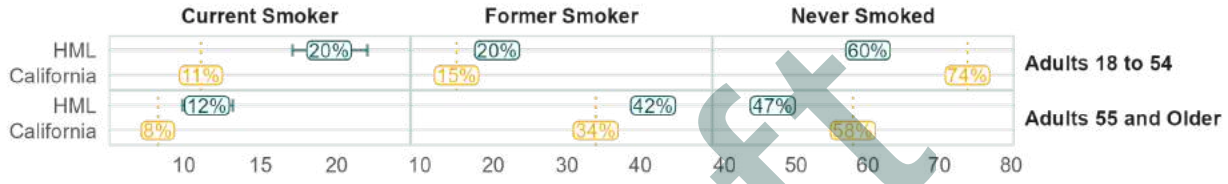
[9] Disability rates by race and ethnicity are presented in Appendix C.

Lung Cancer and Chronic Lower Respiratory Disease

Cigarette smoking is the main cause of lung cancer and COPD— a leading respiratory disease— and a risk factor for asthma (Mayo Clinic: "Lung Cancer;" Mayo Clinic: "COPD;" American Lung Association, "Asthma Causes and Risk Factors"). The data presented below from various sources reveals significantly and substantially higher smoking rates across the region. Notably, the proportion of current smokers among adults aged 18 to 54 in the Redwood Coast region is nearly double the state average. This striking disparity indicates that smoking may play a crucial role in explaining and addressing the region's elevated rates of cancer, lung cancer, and respiratory illnesses.

Figure 4.1

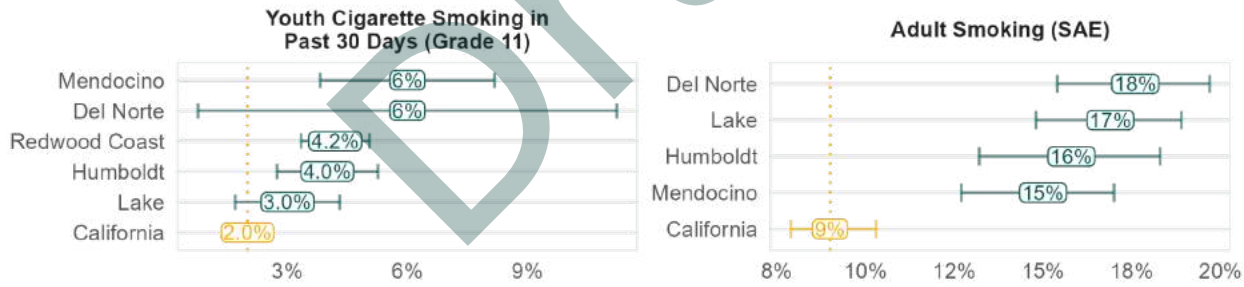
Smoking Rates (2011 - 2022)



Note. Data sourced from the CHIS.

Figure 4.2

Smoking, Percent of Population (Youth Data 2019 - 2021, Adult Estimates 2020)



Note. Estimate adult data sourced from CHRR. Estimated adult smoking data are model-based predictions. Youth smoking data were sourced from CalSCHLS "Secondary Student: Substance Use" data portal.[10]

Heart Disease

According to the CDC, the primary risk factors for heart disease include high blood pressure, high LDL cholesterol, diabetes, unhealthy diet, physical inactivity, obesity, smoking, and

[10] Youth smoking data are based on surveys of 11th grade students in participating school districts within each county. Youth smoking is defined as students who responded that they had consumed cigarettes in the past 30 days. Confidence intervals were calculated by the author.

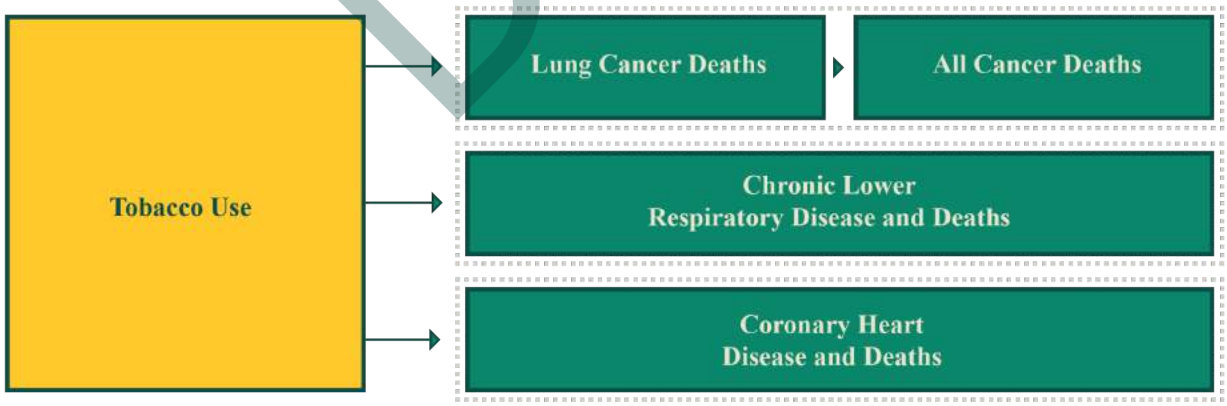
exposure to secondhand smoke ("Heart Disease and Stroke"). As previously shown, the available evidence indicates that rates of high blood pressure, high cholesterol, and diabetes in the region are comparable or superior to state averages (see Appendix C and "Health Conditions"). Additionally, although limited in scope, CHIS data suggest that diets in Humboldt, Mendocino, and Lake (HML) counties are on par with or, in some cases, better than the statewide average, and indicators of physical activity in these counties are similar or superior to statewide averages across these counties (see Appendix D)[11]. While the data for Del Norte are more limited, these data suggest that food access in Del Norte is more limited and rates of physical inactivity are somewhat higher. However, while diet and exercise may be contributing factors for Del Norte county, this evidence highlights obesity and smoking as key concerns for heart disease regionwide.

Studies reveal that smoking poses a greater risk for heart disease compared to obesity (Benis, et al., 2016). Furthermore, estimated differences between the region and the state in terms of obesity rates reach a maximum of approximately 1.13 times higher than the state average. In contrast, smoking rates are 1.5 to 1.8 times higher, strongly indicating that smoking is a critical factor contributing to the region's elevated rates of coronary heart disease.

The following diagram depicts these health disparities and the proximate risk factors potentially associated with them. Among these health outcomes, tobacco use stands out as a widely recognized and prominent risk factor and data strongly indicate that rates of smoking are significantly and substantially higher in the region.

Figure 4.3

Proximate Risk Factors for Disparities in Health Outcomes



[11] Data for Del Norte are more limited, but the available data do not rule out diet and physical inactivity as contributing factors to the disparity in heart disease between Del Norte and the state.

Mental Health and Substance Use

As previously identified, the region exhibits elevated rates of accidental (unintentional injuries), drug-induced deaths, motor vehicle accidents, liver disease, suicides, and firearm-related deaths. Further analysis below reveals that these disparities in health outcomes align closely with the heightened prevalence of mental health challenges and substance use-related issues within the region, challenges that may also help to explain the elevated rates of disability observed in the region.

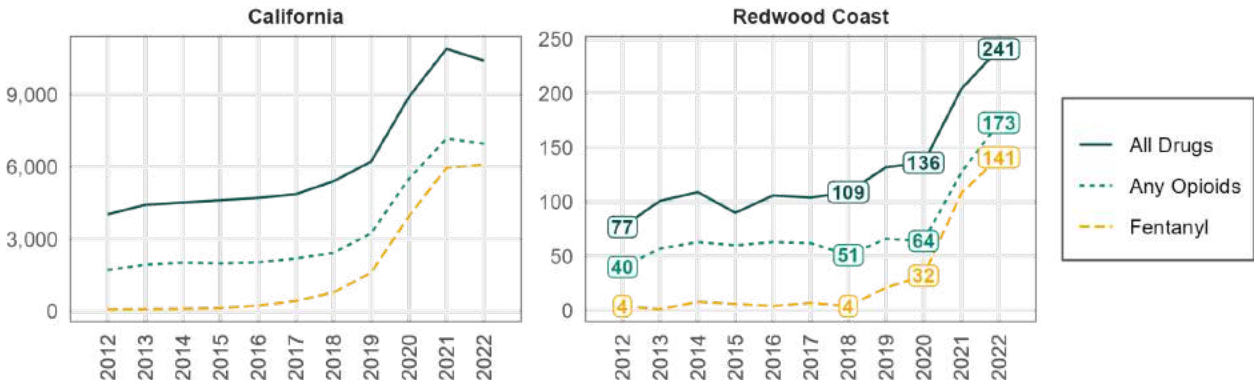
Drug-Induced Deaths

The category of unintentional injuries includes unintentional poisoning or drug overdose, alcohol poisoning, motor vehicle accidents, and other unintentional injuries. Nationally, unintentional poisoning, including drug overdose, has emerged as the leading cause of death within the unintentional injury category, a trend that began in the mid-1990s. However, since the mid-1990s and continuing to the present, unintentional poisoning deaths, particularly from drug overdoses, have risen sharply. As of 2021, nationwide data indicates that poisoning, such as drug overdoses, accounted for more than half of all unintentional injury deaths, followed by motor vehicle accidents (CDC)[12]. Consequently, the region's elevated rates of drug-induced and motor vehicle deaths likely contribute substantially to the higher prevalence of unintentional injury deaths within the region.

As shown in the figures below, drug-induced deaths have risen sharply in the Redwood Coast region starting around 2018. This rise in overdose deaths has been sharply exacerbated by the fentanyl epidemic in recent years. Statewide, fentanyl deaths have risen exponentially starting around 2017 and now account for over half of statewide overdose deaths. Similarly, fentanyl deaths have also risen exponentially in the Redwood Coast region and now account for roughly half of all drug overdose deaths.

Figure 4.4
Fentanyl Overdose Deaths (2012 - 2022)

[12] A 2019 report for Humboldt County found findings that indicate a similar trend, with the largest component being overdose, followed by motor vehicle crash injury deaths (source). This report also found that the majority of the disparity between unintentional injury mortality rate and the state is attributable to these two causes of death.

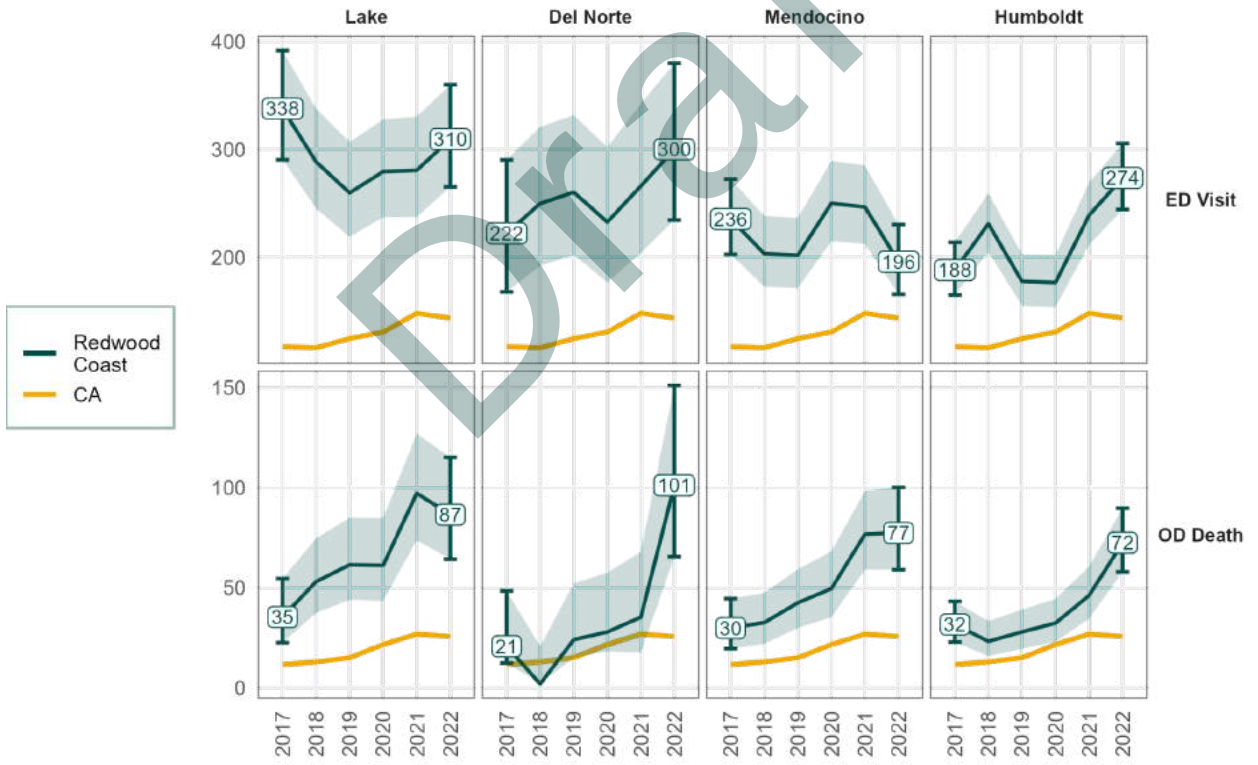


Note. Data sourced from the CDPH's "California Overdose Surveillance Dashboard."

The crisis appears to be significantly and substantially worse in the Redwood Coast region compared to the state. As shown below, drug overdose emergency department (ED) and overdose (OD) death rates are significantly higher than the state rate across the region.

Figure 4.5

Age-Adjusted Drug Overdose Rate per 100,000 (2017 - 2022)



Note. Data sourced from the CDPH's "California Overdose Surveillance Dashboard." Shaded regions and bars represent confidence intervals. Confidence intervals were provided by the data source.

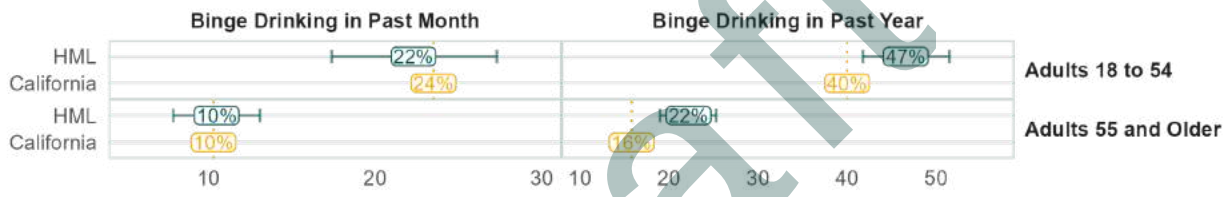
Liver Disease and Cirrhosis

Rates of liver disease deaths are elevated across the region. Moreover, as shown in Appendix C, rates of liver disease mortality have increased in recent years statewide; in the Redwood Coast region, this increase is occurring faster than the state in all but Humboldt, highlighting the urgency of addressing this worsening trend.[13]

According to the Mayo Clinic, heavy alcohol consumption is a leading risk factor for liver disease ("Liver Disease"). As shown below, multiple data sources collectively signal higher rates of excessive drinking. CHIS binge drinking data is somewhat limited, however at least one CHIS heavy drinking variable indicates higher rates of binge drinking.[14] Additional data sources show binge drinking among youth is sharply and significantly higher than the state average while SAE estimation techniques suggest substantially higher rates of binge drinking among adults.

Figure 4.6

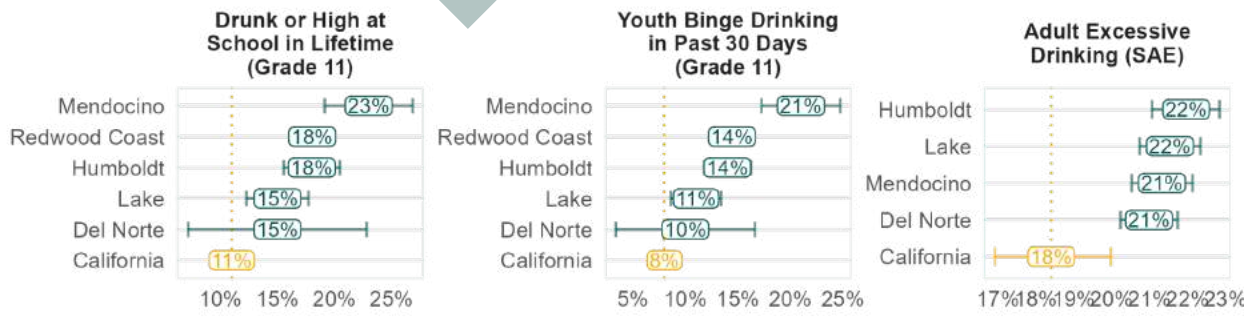
Binge Drinking in Past Year (Left 2021 - 2022, Right 2011 - 2015)



Note. Data sourced from the CHIS. The proportion of adults who had at least one episode of binge drinking in the past year. Binge drinking is defined as five or more drinks for males and four or more for females within two hours.

Figure 4.7

Alcohol Use Indicators (Adult Excessive Drinking 2020, Youth Data 2017 - 2019)



[13] The 2019-2021 CDPH data release compared to the 2017-2019.

[14] Adult binge drinking data from CHIS is limited to only a few years. Data collected between 2021 and 2022 on recent binge drinking show rates consistent with state averages but with wide confidence intervals reflecting the limited duration of data collection. CHIS data collected between 2011 and 2015 show higher rates of binge drinking in the past year.

Note. Estimate adult data sourced from CHRR. Estimated adult binge drinking data are model-based predictions. Youth binge drinking data were sourced from CalSCHLS "Secondary Student: Substance Use" data portal.[15]

Another critical risk factor for liver disease results from hepatic infections from injection drug use (Mayo Clinic: "Liver Disease"). Hepatitis C is primarily transmitted through sharing needles, and a 2018 report from the CDPH reveals that rates of hepatitis C in the Redwood Coast region are the highest in the state (see Appendix C).

Substance Use and Motor Vehicle Deaths

As shown previously, motor vehicle mortality rates are sharply elevated across the region. Traffic safety ranking data from the California Office of Traffic Safety (OTS) reveal factors potentially contributing to the region's elevated rates of motor vehicle traffic fatalities (2023). These data reveal a clear trend toward a higher risk of pedestrian, hit-and-run, nighttime, and alcohol-involved fatal and injury traffic accidents in the Redwood Coast.

Figure 4.8

OTS Crash Risk Rankings, 2017 - 2020 Average

	Lake	Del Norte	Humboldt	Mendocino	Redwood Coast Avg.
Total Fatal and Injury	28.2	28.8	37.8	38.5	33.3
Pedestrians	22.8	26.5	2.0	17.2	17.1
Hit and Run	25.0	17.2	12.0	20.2	18.6
Alcohol Involved	14.2	34.2	21.2	8.8	19.6
Nighttime	25.0	25.5	16.5	20.8	21.9
Motorcycles	26.5	27.8	23.8	30.5	27.1
Bicyclists	46.5	18.8	15.5	44.0	31.2
Speed Related	39.0	22.5	52.8	35.8	37.5

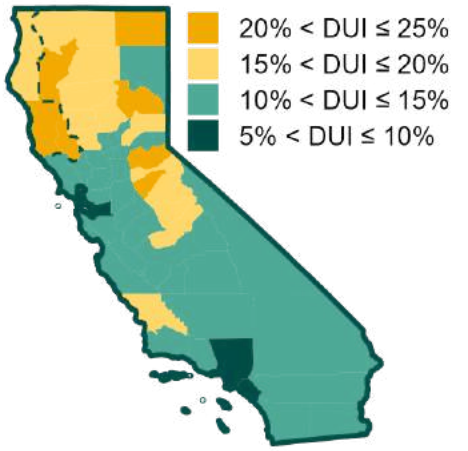
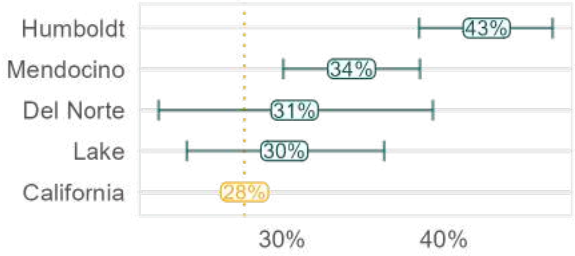
Top 10 (Worst)
10 < OTS ≤ 20
20 < OTS ≤ 30
30 < OTS ≤ 40
40 < OTS ≤ 50
50 < OTS ≤ 58 (Best)

Note. Data sourced from the OTS. The OTS ranks each California county from 1 (worst) to 58 (best) for each criteria above. Gold and yellow indicate higher risk. These rankings are averaged over the four years of data available from the OTS from 2017 through 2020. Nighttime is defined as occurring between 9pm and 2:59am.

Two additional data sources highlight the role of substance use in traffic safety in the Redwood Coast. As shown below, driving under the influence (DUI) crashes account for a greater proportion of all vehicle crashes (including those without injury) compared to the majority of the state. Furthermore, alcohol-involved driving deaths are higher across the region.

[15] Youth binge drinking data are based on surveys of 11th grade students in participating school districts within each county. Youth binge drinking is defined as five or more drinks during a period of "few hours". Confidence intervals were calculated by the author.

Figure 4.9

Drug and/or Alcohol DUI as a Percent of All Crashes (2012 - 2021)	*Percent of Driving Deaths Involving Alcohol (2016 - 2020)*
	
Note. Data sourced from TIMS. Includes both alcohol and drug DUIs.	*Note. Data sourced from CHRR.*

A national study suggests a clustering of pedestrian, hit-and-run, and nighttime accidents around a common risk factor: late night alcohol use. This study also reveals that nearly one-fifth of pedestrian traffic fatalities in the United States are the result of a hit-and-run, and that fatal pedestrian hit-and-runs are far more likely to occur during the evening and involve alcohol use (Arnold et al., 2010).

While there are certainly other factors contributing to the region's elevated motor vehicle crash fatalities, substance use appears to play a critical role in the region's elevated motor vehicle deaths and— along with drug-induced deaths— unintentional injuries deaths as well.[16,17]

Suicide Ideation, Suicides, and Firearm-Related Deaths:

The previous section revealed higher rates of both suicides and firearm-related deaths in the region. On a national scale, suicides constitute more than half of firearm deaths, followed by homicide, whereas less than three percent of firearm deaths are unintentional (Gramlich, 2023).

[16] Another factor not captured above, but particularly salient in the rural Redwood Coast context, is emergency medical service (EMS) response times. EMS response times are significantly associated with motor vehicle mortality rates (Byrne et al., 2019). Research indicates a 1.46 times greater risk of mortality for an EMS response time of 12 or more minutes compared to seven or fewer. A national study found that the median EMS response time is six minutes in urban or suburban regions and 13 minutes in rural areas. This study also found that 10% of EMS response times were 26 minutes or longer in rural areas (Carr et al., 2017).

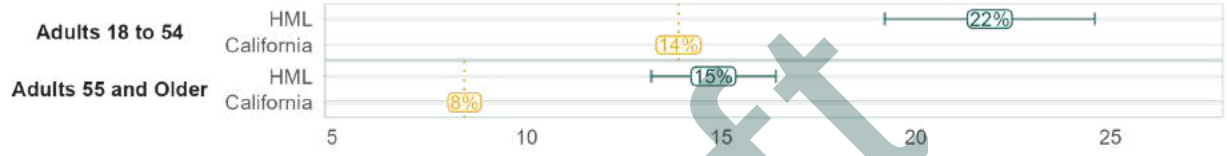
[17] Motor vehicle deaths are included in unintentional injury deaths.

Furthermore, a 2022 report found that roughly half of Humboldt County suicides occurring between 2005 and 2021 were by firearm (source). Consequently, the region's heightened firearm-related deaths may be largely influenced by its elevated suicide rate.

As shown below, multiple data sources also strongly signal higher risk factors for suicide. Both youth and adults are more likely to report having considered suicide, and youth in the region are more likely to have reported feelings of sadness across the Redwood Coast. Studies have shown a strong link between suicide ideation and completion (Dekkers, et al., 2018); therefore, suicide ideation provides a proximate explanation for both the region's elevated suicide rate and elevated firearm-related deaths.

Figure 4.10

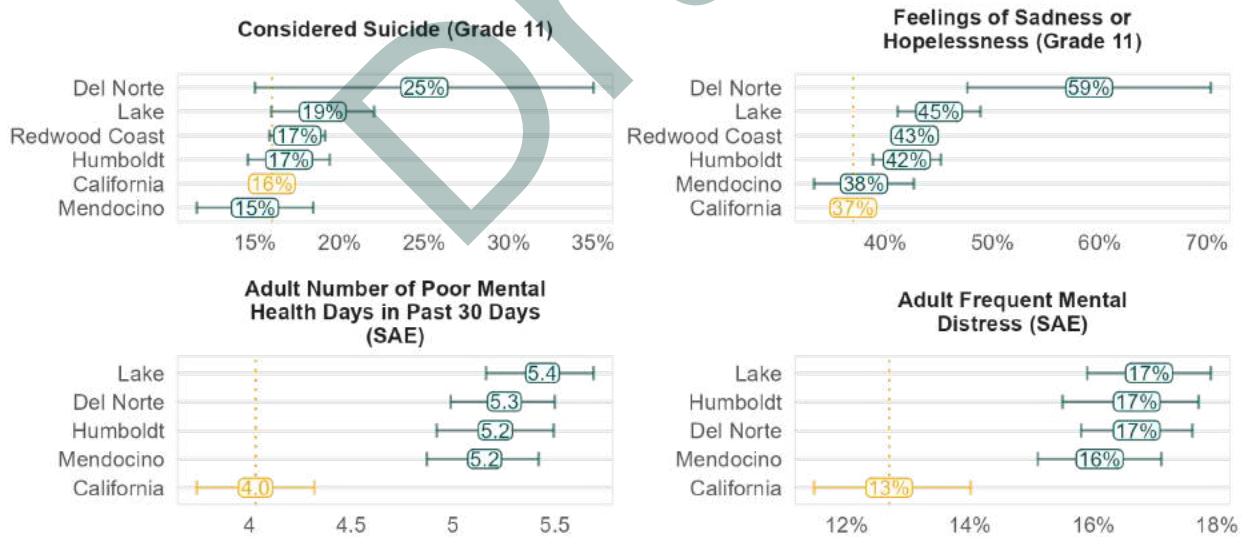
Have you ever seriously thought about committing suicide? (2011 - 2022)



Note. Data sourced from the CHIS.

Figure 4.11

Mental Health Indicators (Adult Estimates 2020, Youth Data 2017 - 2019)



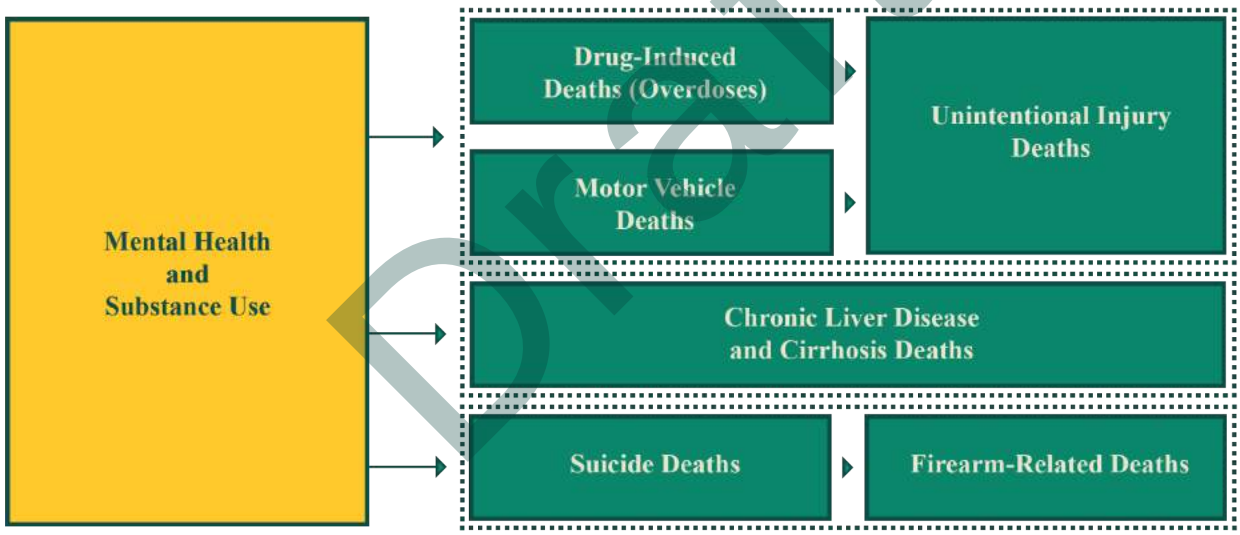
Note. Estimate adult data sourced from CHRR. Youth data were sourced from CalSCHLS "Secondary Student: Substance Use" data portal.

It may be that mental health and substance use are also factors contributing to the region's elevated rates of disability, particularly among adults 18 to 34. Both mental health and substance use disorders are leading causes of disability and *the* dominant causes of disability among adults younger than 35, accounting for over 35% of years lived with disability nationwide (National Center for Complementary and Integrative Health). See Appendix C for further analysis of disability rates.

The figure below illustrates the health outcomes, proximate factors, and relationships explored in relation to mental health and substance use. Amongst the leading causes of illness and death, mental health and substance use appear to play either a direct or indirect role in contributing to many of the disparities in health outcomes in the region. Along with the analysis of tobacco use illustrated previously, those health outcomes with the strongest disparity between the Redwood Coast and the state appear to be strongly influenced by tobacco use, substance use, and mental health factors.

Figure 4.12

Mental Health and Substance Use are Contributing Factors to Disparities in Health Outcomes



Takeaways

1. The evidence indicates that rates of mental illness, substance use, and tobacco use are elevated relative to the state.
2. Health outcome disparities between the region and the state are largely consistent with these elevated mental and behavioral health challenges.

Section 5. ECONOMIC, SOCIAL, INSTITUTIONAL, AND ENVIRONMENTAL FACTORS

The Social Determinants of Health (SDOH) is a popular framework for conceptualizing non-medical factors that influence health outcomes. This framework typically encompasses five key themes: economic stability, educational access, health access, neighborhood environment, and the social context (Healthy People 2030). The following section analyzes factors drawn from this framework and also considers related factors that are broadly discussed in the region's community health assessments.

A review of the region's community health planning documents reveals several emergent health factors within the context of the social determinants of health summarized below.

Figure 5.1

Public Health Planning Document Themes

Socioeconomic Factors	Social Factors	Healthcare Barriers
• **Poverty** and/or **Employment** (Del Norte, Mendocino, Lake) • **Housing issues** (Humboldt, Mendocino, Lake) • **Food issues** (Humboldt, Del Norte, Lake)	• **Adverse childhood experiences, child abuse** (Del Norte, Mendocino) • **Domestic violence** (Del Norte)	• **Lack of providers, access to care** (all) • **Lack of mental or behavioral health providers** (Humboldt, Del Norte) • **Lack of dental care providers** (Del Norte)

While this study does not attempt to establish direct cause-and-effect relationships between these factors and the proximate risk factors or health outcomes discussed earlier, it does investigate the connections between these factors and the proximate determinants and health outcomes. This inquiry serves a dual purpose: firstly, to ascertain whether substantial disparities exist between the state and the region for each factor addressed below, and secondly, where data allows, quantify the strength of the association between these risk factors and the health behaviors and outcomes previously examined. This serves the overarching goal of not only identifying potential adverse disparities but also, by assessing the strength of these relationships, determining populations that are most at risk.

Socioeconomic Factors

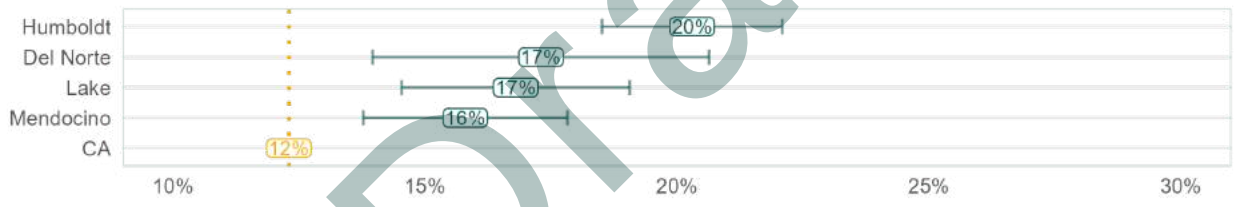
Poverty

Economic conditions strongly influence health disparities. Poverty is linked to lower life expectancy and increased health risks related to obesity, smoking, substance use, and chronic stress (Healthy People 2030). Child poverty is particularly detrimental to health and well-being. Children raised in low-income households face multiple adverse conditions that harm their health and contribute to a cycle of economic disadvantage. These conditions include impaired early childhood brain development, obstacles to learning and social functioning, and increased behavioral problems (Damon). Children in poverty are also more likely to suffer from lead poisoning, experience abuse, neglect, hunger, drop out of high school, or become teenage parents (Aber et al., 2012).

As shown below, poverty rates are sharply higher in the Redwood Coast compared to the state rate. Furthermore, data presented in Appendix E show that poverty rates are particularly high among children and youth as well as people of color and Hispanic populations.

Figure 5.2

Poverty Rates (2017 - 2021)



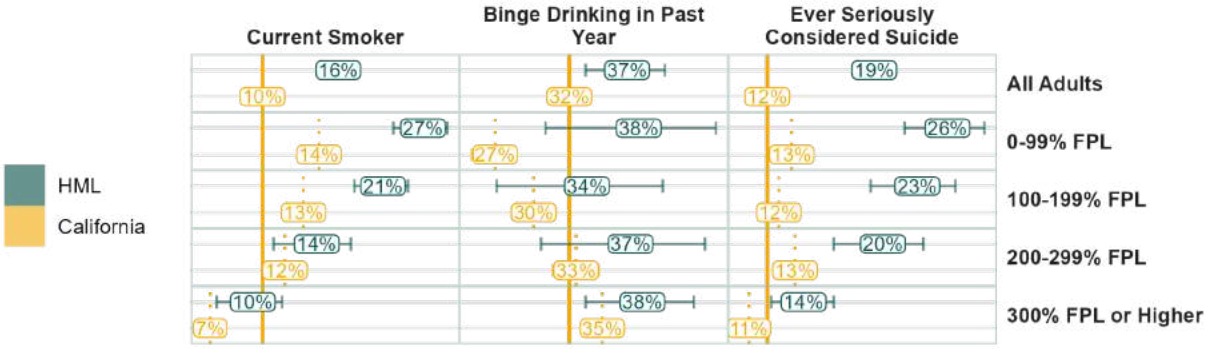
Note. Data sourced from the ACS.

As shown below, poverty in the Redwood Coast appears to be strongly connected with two proximate risk factors including smoking and suicide ideation. Nearly 27% people living below the poverty line in the region are current smokers compared to just 15% statewide. Similarly, 26% of people living below the federal poverty level (FPL) have seriously considered suicide.

Statewide, recent binge drinking is *positively* associated with income, a finding that is not uncommon of studies linking socioeconomic status to heavy drinking (Collins, 2016). Regionally, those with incomes above the poverty line have rates of binge drinking consistent with state rates. However, among those below the poverty line have rates of binge drinking that are significantly higher compared to those in the same income bracket statewide.

Figure 5.3

Proximate Risk Factors by Income Range (2011 - 2021, Binge Drinking 2011 - 2015)



Note. Data sourced from the CHIS. FPL refers to the federal poverty line.

While a causal mechanism, if any, between smoking, suicide ideation, and poverty is unclear, those with low or moderate incomes are at much greater risk of these risk factors in the Redwood Coast. Therefore, policies intended to address these risk factors should have a focus on these income groups.

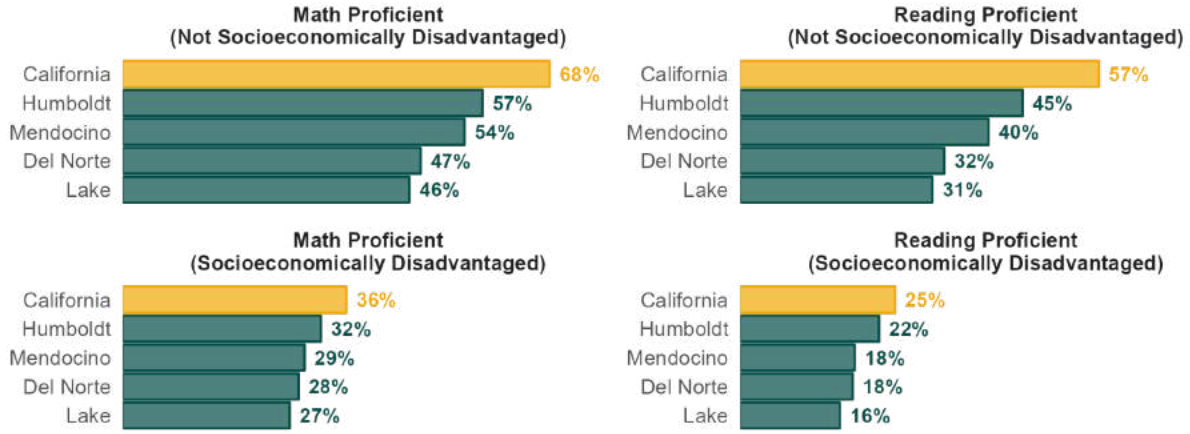
Educational Access and Outcomes

Statistically, people with higher levels of education live longer and have lower all-cause mortality rates. While the link between health and education is debated, research suggests that individuals with higher education levels are less prone to certain *preventable* illnesses/mortalities and tend to live longer (Braveman et al., 2010; Goldman & Smith, 2011; Montez, Hummer, & Hayward, 2012; Olshansky et al., 2012). Education is strongly linked to mortalities from lung cancer, respiratory diseases, homicides, and certain accidents, whereas the link is less strong for causes of death that are less preventable such as cancers other than lung cancer (Hernandez and Hummer, 2013). In recent decades, smoking has become strongly associated with education levels. In the late 1960s, approximately 40% of college-educated people smoked compared to 45% of people without a college education, but the proportion of college graduates who smoke has fallen faster than that of those without a college degree. More recently, just 6.5% of college graduates smoke compared to 23.1% for those with a high school diploma or less (Cahn et al., 2018). Therefore, factors tied to preventable and behavioral risk appear to influence the relationship between health and education.

According to Healthy People 2030, target objectives for improving educational access include improving high school graduation rates, increasing college enrollment, and improving math and reading proficiencies in K-12 students (“Education Access and Quality”). As shown below, in the Redwood Coast, gaps in educational attainment start early, with K-12 students lagging behind their statewide peers on reading and math proficiency.

Figure 5.4

K-12 Math and Reading Proficiency by Socioeconomic Status (2017 - 2019)

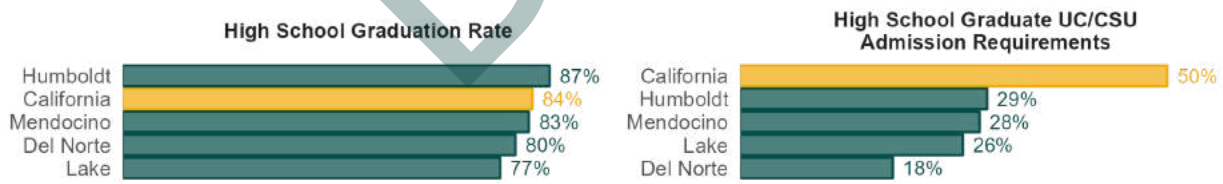


Note. Data sourced from Kidsdata.org. Includes grades 3, 4, 5, 6, 7, 8, and 11. Based on California Assessment of Student Performance and Progress's 'Smarter Balanced Summative Assessment'.

In the Redwood Coast, high school graduation rates are on par with the state rate, but high school graduates in the region are much less prepared for college admission compared to the state average. Across the region, high school graduates complete the course requirements for admission to the University of California (UC) or California State University (CSU) systems (i.e. "A–G courses") at roughly half the rate of their statewide counterparts.

Figure 5.5

High School Graduation Rates and College Preparedness (2017 - 2021)



Note. Data sourced from Kidsdata.org[18].

Correspondingly, except for Del Norte,[19] the adult population has achieved high school graduation rates that are on par with or even exceed the state average. However, all Redwood

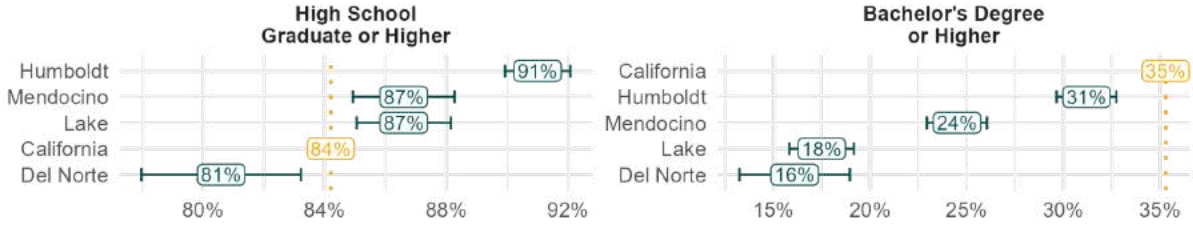
[18] Admission requirements data including only 2017-2019. Percents are annual averages. High school graduation rate is defined as the percentage of public school students from the graduating class who receive a high school diploma. Admission requirements is defined as the percentage of high school graduates who complete all courses required for UC/CSU admission with a grade of "C" or better

[19] Del Norte's figure is likely substantially skewed by the Pelican Bay State Prison population.

Coast counties lag behind in four-year degree attainment. Therefore, while the region fairs relatively well in terms of high school graduation, it appears that the educational system faces challenges in preparing high school graduates for college.[20]

Figure 5.6

Educational Attainment, Population 25 Years or Older (2017 - 2021)

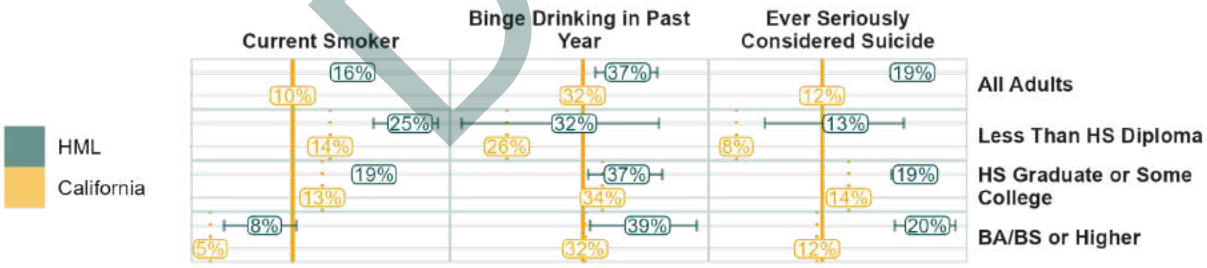


Note. Data sourced from the ACS.

With respect to the health challenges for the region, educational attainment appears to be strongly associated with tobacco use.[21] Both in the region and across the state, smoking rates decrease significantly as educational attainment increases— however, this relationship is particularly strong in the Redwood Coast. One in four individuals with less than a four-year college degree is a current smoker in the Redwood Coast, compared to just 14% statewide. Therefore, to combat tobacco use effectively in the region, it is crucial to focus efforts on adults with lower levels of education and on young people who may be facing academic difficulties.

Figure 5.7

Proximate Risk Factors by Education (2011 - 2022, Binge Drinking 2011 - 2015)



Note. Data sourced from the CHIS.

[20] Another contributing factor for the gap in higher educational attainment may be a comparative lack of four-year colleges and universities that are geographically accessible for much of the population in the region. Only Humboldt County is home to a public four-year university.

[21] Alcohol use and suicide ideation do not exhibit clear relationships with educational attainment. Rates of both appear to be *lower* among those with less than a high school education.

Social Factors

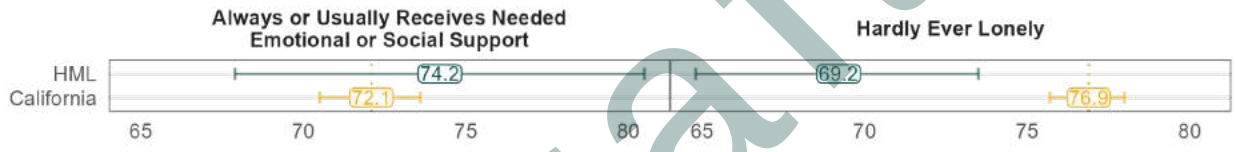
Social Isolation

A recent Surgeon General report brought national attention to health impacts of social isolation and loneliness, raising the issue as urgent and requiring 'immediate awareness and action'. The report documents the health risks of social isolation and loneliness including a wide range of physical and mental health outcomes including cardiovascular disease, hypertension, diabetes, infectious disease, cognitive decline, depression, and anxiety (U.S. Surgeon General, 2023).[22,23]

Data on loneliness at the local level is scarce. However, as shown below, data from CHIS indicate that loneliness among adults 65 and over significantly fewer indicates hardly ever feeling lonely, suggesting that the experience of loneliness among the elderly population is more prevalent in HML.

Figure 5.8

Loneliness, 65+ (2019 - 2020)



Note. Data sourced from the CHIS.

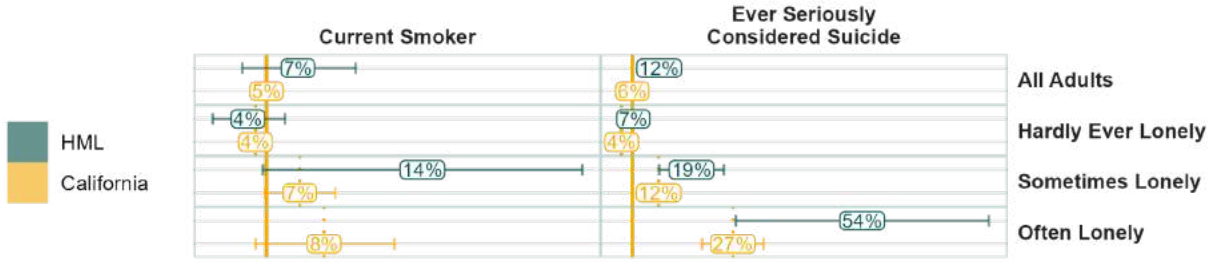
As shown below, older adults who experience loneliness are at higher risk of smoking and suicide ideation. In particular, over half of Redwood Coast seniors who report often feeling lonely have seriously considered suicide, significantly and substantially higher than those who report sometimes feeling lonely or hardly ever feeling lonely. Therefore, older Redwood Coast residents who indicate that they often feel lonely appear to be at high risk for one of the region's most elevated causes of death.

Figure 5.9

Proximate Risk Factors by Loneliness, Age 65+ (2019 - 2020)

[22] The Surgeon General defines **social isolation** as "Objectively having few social relationships, social roles, group memberships, and infrequent social interaction. (2023)".

[23] The Surgeon General defines **loneliness** as "A subjective distressing experience that results from perceived isolation or inadequate meaningful connections, where inadequate refers to the discrepancy or unmet need between an individual's preferred and actual experience (2023)".



Note. Data sourced from the CHIS. Smoking data not available for the "Often Lonely" category.

As shown in the figures below, significantly more householders live alone in the Redwood Coast, indicating greater levels of social isolation within the household context. Isolation is a critical risk factor for suicide, particularly among men who are are about four times more likely to commit suicide compared to women (CDC, 2023). Men who live alone are at elevated risk for suicide, and middle aged men living alone are two times more likely to die by suicide than men not living alone (U.S. Surgeon General). As shown in Appendix H, significantly and substantially more men in the HML region live alone, including middle aged men.

Figure 5.10

Householders Living Alone, Percent of Households (2017 - 2021)

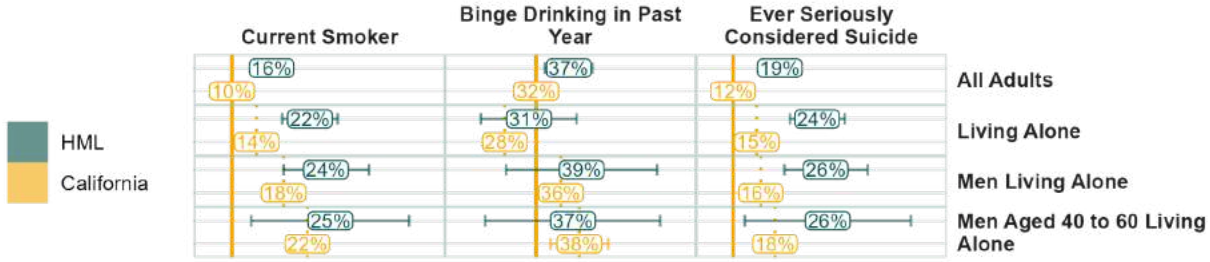
Note. Data sourced from the ACS.

As shown below, living alone appears to be positively associated with smoking and suicide ideation, with 22% of adults living alone being a current smoker, and nearly a quarter of adults living alone having considered suicide. Conversely, living alone does not appear to be related to recent binge drinking.

While there is only a slightly higher rate of suicide *ideation* among men who live alone, studies show that men tend to be more likely to die from a suicide attempt compared to women, as men tend to choose more lethal means of suicide such as firearms (National Institute of Mental Health). Therefore, while living alone does not appear to have a larger impact on the probability of suicide *ideation* on men compared to women, the impact that it has may be more likely to result in a completed suicide.

Figure 5.11

Proximate Risk Factors by Isolation, Gender, and Age (2011 - 2021)



Note. Data sourced from the CHIS.

Social isolation and loneliness appear to be potential risk factors for the health challenges in the region. Monitoring isolation and loneliness and promoting quality social connection may therefore be effective approaches to improving the health of the region.

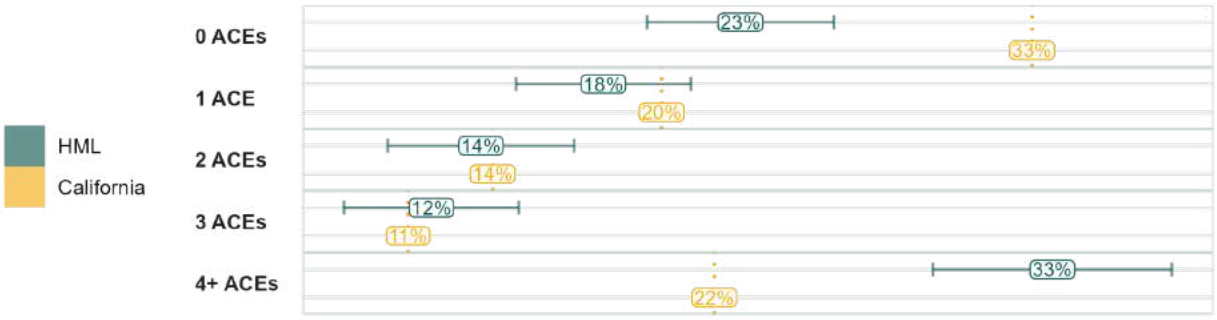
Adverse Childhood Experiences

Research has shown that childhood experiences have profound and lasting effects on health behaviors and outcomes later in life. People who have multiple adverse childhood experiences (ACEs) are at far greater risk of poor health outcomes or behaviors including depression, substance use, and tobacco use (Center on the Developing Child). ACEs include abuse and neglect as well as dysfunction in the household including mental illness, problematic substance use, violence against mothers, or imprisonment of a household member (Anda et al., 1998).

The probability of poor health outcomes increases with the number of ACEs in childhood in a dose-dependent fashion (see Appendix F). For example, an individual with one ACE is approximately 1.3 times more likely to have ever injected drugs compared to an individual with no ACEs. For an individual with four or more ACEs, however, this likelihood profoundly rises to 10.3 times. Studies show that ACEs are strongly associated with a higher prevalence of all proximate risk factors identified in this report including tobacco use, substance abuse, and mental health challenges.

The proportion of adults with four or more ACEs is significantly and substantially higher in the Redwood Coast compared to the state average, while the percentage of adults with zero ACEs is significantly lower. Furthermore, as shown in Appendix F, recent data reveals that rates of domestic violence and child abuse are elevated across the region, indicating that the region's youth are at risk for ACEs.

Figure 5.12
Number of ACEs Among Adults, Percent of Population (2021 - 2022)

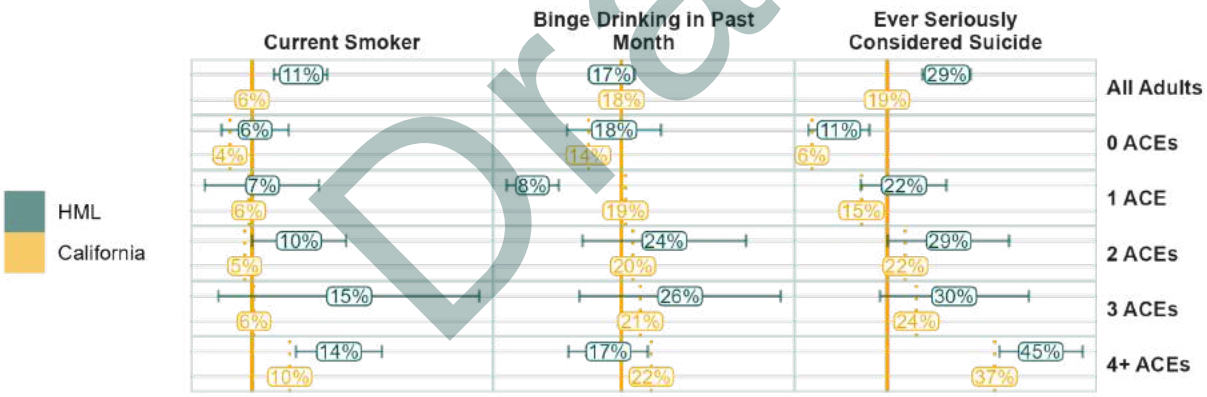


Note. Data sourced from the CHIS.

Statewide, smoking, recent binge drinking, and suicide ideation are positively associated with ACEs. Regional estimates, while subject to more statistical variation, indicate a similar trend. In particular, 45% of Redwood Coast adults with four or more ACEs have seriously contemplated suicide during their lives compared to just 11% of Redwood Coast adults with no ACEs and 6% of California adults with no ACEs. Therefore, Redwood Coast residents indicating multiple ACEs are at high risk for one of the region's most elevated causes of death.

Figure 5.13

Proximate Risk Factors by Number of ACEs (2021 - 2022)



Note. Data sourced from the CHIS. ACEs data are available only for 2021. To make cross variable comparisons, the data must share a year in common. Binge Drinking in the Past Month is available for the 2021 year whereas Binge Drinking in the Past Year is not. Current Smoker with 1 ACE is statistically unreliable.

Due to the relationship between ACEs and future health behavior and outcomes endemic in Redwood Coast, these findings present a potential root factor that may explain some of the region's elevated tobacco use, substance use, and suicide risk. Therefore, interrupting the cycle of ACEs and subsequent health consequences may present a powerful opportunity for improving the long-term health of the region. In particular, the CDC estimates that prevention of ACEs has

the potential to reduce depression by 44%, smoking rates by 33%, heavy alcohol use by 24% as well as making substantial improvements in corresponding health outcomes such as COPD and improvement in economic well-being (2021).

The Centers for Disease Control (CDC) has identified strategies and approaches to help prevent or reduce the impact of ACEs. These approaches are discussed further in "Policy Focus Areas and Recommendations".

Community and Institutional Factors

Homelessness

People experiencing homelessness face a significantly higher risk of premature death, chronic disease, depression, and substance use (Collins 2016).[24] While the data presented below indicate an elevated level of homelessness in the Redwood Coast, it is important to acknowledge that tracking and measuring homelessness is a complex task, leading to limitations and uncertainties in these figures. Nevertheless, these indicators suggest an elevated homelessness rate across the region compared to the rest of California.

As shown below, homeless point-in-time (PIT) data from the Department of Housing and Urban Development (HUD) reveal that homelessness on a per capita basis in the region exceeds the state average across the region.[25] These data do not include Del Norte, however, a 2023 report from the NorCal CoC region found 694 homeless in Del Norte amounting to a rate of 2,525 per 100,000 population (source).

Figure 5.14
Total Counted Homeless per 100,000 Population by Continuum of Care (2016 - 2020)[26]

[24] By some estimates 9 to 10 times higher than the general population.
[25] HUD compiles reported homeless counts gathered by regional participants of the Continuum of Care (CoC) program throughout the U.S. During a 24-hour period in the first ten days of January each year, CoC participants conduct a Point-in-Time (PIT) count of homeless people in their respective regions. These counts include both sheltered homeless as well as people living in areas not meant for habitation.
See Appendix I for a comparison of all Continuums of Care in California. Humboldt and Mendocino CoCs have the highest rates in the state.
[26] The 2021 data, which shows a dubious decline in measured homelessness, are deliberately excluded. These data are not comparable to prior year estimates due the the effects of COVID restrictions. Many shelters, for example, reduced capacity in response to CDC COVID-19 guidelines, reducing the headcount of sheltered homeless (U.S. Department of Housing and Urban Development).

Note. Data sourced from the U.S. Department of Housing and Urban Development's datasets on Point-in-Time (PIT) estimates, a count of sheltered and unsheltered individuals experiencing homelessness. Data are 5-year averages from 2016 to 2020. Rates calculated by the author using population data are 5-year estimates from the ACS from 2016 to 2020. Population estimates are summed for each CoC service area by county.

Similarly, as shown below, an alternative data source indicates a greater proportion of youth homelessness among public school students across the region.

Figure 5.15

Homeless Public School Children (2011 - 2014 and 2016 - 2018)

Note. Data sourced from Kidsdata.org. Defined as the percentage of public school students recorded as being homeless at any point during the school year. Data for 2015 are not available.

While local data on the connection between homelessness and health is limited, state-level data reveals that homeless public school students have substantially higher rates of cigarette smoking, substance use, and suicidal thoughts compared to their non-homeless peers (CalSchls). Given the established health risks associated with homelessness, addressing smoking, substance use, and suicide prevention in the homeless population is crucial. Such efforts not only benefit individuals experiencing homelessness but also play a vital role in enhancing the overall health of the community.

See Appendix J for an assessment of housing affordability and availability. These data suggest a scarcity of housing as indicated by lower rental vacancy rates. However, except for Humboldt County, rental affordability (taking both rent and income into account) is consistent with the state average.[27]

[27] Humboldt County's affordability, as indicated by the percentage of the population paying 35% or more of their income on rent, is likely strongly influenced by the student population who statistically would have little or no income.

Food Environment and Nutrition

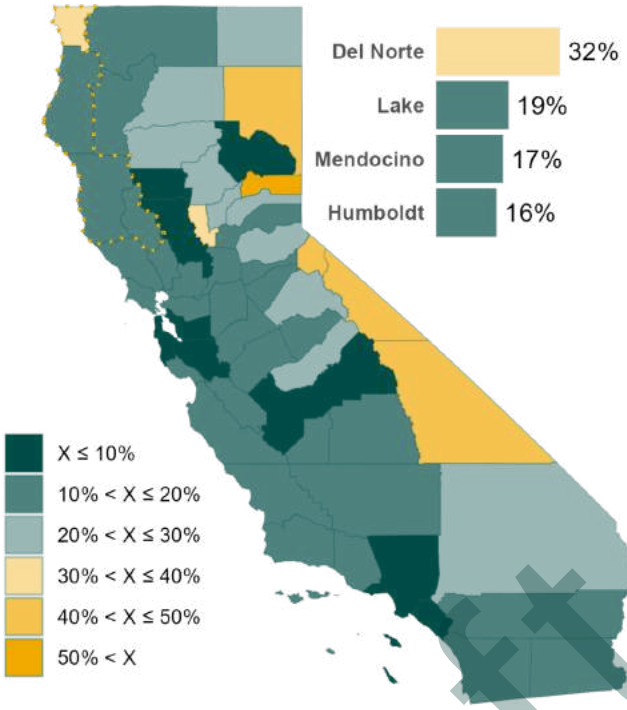
A healthy diet composed of limited portions of vegetables, fruits, whole grains, low fat dairy, proteins, and healthy oils is associated with lower all-cause mortality, cardiovascular disease, obesity, diabetes, breast and colorectal cancer (Healthy People 2030). Thus, barriers that prevent access to a healthy diet such as poverty, high prices, or transportation, may have an adverse influence on these health outcomes.

Rates of heart disease are elevated across the region along with somewhat elevated rates of obesity, breast cancer, and colorectal cancer.[28] Conversely, however, evidence suggested rates of diabetes consistent with or lower than state averages across the region. Food related health issues are raised in Humboldt, Del Norte, and Lake county health planning documents. In particular, a 2019 Del Norte Community Health Assessment found high rates of food insecurity in Del Norte, disproportionately impacting children (source).

As shown below, nearly one-third of the Del Norte population lives more than 10 miles from a grocery store. Although proximity in and of itself has been found to only have a moderate impact on diet, in the region's more extreme rural environments, distance and scarcity of options may compound with other factors such as poverty to create barriers to healthy food options that ultimately contribute to disease outcomes (Ploeg and Rahkovsky, 2016). Such barriers may be contributing factors to adverse food related health outcomes above.

Figure 5.16
Percent of Population Living More than 10 Miles from a Grocery Store (2015)[29]

[28] The most recent CDPH data release shows a lower rate of age-adjusted heart disease mortality in Del Norte County, however, the 2017-2019 data release shows higher rates in Del Norte. Moreover, CDC PLACES data suggest higher rates of heart disease in Del Norte County.
[29] USDA defines this as the "Percentage of people in a county living more than 1 mile from a supermarket or large grocery store if in an urban area, or more than 10 miles from a supermarket or large grocery store if in a rural area."



Note. Data sourced from the USDA Food Environment Atlas.

Unfortunately, what data are available strongly suggest that Del Norte is most impacted by food insecurity in the Redwood Coast, yet, CHIS data are not available for Del Norte County to further assess this county's most vulnerable populations. What data are available, for HML, indicate that dietary factors in the region appear to be strongly influenced by household income (see below). Consistent with statewide trends, higher income households are more likely to have local access to fresh produce and less likely to have recently consumed soda and fast-food.

For the HML counties, CHIS data suggest dietary outcomes are consistent with or superior to state averages across income strata, at least within the limited contexts of fast-food, soda, and fresh produce (see Appendix D for youth dietary outcomes).

Figure 5.17
Dietary Factors by Income Level (2011-2018)

Note. Data sourced from the CHIS. Fast Food data only include 2011-2016. Soda consumption data include only 2011-2017. FPL = federal poverty line.

Therefore, the available data suggest that food insecurity and dietary risks are greatest in Del Norte county and among low income households regionwide.

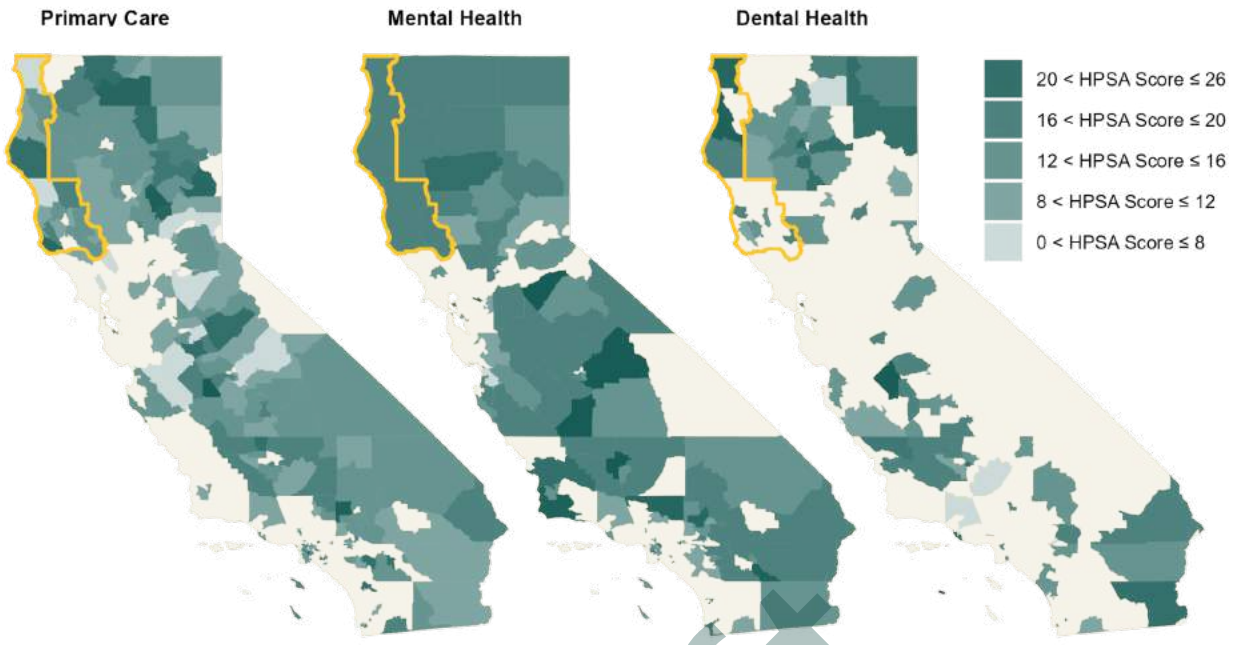
Healthcare Access and Barriers

The majority of the Redwood Coast is a designated Health Provider Shortage Area (HPSA): regions or populations identified by the U.S. Department of Health and Human Services (HHS) as having a shortage of primary care, mental health, or dental health providers.[30] As shown below, almost all of the region is a Primary Care HPSA, the entirety of the region is a Mental Health HPSA, and a substantial share is a Dental Health HPSA.

Figure 5.18
Health Professional Shortage Areas and Scores (2023)[31]

[30] These HPSAs are assigned a score, with scores ranging from 0 to 25 for Primary Care and Mental Health and from 0 to 26 for Dental Health, with higher scores indicating greater need. Factors considered in determining the score include the provider-to-population ratio, poverty rate, travel time to the nearest point of care outside of the region, and other factors relevant to the health field (Health Resources & Services Administration). HPSA scores for Primary Care also take into account indicators of infant health. Dental Health scores take into account water fluoridation status. Mental Health scores take into account the percentages of the population over 65 and under 18, alcohol abuse prevalence, and substance abuse prevalence.

[31] See national level maps made by the data provider located here: https://data.hrsa.gov/maps/map-gallery.



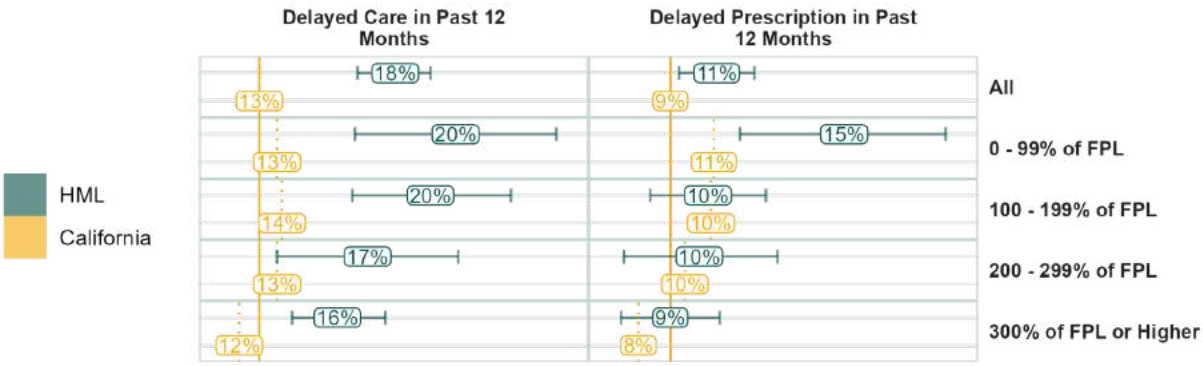
Note. Beige areas are not HPSAs. Blue areas are HPSAs, with darker hues indicating higher HPSA scores (or greater need). The Redwood Coast region is outlined in gold. Data sourced from the Health Resources and Service Administration's data on shortage areas, measuring HPSA areas in primary care, dental health, and mental health.

Access to timely care can prevent occurrence or exacerbation of disease through the prevention of modifiable risk factors, early detection of illness, and management of existing illness to prevent worsening symptoms (Olsen et al., 2010). Improved access to preventive services, including screenings for tobacco, alcohol, depression, and cancer, can lower mortality rates (Centers for Medicare & Medicaid Services, 2010). Conversely, however, delays in healthcare access have been linked to increased mortality (Pizer and Prentice, 2007).

As shown below, a significantly larger proportion of the Redwood Coast population has recently experienced delays in accessing primary healthcare in contrast to the state population. All income brackets experience higher rates of delayed care compared to the corresponding income groups statewide, however, there is a clear trend toward more delays among those with lower incomes. This trend indicates that the scarcity of healthcare impacts all socioeconomic strata, but disproportionately affects those with lower incomes. Moreover, those with incomes below the federal poverty line (FPL) are significantly more likely to have delayed a prescription compared to the same income category statewide, while those with higher income levels do not share this experience. Similar data in Appendix G show that all income strata report more 'difficulty' accessing care at rates significantly higher than the state rate

Figure 5.19

Delayed Healthcare, Percent of Total Population (Left 2011 - 2022, Right 2013 - 2022)



Note. Data sourced from the CHIS.

Delayed care may also be a factor in the region's elevated age-adjusted mortalities due to prostate cancer, breast cancer, and colorectal cancers. For all three, delayed care is associated with higher mortality (prostate_source, source_colon and breast).

Furthermore, CHIS data reveal a stark unmet need for care for those with mental health challenges. Among adults who have seriously considered suicide at some point in their lives, 42.5% (± 5.0%) have delayed care in the past 12 months compared to just 16.4% (± 2.4%) of HML adults who have never considered suicide.

See Appendix G for further analysis of the factors contributing to delayed care. These data and analysis suggest that factors such as transportation in addition to cost and insurance issues may be critical.

See Appendix C for an analysis of Humboldt County's elevated stroke mortality rate as it relates to the healthcare resources in the county.

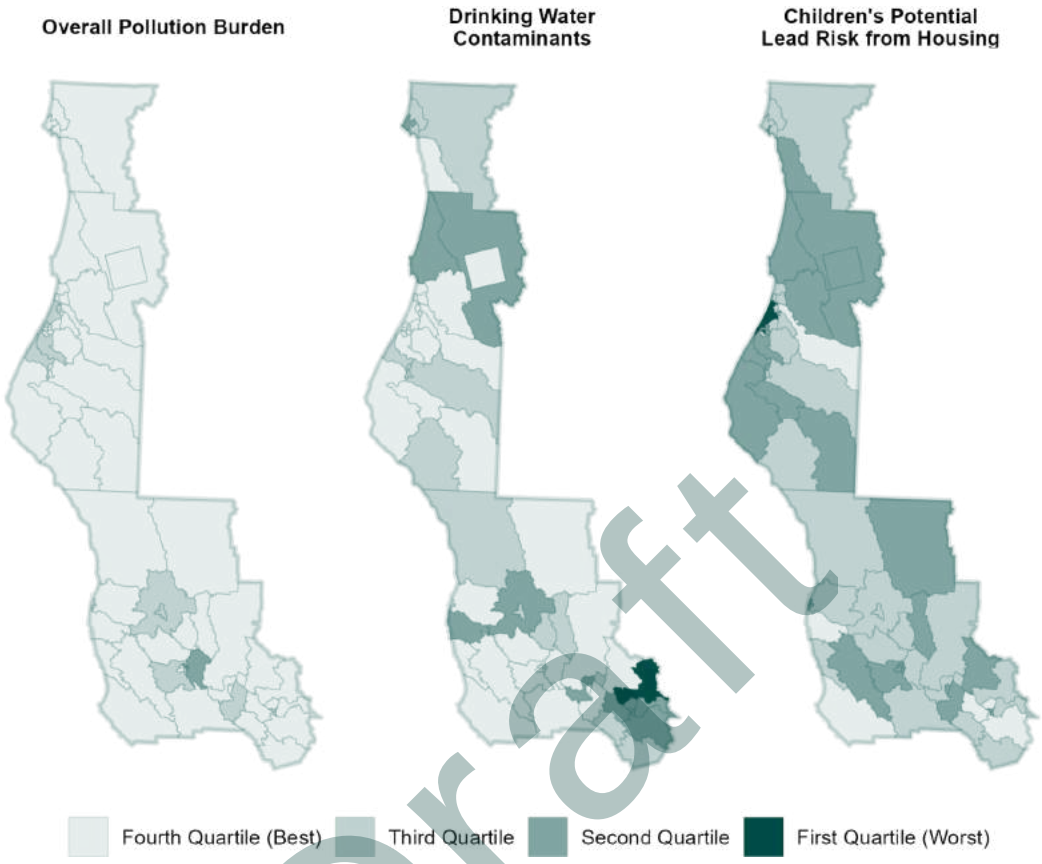
Environmental Factors

Environmental Quality Indicators

Environmental pollutants can contribute to respiratory disease, heart disease, and some cancers (Healthy People 2030, "Environmental Health"). As shown below, CalEnviroScreen 4.0 data indicate that overall the region's pollution burden is lower than the statewide estimates (see "Overall Pollution Burden" below). However, certain environmental risks are elevated in some areas of the region, including children's lead risk as well as drinking water contaminants. See Appendix K for all CalEnviroScreen 4.0 indicators.

Figure 5.20

CalEnviroScreen 4.0 Risk Factors



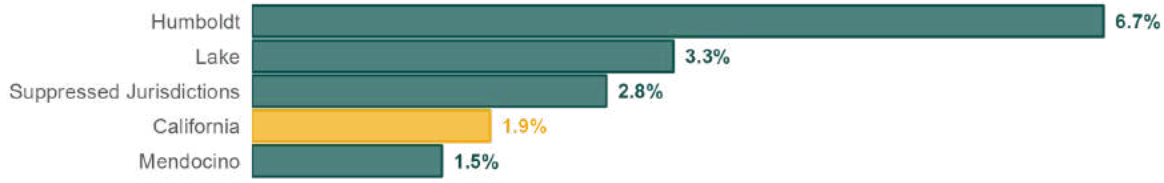
Note. Data sourced from CalEnviroScreen 4.0.

The data above suggest that children in the region may be more likely to be exposed to lead. However, it is critical to note that the CalEnviroScreen 4.0 "Children's Lead Risk from Housing" variable does not directly measure lead exposure, and instead infers a level of risk based on the incidence of child poverty and the age of housing structures.[32] An additional data source shown below, shows that children's blood lead levels (BLL) among children age 5 and under are elevated in Humboldt and Lake counties. Moreover, Humboldt's BLL levels are the second highest in the state.[33] CalEnviroScreen 4.0 data above suggest that the epicenter of lead risk in Humboldt County is in the Arcata-Eureka-Fortuna region.

Figure 5.21

Blood Lead Levels, Children 5 and Under

[32] Exposure to lead-based paint in older homes is the most significant source of lead poisoning in children (source).
[33] Second to Nevada County.



Note. Data sourced from CDPH. Suppressed jurisdictions include Alpine, Amador, Calaveras, Colusa, Del Norte, Glenn, Inyo, Lassen, Mariposa, Modoc, Mono, Plumas, Sierra, Siskiyou, Trinity, Tuolumne, and Yuba.

Wildfires

In contrast to man-made pollutants, wildfires and corresponding health risks have in recent years been far more severe in the northern region of the state (as shown below). Smoke from wildfires can impair lung function, contribute to bronchitis, asthma, and heart failure; the region's substantial elderly population are particularly vulnerable to these effects (United States Environmental Agency, 2023). These fires may exacerbate the region's disproportionately high levels of asthma and respiratory illness.

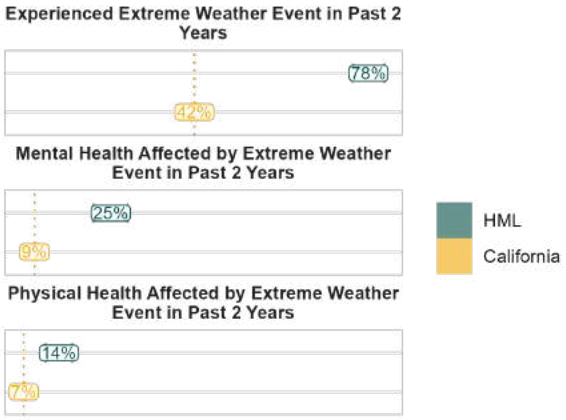
Although not necessarily specific to wildfires, weather-related events do appear to have had an outsized impact on the health of the region compared to the state. Approximately 78% of Redwood Coast residents experienced extreme weather events between 2019 and 2022 compared to just 42% of California residents. As shown below significantly and substantially more residents in the region experience adverse mental and physical health impacts due to recent extreme weather-related events compared to the state as a whole.

Figure 5.22

Wildfires, Burned Area (2018 - 2022)	*Health Effects of Extreme Weather Events, Percent of Population (2021-2022)*[34]

[34] The data collection period includes 2021 and 2022, but the survey question asks respondents to respond based upon their experiences in the past two years. Thus, these data reflect events that may have occurred between 2019 through 2022.

Note. Data sourced from the California Department of Forestry and Fire Protection



Note. Data sourced from the CHIS.

Takeaways

1. Compared to state averages, the region experiences adverse disparities in rates of poverty, homelessness, educational attainment, household isolation, adverse childhood experiences, and access to healthcare.
2. Populations affected by these disparities are more likely to show two key risk factors linked to the health outcomes examined earlier: current smoking and suicide ideation. Although there is research supporting the connections between these disparities and substance use, the limited available local data on substance use do not provide clear links to these disparities specifically within the Redwood Coast.
3. The region faces healthcare shortages and low income households and people with mental health challenges disproportionately experience delays in accessing care.
4. Wildfire health risks and lead poisoning are two critical environmental risk factors for the region.

Section 6. EQUITY ANALYSIS AND AT-RISK POPULATIONS

The following presents a comparative analysis of health factors across different demographic groups within the HML region, emphasizing the identification of at-risk populations.

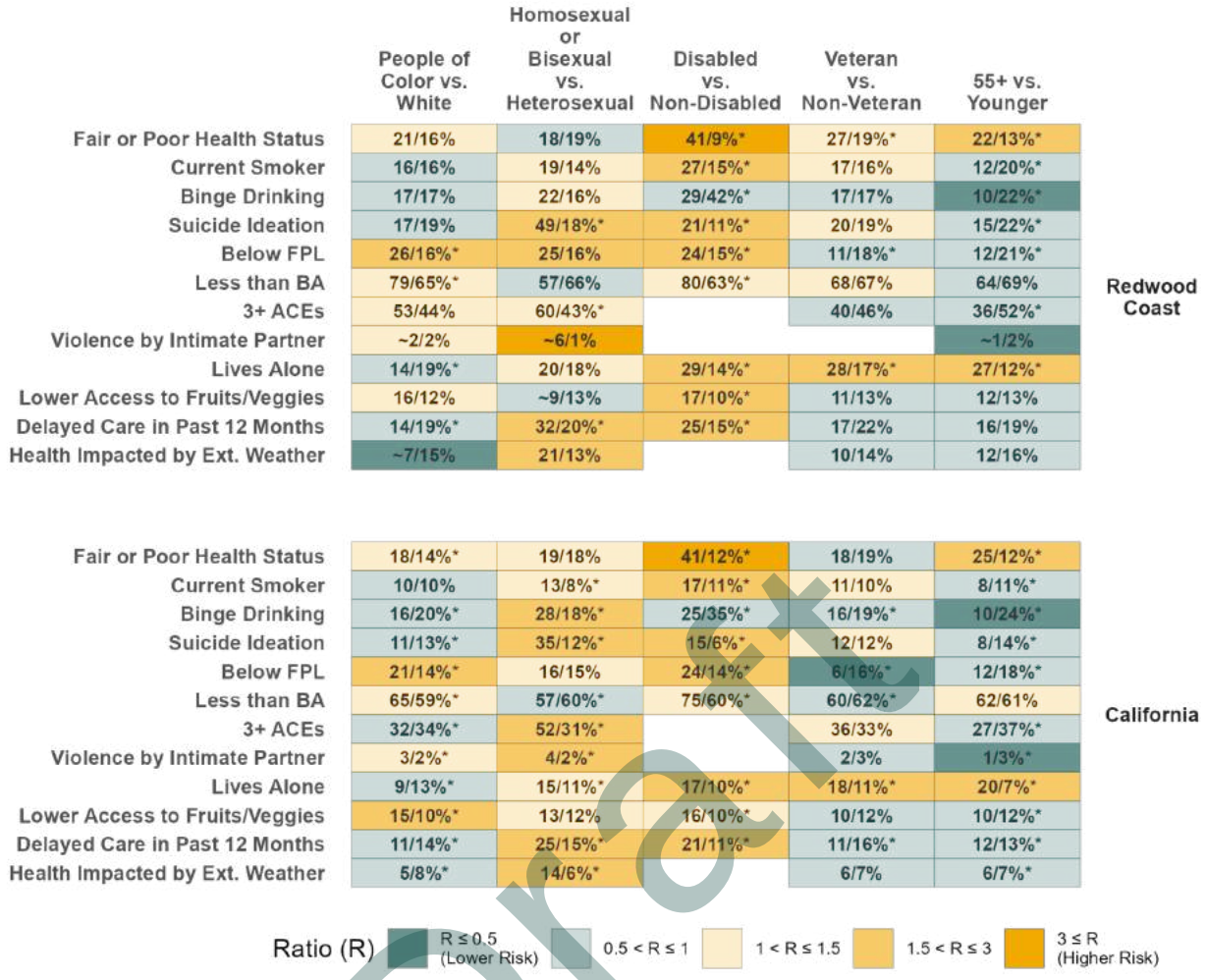
The figure below offers a visual comparison of health outcomes and factors across demographics. Each column illustrates the differences between two populations. As an example,

the first column contrasts the health factors of people of color to the white population. Gold shades denote adverse disparities for the primary population relative to the reference group. A specific observation reveals that, in the HML region, 26% of people of color live below the poverty line, in contrast to 16% of the white population.[35] From these data, several notable trends emerge further highlighting populations at risk in the HML region:

- People of color show higher rates of fair or poor health, higher poverty levels, lower educational attainment, higher ACEs, and more limited access to nutritious foods. Data presented in Appendix E show that people of color in Del Norte County experience higher rates of poverty and higher rates of lack of health insurance.
- Lesbian, gay, and bisexual communities within the HML region face numerous disparities: increased smoking and heavy alcohol consumption, suicidal thoughts, higher poverty rates, elevated ACEs rates, domestic violence, deferred medical care, and adverse weather-related health impacts. Alarmingly, half of this community has seriously contemplated suicide.
- People with disabilities in the region experience higher rates of poor health, increased smoking, suicidal thoughts, poverty, lower educational attainment, living alone, restricted access to healthy food, and deferred medical care.
- The 55+ demographic in the region tends to live solitarily. As expected, a higher percentage report fair or poor health, but this group generally has fewer risk factors. The health trends of the veteran population resemble these patterns, possibly due to a significant age overlap in these two groups within the region.[36]

Figure 7.1
Comparative Analysis of Demographic Disparities in Health Factors (2011 - 2022)

[35] Non-white Hispanics are included in people of color category and white Hispanics are included in the white group.
[36] In the HML region 16.8% of adults 55 and older have served in the military compared to just 4.4% for adults 18 to 54 (2011 - 2022 CHIS data).



Note. Data sourced from the CHIS. (*) denote statistically significant differences and (~) denote unstable estimates. It is possible that an estimate can be unstable and simultaneously significantly different. Missing values not shown. Years are selected based on all available years from 2011 on. Binge drinking is either “Binge Drinking in Past Month” or “Binge Drinking in Past Year” depending on data availability.

Section 7. POLICY FOCUS AREAS AND RECOMMENDATIONS

By uncovering health outcomes and risk factors that exhibit adverse disparity with state averages, the report's intention is to promote a clear understanding of the region's shared health challenges and at-risk populations, which, in turn, can guide prioritization and collaborative efforts to address these challenges. The following categorizes the report's findings into three policy areas. The focus is not to detail every challenge and potential solution but to emphasize and prioritize those that emerge as central and high-priority challenges.

Policy Focus Area 1: Smoking Prevention, Education, and Cessation

Key Findings	• Youth and adult smoking is substantially and significantly higher in the region. • Tobacco-related health outcomes are adversely impacted in the region.
At-Risk Populations	Regional data indicate that the following Redwood Coast populations are at elevated risk for tobacco use: • Both youth and adults • People with low income or moderate income • People with lower educational attainment • Youth with academic challenges • People experiencing loneliness or social isolation • People with multiple ACEs • Lesbian, gay, and bisexual individuals • Individuals with disabilities National SAMHSA data indicate that the AIAN may also be at high risk for tobacco use ("2021 NSDUH Detailed Tables").
Recommendations and Resources	• Make use of evidence-based models for tobacco cessation such as Rural Health Information Hub's *Rural Tobacco Control and Prevention Toolkit*, focusing on at-risk populations and addressing the perceived risk of tobacco use.
Suggested Indicators of Success	• A reduction of Grade 11 smoking rates to rates similar to the state rate as indicated by CalSCHLs data.[37] • A reduction in the proportion of 'current smokers' to a rate similar to the state rate as indicated by CHIS data. • Do **not** use smoking data from CHRR, CDC PLACES, or any other SAE data to measure success.[38]

Policy Focus Area 2: Substance Use Prevention and Treatment

Key Findings	• Substance use among youth and adults as well as adverse substance use related health outcomes are elevated in the region. • Redwood Coast rates of Hepatitis C are the highest in the state. • DUIs and alcohol-involved driving deaths are elevated across the region.
At-Risk Populations	Data limitations prevent a comprehensive analysis of the regional at-risk populations; however, local data indicate that the following populations

[37] For each toolkit, see "Program Clearinghouse" for examples of promising programs.
[38] See Appendix A for data limitations.

	are at elevated risk for binge drinking: ● Both youth and adults ● Lesbian, gay, and bisexual individuals National SAMHSA data indicate that the following populations may also be at high risk for substance use disorder ("2021 NSDUH Detailed Tables"): ● AIAN ● People of two or more races ● People with low or moderate income Research also indicates that people with multiple ACEs are at high risk for substance use (Anda et al., 1998).
Recommendations and Resources	● Make use of evidence-based models for substance use prevention and treatment such as Rural Health Information Hub's *Prevention & Treatment of Substance Use Disorders Toolkit*, focusing on at-risk populations and addressing the perceived risks of substance use. ● To address motor vehicle traffic facilities, consider using the UC Berkeley Transportation Injury Mapping System (TIMS) to monitor and respond to DUI, pedestrian, and bicycle injury hotspots in your service area.[39]
Suggested Indicators of Success	● A reduction of Grade 11 students who have been "drunk or high at school" to rates similar to the state rate as indicated by CalSCHLs data.[40] ● A reduction in the proportion of DUI crashes to a rate similar to the state rate as indicated by TIMS data.[41] ● A reduction in "All Drugs" overdose deaths to rates similar to the state rate as indicated by the California Overdose Surveillance Dashboard from CDPH. ● Do **not** use alcohol use data from CHRR, CDC PLACES, or any other SAE data to measure alcohol intervention success.[42]

Policy Focus Area 3: Suicide Prevention and Access to Mental Health Care

Key Findings	● Suicides, suicidal ideation, and firearm-related deaths are

[39] This tool, for instance, identifies the intersection of 11th Street and H Street in Arcata, CA in Humboldt County as a hotspot. An account is required, but setup is free, easy, and quick.
[40] Binge drinking in the past 30 days may also be a useful indicator.
[41] Alternatively, alcohol involved OTS Crash Rankings or the proportion of alcohol-involved driving deaths from CHRR may be used.
[42] CHRR alcohol driving deaths does not use SAE data so this could function as an indicator of success.

	elevated in the region. ● The entire region is a mental health provider shortage area. ● Approximately 42.5% of Redwood Coast adults who have seriously considered suicide in their lives have delayed care in the past 12 months, compared to 16.4% of Redwood Coast adults who have not considered suicide. ● People with disabilities and lesbian, gay, and bisexual individuals are more likely to have contemplated suicide and more likely to have recently delayed health care.
At-Risk Populations	Regional data indicate that the following Redwood Coast populations are at elevated risk for suicide ideation: ● Both youth and adults ● People living alone, particularly men ● People with low or moderate income ● People experiencing loneliness or living alone ● People with multiple ACEs ● People experiencing suicidal ideation who have access to a firearm ● Lesbian, gay, and bisexual individuals ● Individuals with disabilities National SAMHSA data indicate that the following populations may also be at high risk for suicide ideation ("2021 NSDUH Detailed Tables"): ● AIAN ● People of two or more races ● Unemployed The CDC indicates that the following populations are at elevated risk of suicide completion ("Preventing Suicide Requires a Comprehensive Approach"): ● Veterans ● AIAN ● Individuals with disabilities ● Middle aged adults (35-64 years of age) ● Lesbian, gay, or bisexual youth ● Men working in high risk occupations
Recommendations and Resources	● Make use of evidence-based models for suicide prevention and health access such as Rural Health Information Hub's *Suicide Prevention Toolkit*, *Rural Care Coordination Toolkit*, *Rural Transportation Toolkit*, and Rural Telehealth Toolkit focusing on at-risk populations. ● Work to address underlying risk factors such as child abuse, domestic violence, and ACEs. For instance CDC has prepared a short handbook of tangible evidence-based strategies and approaches to preventing ACEs. Specific recommendations

	include approaches such as early childhood home visitation, recruiting men and boys as allies in prevention, and mentoring programs.
Suggested Indicators of Success	• A reduction in the suicide mortality rate to rates similar to the state rate as indicated by County Health Status Profiles from the CDPH. • A regionwide reduction of Grade 11 students who have "considered suicide" to rates similar to the state rate as indicated by CalSCHLs data. • A regionwide reduction of rates of child abuse and domestic violence to rates similar to the state rates as indicated by kidsdata.org. • A significant reduction in the proportion of the population with a history of suicide ideation who have recently "delayed care" as indicated by CHIS data. • Do **not** use mental health SAE data from CHRR, CDC PLACES, or any other SAE data to measure success.

APPENDICES

Appendix A: Data Limitations and Methodology

Data Limitations

Several data limitations are evident within this report. First, some data points have suppressed data. In order to protect anonymity/confidentiality, data sources (e.g. CHRR) will omit county-level data when sample sizes are inadequate (e.g. $n < 12$). In the data visualizations throughout this report, missing data will either be suppressed from the visualization with notation, or the missing variable (e.g. county name) will be included in the visualization but without a corresponding value. Frustratingly, this often eliminates the ability to provide estimates for minority populations for counties with low populations.

Wherever feasible, data points include confidence intervals provided by the data source. Unless otherwise stated, all confidence intervals use a 95% level of confidence. In some cases, when necessary variables are available and confidence intervals are not provided by the data source, confidence intervals are calculated with 95% confidence. Because the Redwood Coast counties have small populations, the resulting small sample sizes often produce point estimates with wide confidence intervals.[43] This is a particular challenge quantifying a condition or event among a small subset of a population. This further narrowing of an already small population increases the statistical uncertainty of the estimate, widening confidence intervals.

Data from the Centers for Disease Control (CDC) and Robert Wood Johnson Foundation PLACES project uses regression techniques to estimate health outcomes and behaviors at the county level based on data from the CDC's Behavioral Risk Factor Surveillance System (BRFSS) and the Census Bureau's ACS and Decennial Census population estimates. While these data are model based predictions, they have been shown to be consistent with BRFSS survey estimates at the county level. In light of these limitations, the data provider cautions against using the estimates to detect effects due to local area interventions, as such effects would not necessarily be reflected in the data used to construct the PLACES data (Centers for Disease Control and Prevention). These limitations also apply to some data from CHRR, as this source includes data derived from the PLACES project data. All data sources that use small area estimation techniques (SAE) are indicated as such throughout the report.

[43] As an example, a point estimate for the poverty rate would be the estimated poverty rate (e.g. 20%), and the confidence interval would be a range of values that indicate the reliability of that point estimate. A wide confidence interval indicates that the point estimate is less reliable, whereas the narrow confidence interval indicates that the point estimate is likely close to reality.

The California Health Information Survey (CHIS) is a rich dataset both in breadth and depth, providing direct survey evidence that in many cases are not available or comparable to other datasets. However, a limitation of these data is the aggregation of small population counties into larger statistical units. Because of this limitation, it is not possible to represent Del Norte County in these data as this county has been aggregated with seven other counties outside the Redwood Coast region. Therefore, CHIS data only includes Humboldt, Mendocino, and Lake counties, referred to as HML throughout this report.

Because of these disparate statistical challenges including limited population sizes, imperfect statistical representation of the geographic area, and small area estimation (SAE) techniques, wherever possible multiple data sources will be used to bolster the weight of evidence, enabling the identification of trends that emerge from the collective signals conveyed by the data.

Where necessary, a more detailed discussion of data limitations particular to certain data sources is discussed further in their corresponding sections.

Terminology and Technical Methodology

The word "significant" is used deliberately and precisely throughout this report to mean that the difference between a variable and the state average is statistically significant at the level of confidence associated with the confidence interval provided by the data source. A difference between two variables is determined to be statistically significant when their confidence intervals do not intersect. Wide and overlapping confidence intervals should be interpreted as an absence of compelling evidence of difference rather than evidence of similarity between variables. Because of the data limitations above, the data sources used throughout this report may fail to indicate significant differences, when in fact true differences exist.

To facilitate interpretation and comparison of findings, we include the observational period during which the data was gathered in the title of each data visualization. Data publication dates are included in the References section.[44]

All data analysis and visualization in this report was conducted using the R programming language. In this environment, we primarily made use of the Tidyverse suite of R packages. U.S. Census data was drawn from the Census Bureau's application programming interface (API) via the TidyCensus R package. Unless otherwise stated, all maps in this report were made using data drawn from the Census Bureau via the TidyCensus library for R.

[44] When multiple data sources or variables are included, we include the total observational window. For example, if one variable has an observational window of 2015 to 2018 and another has an observational window of 2016 to 2019, 2015 to 2019 will be given in the title.

International Classification of Diseases (ICD-10) Codes for CDPH Data

Figure A.1

International Classification of Diseases (ICD-10) Codes

All Cancer Deaths	C00–C97
Colorectal Cancer	C18–C21, C260
Lung Cancer	C34
Female Breast Cancer	C50
Prostate Cancer	C61
Diabetes	E10–E14
Alzheimer's Disease	G30
Coronary Heart Disease	I20–I25
Cerebrovascular Disease (Stroke)	I60–I69
Influenza and Pneumonia	J09–J18
Chronic Lower Respiratory Disease	J40–J47
Chronic Liver Disease and Cirrhosis	K70, K73–K74
Accidents (Unintentional Injuries)	V01–X59, Y85–Y86
Motor Vehicle Traffic Crashes	V02–V04(1, 9), V092, V12–V14(3–9), V19(4–6), V20–V28(3–9), V29–V79(4–9), V80(3–5), V811, V821, V83–V86(0–3), V87(0–8), V892
Suicide	U03, X60–X84, Y870
Homicide	U01–U02, X85–Y09, Y871
Firearm-related Deaths	U014, W32–W34, X72–X74, X93–X95, Y22–Y24, Y350

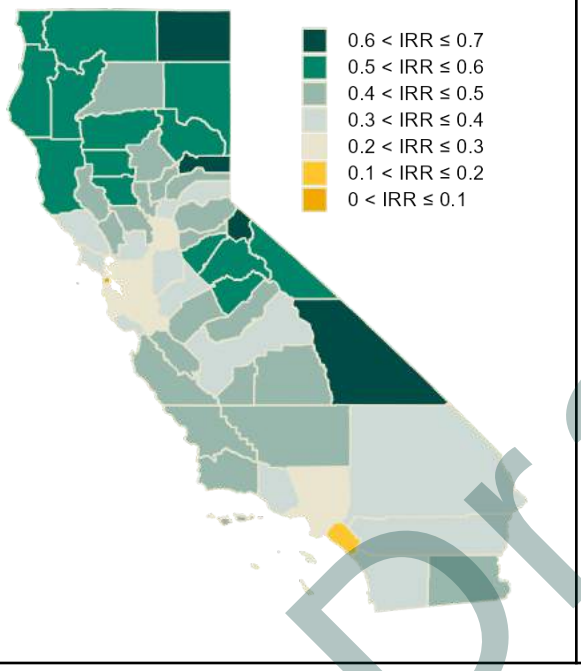
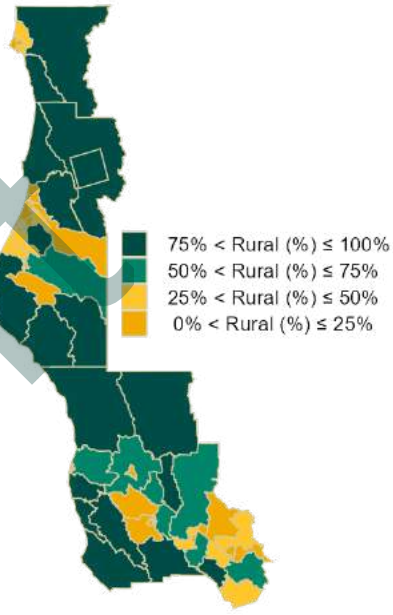
Drug Overdose Deaths	X40–X44, X60–X64, X85, Y10–Y14

Note. Codes sourced from CDPH County Health Status Profiles 2023 (source).

Appendix B: Further Demographic Analysis

Figure B.1

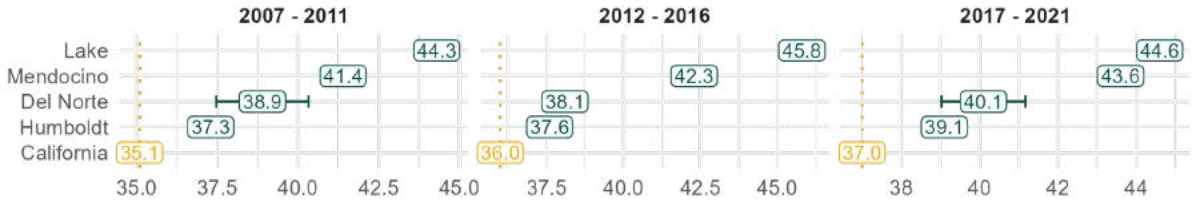
Measures of Rurality (2010)

Index of Relative Rurality (IRR)	Census Population Designated "Rural"
	

Note. Left Panel: IRR scale ranges from 1 (most rural) to 0 (least rural). Data sourced from Kim and Waldorf's 2018 data set titled "The Index of Relative Rurality (IRR): US County Data for 2000 and 2010." Right Panel: Data sourced from 2010 Decennial Census variables P002001 - P002006.

Figure B.2

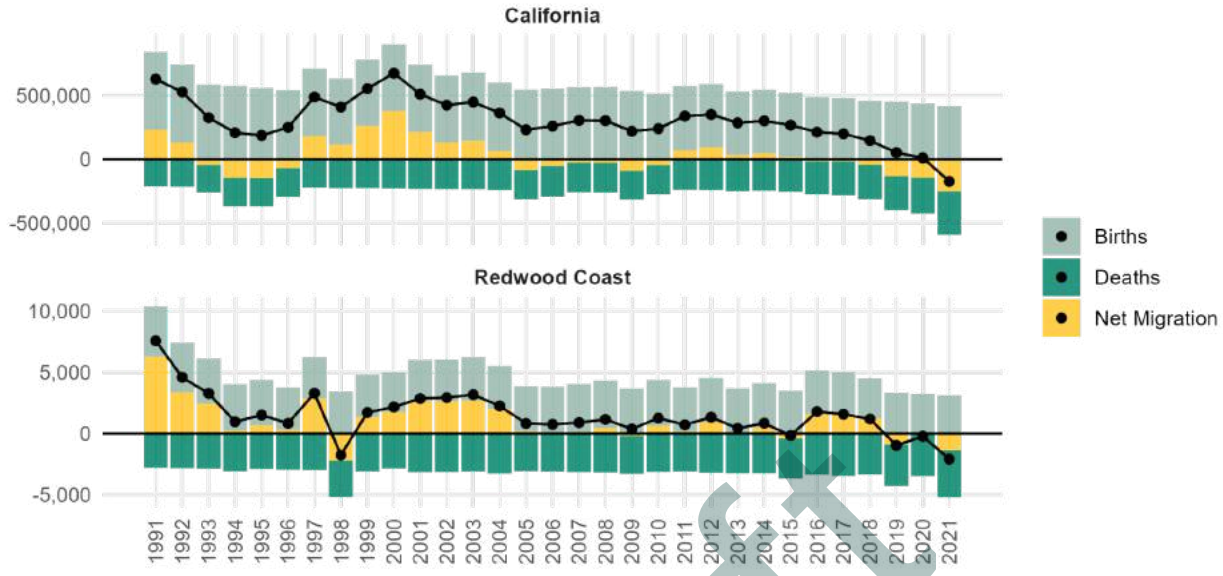
Median Age



Note. Data Source sourced from ACS 5 year estimates. Bars indicate 95% confidence intervals.

Figure B.3

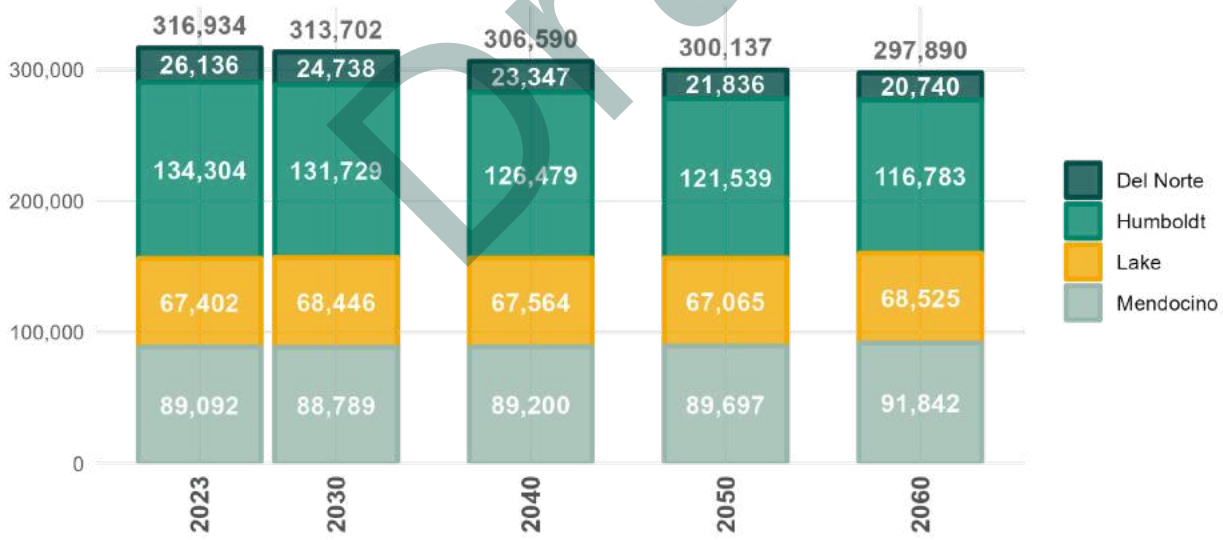
Population Growth and Components of Change



Note. Data sourced from the California Department of Finance

Figure B.4

California Department of Finance Population and Projections



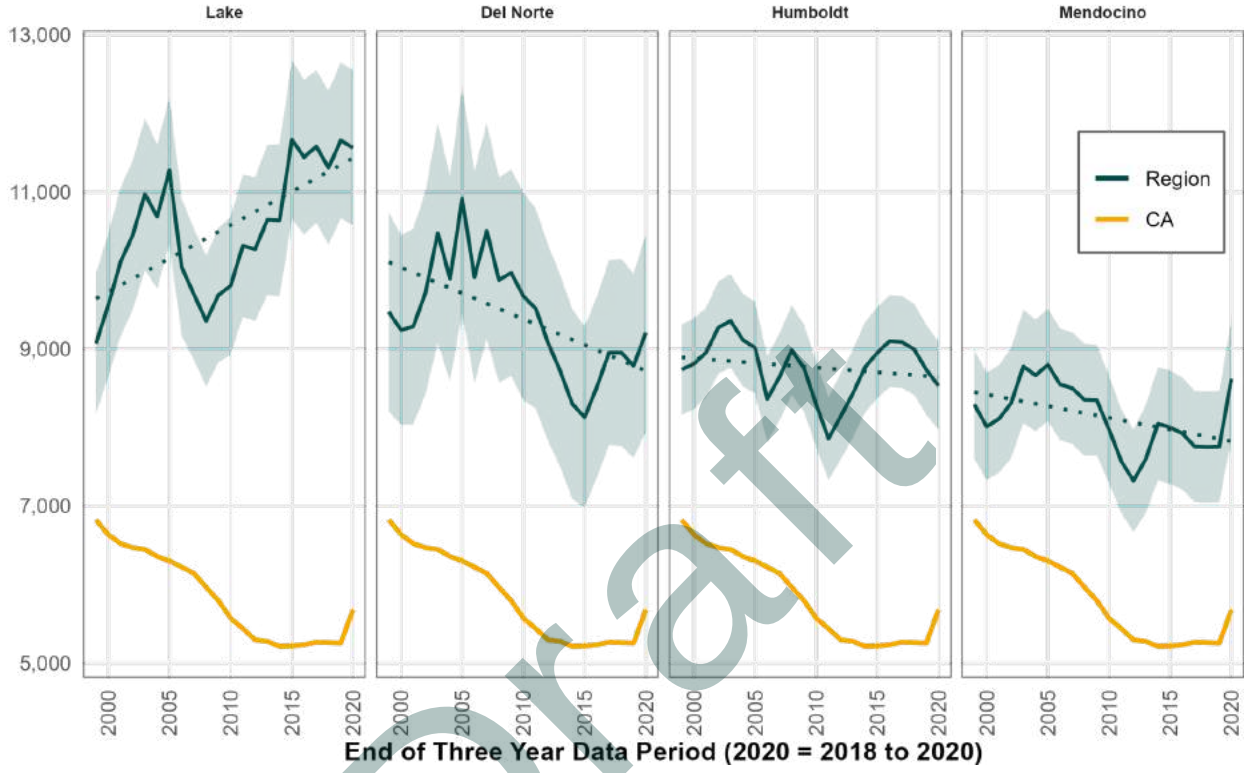
Note. Data sourced from the California Department of Finance.

Appendix C: Further Analysis of Health Outcomes

Trends in Mortality Rates and Premature Death

Figure C.1

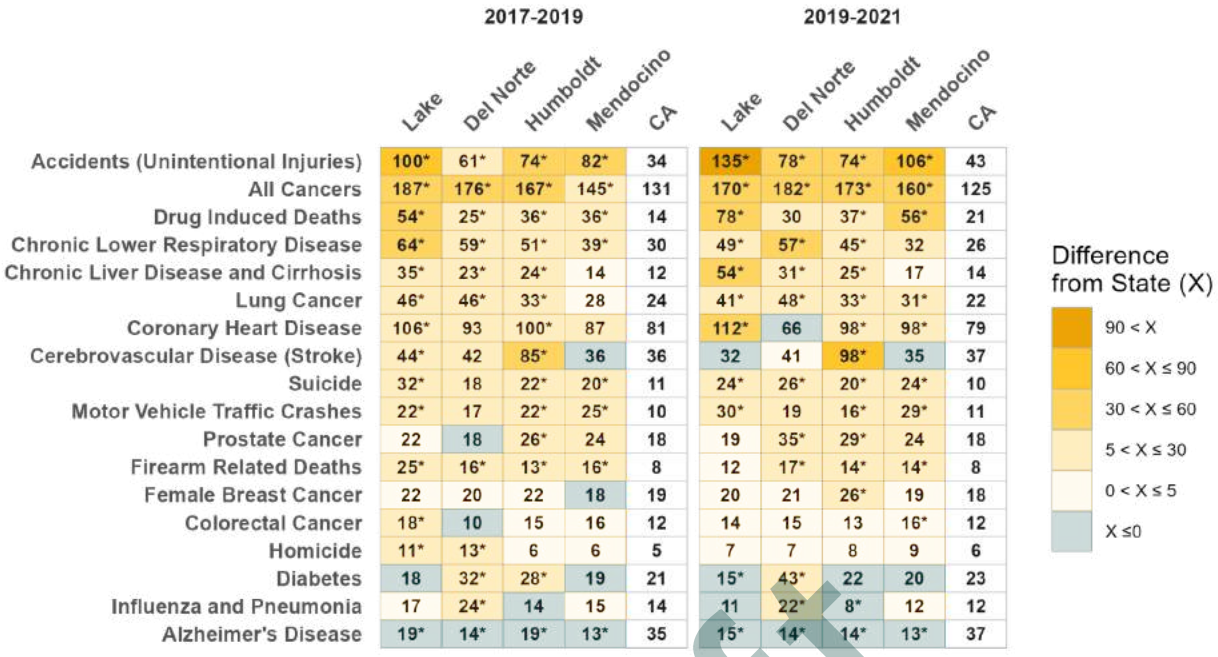
Years of Potential Life Lost (YPLL) per 100,000 Population (1997 - 2020)



Note. Data sourced from CHRR. YPLL is defined as the number of years of life lost due to deaths prior to age 75. For instance, the death of a 40 year old would amount to 35 YPLL.

Figure C.2

Age-Adjusted Mortality Rates per 100,000 (2019 - 2021)



Note. Data sourced from the California Department of Public Health and the California Conference of Local Health's *County Health Status Profiles* report data. The color scale denotes differences (X) between the region's mortality rate and the corresponding state rate. Gold and yellow indicate higher mortality rates compared to the state. Asterisks (*) denote a statistically significant difference compared to the state rate. None of these causes include deaths where COVID-19 is the underlying cause of death.[45]

Figure C.3

Change in Age-Adjusted Mortality Rate per 100,000 from 2017-2019 Period to 2019-2021 Period

[45] According to CDPH, "Deaths where COVID-19 was coded as the underlying cause of death are only included for all causes of death and are not included in any of the specific mortality health indicators. However, deaths where COVID-19 was listed as a significant condition contributing to death but not the underlying cause of death may be included for these health indicators" (2022).

	Mendocino	Del Norte	Humboldt	Lake	CA
Accidents (Unintentional Injuries)	+24.3*	+17.1	-0.4	+34.4*	+9.3*
Drug Induced Deaths	+20.2*	+4.5	+1.0	+23.1	+7.1*
Chronic Liver Disease and Cirrhosis	+3.7	+7.9	+1.4	+19.3	+1.7*
Prostate Cancer	+0.5	+16.9	+2.6	-2.1	-0.1
All Cancers	+14.5	+5.7	+6.1	-16.6	-6.5*
Motor Vehicle Traffic Crashes	+3.5	+2.2	-5.1	+7.5	+1.0*
Female Breast Cancer	+1.3	+1.1	+3.5	-1.5	-0.9*
Suicide	+4.5	+8.1	-1.2	-8.0	-0.4*
Diabetes	+1.4	+11.3	-6.1	-3.3	+1.8*
Lung Cancer	+2.5	+2.3	-0.2	-4.5	-2.9*
Cerebrovascular Disease (Stroke)	-0.2	-1.3	+12.8	-12.3	+1.3*
Colorectal Cancer	-0.1	+4.2	-1.9	-4.0	-0.4
Homicide	+2.6	-5.7	+2.6	-3.8	+0.9*
Alzheimer's Disease	-0.1	-0.1	-5.1	-3.9	+1.4*
Coronary Heart Disease	+11.1	-27.0	-1.4	+6.5	-1.6*
Firearm Related Deaths	-1.7	+1.0	+0.2	-13.1	+0.8*
Influenza and Pneumonia	-3.2	-2.0	-5.3	-5.9	-2.2*
Chronic Lower Respiratory Disease	-7.3	-2.3	-5.6	-15.6	-3.5*

Increased More Than State | Increased | Decreased | Decreased More Than State

Note. Data sourced from the California Department of Public Health and the California Conference of Local Health's *County Health Status Profiles* report data. Numerical values indicate change in age-adjusted mortality rates. Asterisks (*) denote a statistically significant change over time.

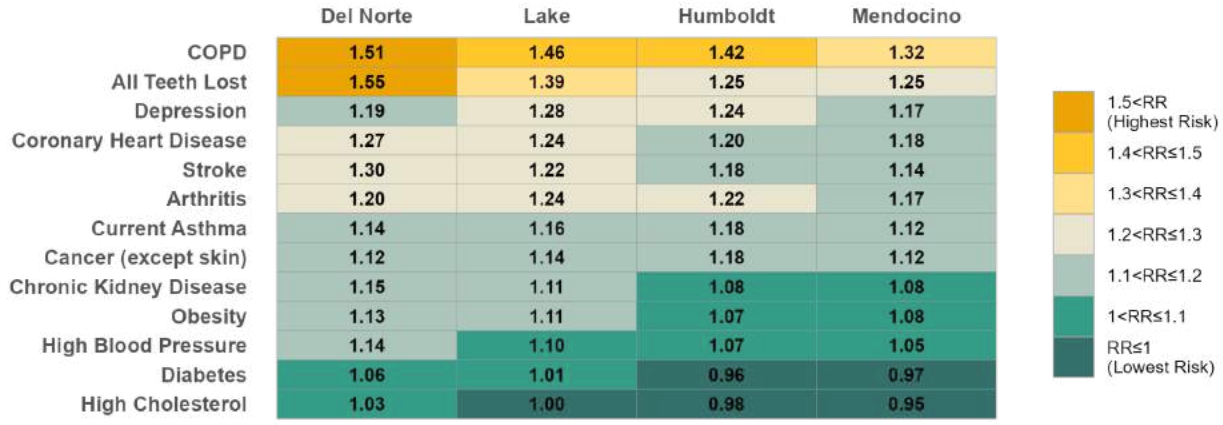
Health Conditions, SAE Estimation Techniques

A broader understanding of health conditions in the region is derived from data obtained from the Centers for Disease Control (CDC) and the Robert Wood Johnson Foundation PLACES project. However, it is important to note that these data have a critical limitation as they have been generated using small area estimation (SAE) techniques, rather than direct estimation such as surveys.[46] It is possible that the models used to predict these values may omit important local variables such as a local health intervention program and therefore fail to accurately predict health outcomes. Although direct estimates are preferred, SAE techniques can nevertheless offer helpful insights into health outcomes for areas with small populations where directly estimated data is unavailable. As shown below, this SAE model suggests health outcomes similar to state averages for diabetes and high cholesterol, whereas other conditions are predicted to be higher.

[46] SAE uses multivariate regression techniques to predict values for small geographic areas using the available data such as American Community Survey Data. These data on health outcomes at the county level are based on data from the CDC's Behavioral Risk Factor Surveillance System (BRFSS) and the Census Bureau's ACS and Decennial Census population estimates.

Figure C.4

Estimated Age-Adjusted Illness Risk Ratios (RR), SAE Technique (2019 - 2020)



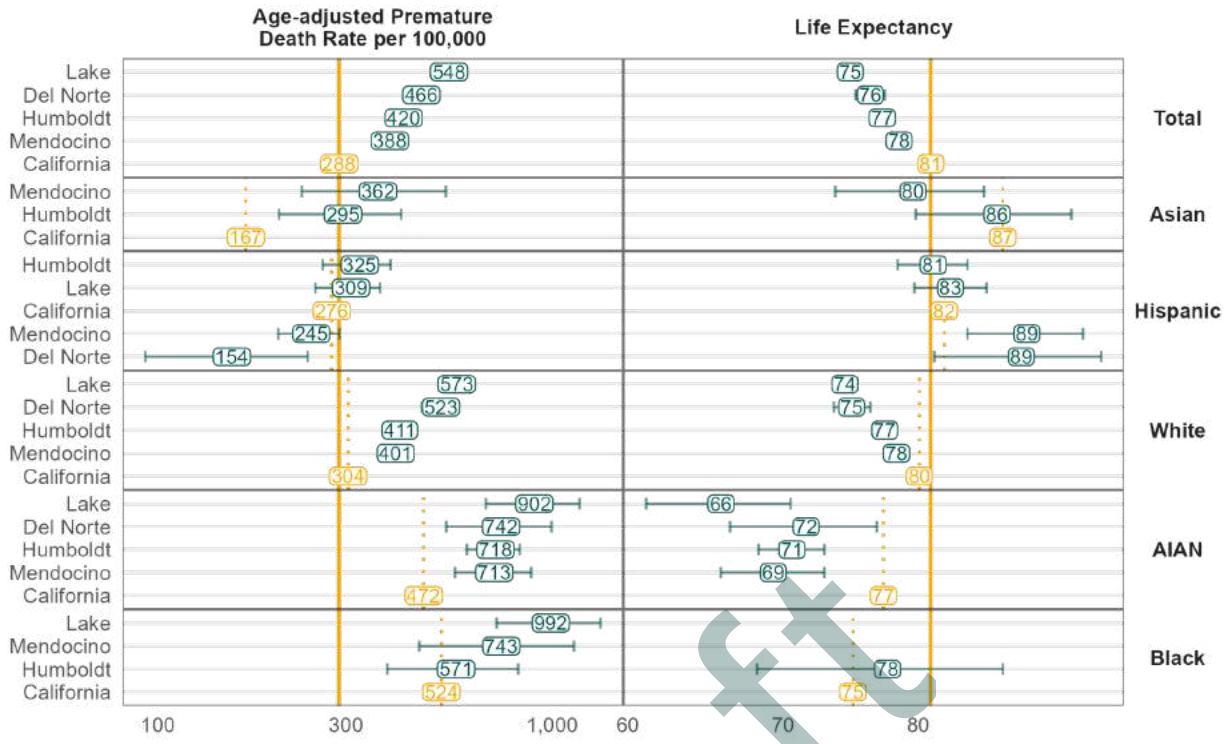
Note. Data sourced from the Centers for Disease Control and Prevention's 2022 release of the PLACES data set, *PLACES: Local Data for Better Health, County Data*. California estimates and not provided by the data source. California estimates were calculated by the author by taking a population-weighted average of all California counties using the population estimates provided in the dataset. Risk ratios (RR) calculated by taking the ratio of the local rate divided by the state rate. RR > 1 indicates higher risk relative to the state.

Health Outcomes by Race and Ethnicity

As shown below, the available data signal significantly and substantially higher age-adjusted premature death among white, American Indian and Black populations (see *AIAN* and *Black* rows, compared with dotted vertical lines). For the available data, Asian populations experience rates of premature death largely consistent with the overall state average but significantly higher than the state averages for their respective populations. On the other hand, the region's Hispanic population experiences rates of premature death and life expectancy consistent with or superior to both the state average for this population and the overall state population.

Figure C.5

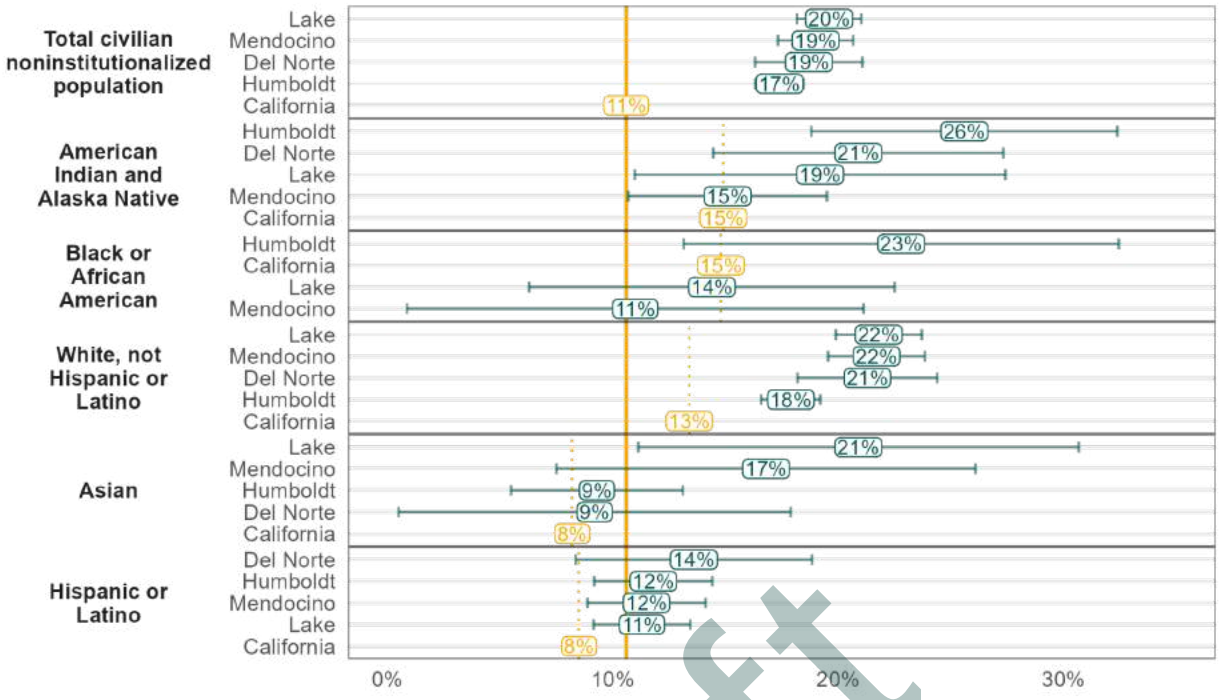
Premature Death and Life Expectancy by Race and Ethnicity (2018 - 2020)



Note. Data sourced from the CHIS.

It is important to consider differences in disability rates and other health factors by race or ethnicity in the context of age, as differences in disability rates between populations can be strongly influenced by differences in the age structure of the population. Consistent with national and state trends, Latino households are substantially younger compared to the general population. On the other hand, the non-Hispanic, white community is substantially older compared to the general population (CHIS). Therefore, we should expect to see a greater level of age-related disparities in health outcomes for the non-Hispanic white population and a lower level of such disparities in the Hispanic population.

Figure C.6
Disability Rates by Race or Ethnicity (2017 - 2021)



Note. Data sourced from the ACS. Missing data or estimates with confidence intervals that include zero are excluded from the visualization.

Disability Rates by Type and Age

Disability rates are higher in the region, including among those aged 18 to 34 and 35 to 64. Disability rates among this latter cohort are almost certainly impacted by a skewing of the age distribution, as in the Redwood Coast, proportionately more adults in this age range are closer to age 64. However, among 18 to 34 year olds, there is less room variation in age, and this population skews younger than the state population, indicating that age-related disability onset is not likely a factor behind the elevated disability rates among 18 to 34 year olds in the region. Therefore, analysis of this younger cohort may uncover factors other than age that contribute to higher disability rates in the region.

Figure C.7

Disability Rates by Age Range (2017 - 2021)

Note. Data sourced from the ACS.

As shown below, the data signal higher cognitive and independent living among this cohort. The American Community Survey (ACS) defines a cognitive disability as a difficulty resulting from a *physical, mental, or emotional* challenge that results in "serious difficulty concentrating, remembering, or making decisions," whereas an independent living disability is defined as a difficulty resulting from a *physical, mental, or emotional* challenge that results in difficulty "doing errands alone such as visiting a doctor's office or shopping".[47] Therefore, the two disability types that have the strongest signal of disparity have a potential mental health dimension. Both mental health and substance use disorders are leading causes of disability and *the* dominant causes of disability among adults younger than 35, accounting for over 35% of

[47] American Community Survey disability definitions:
Cognitive: 'due to physical, mental, or emotional condition: "serious difficulty concentrating, remembering, or making decisions"'
Independent living: 'due to physical, mental, or emotional condition, difficulty: "doing errands alone such as visiting a doctor's office or shopping"'
Ambulatory: "serious difficulty walking or climbing stairs"
Self-care: "difficulty dressing or bathing"
Vision: "blind or … serious difficulty seeing even when wearing glasses"
Hearing: "deaf or … serious difficulty hearing"

years lived with disability nationwide (National Center for Complementary and Integrative Health).

Figure C.8

Disability Rates by Type and Age Range (2017 - 2021)

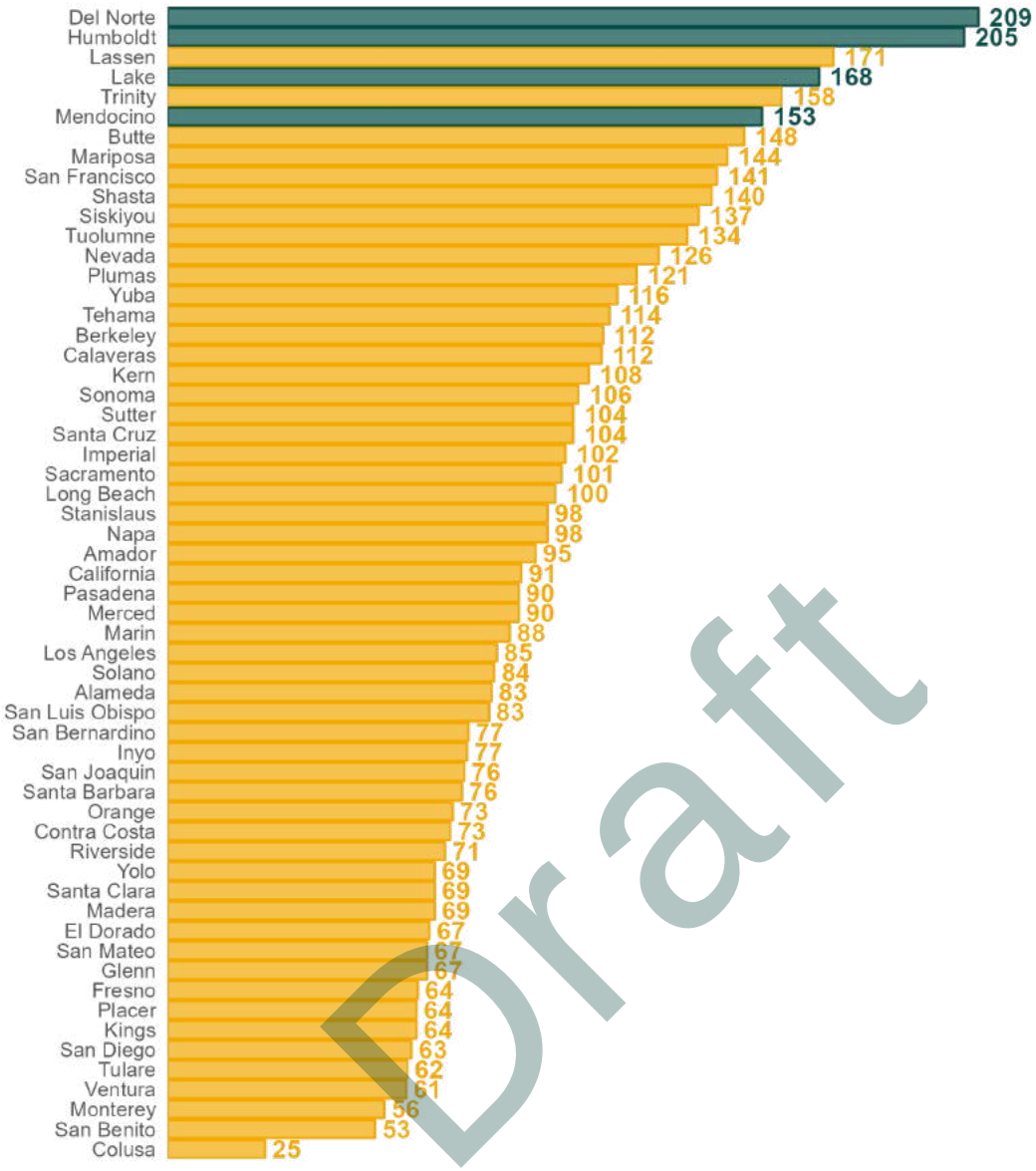
Note. Data sourced from the ACS. Values that have a lower confidence interval that includes zero are excluded from the visualization.

Given the evidence of mental health and substance use challenges for the region, these proximate factors may be major forces behind the region's disparities in disability rates, at least among adults younger than 35.

Hepatitis C Infections

Figure C.9

Newly Reported Chronic Hepatitis C per 100,000 Population (2014, 2016, and 2018)



Note. Data sourced from the CDPH. Rates are averaged over 2014, 2016, and 2018.

Stroke Mortality in Humboldt County

Humboldt County's elevated stroke rate is persistent and rising over time. The rate has been consistently elevated since at least the 2015-2017 CDPH data release (source) when the age-adjusted rate was 67.6 per 100,000. As shown in Appendix C, the rate was 85 for the 2017-2019 data release compared to 98 for the 2019-2021 data release.

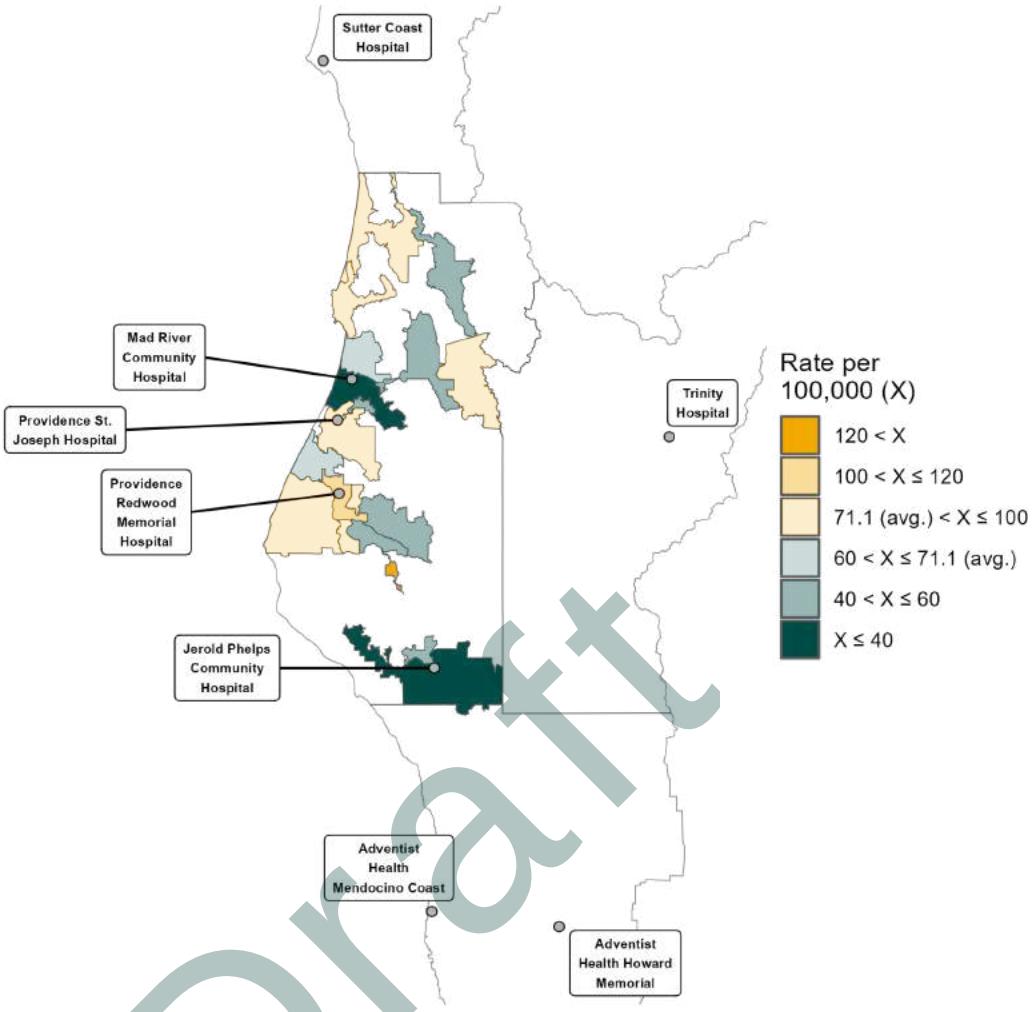
A report from the Humboldt County Department of Health and Human Services (HDHHS) found that the elevated stroke rate is evident in over 80% of Humboldt County ZIP codes, ranging from the most rural to the most populous areas of the county. Furthermore, the report found that the

average age of stroke death in Humboldt County is 83 and that the region's elevated rate is driven, at least in part, by factors *other than* risk behaviors (e.g. smoking) and chronic conditions (source).

Both prevention and the time it takes to receive emergency care are key risk factors for stroke mortality. Local doctors indicate smoking, check ups to catch warning signs, lack of facilities that can treat stroke, timely access to care, and culture of delaying care or avoiding medicine as factors potentially contributing to the county's exceptional rate (source).

The only two ZIP codes in Humboldt County with a stroke mortality rate lower than the state average have a hospital within them; these include the Mad River Community Hospital in 95521 and the Jerold Phelps Community Hospital in 95542. On the other hand, other ZIP codes which have a hospital have higher than average rates, indicating the proximity to an emergency department is not the only factor contributing to higher stroke mortality rates.

Figure C.10
Emergency Department Location and Stroke Mortality Rate by ZIP Code in Humboldt County (2005 - 2018)



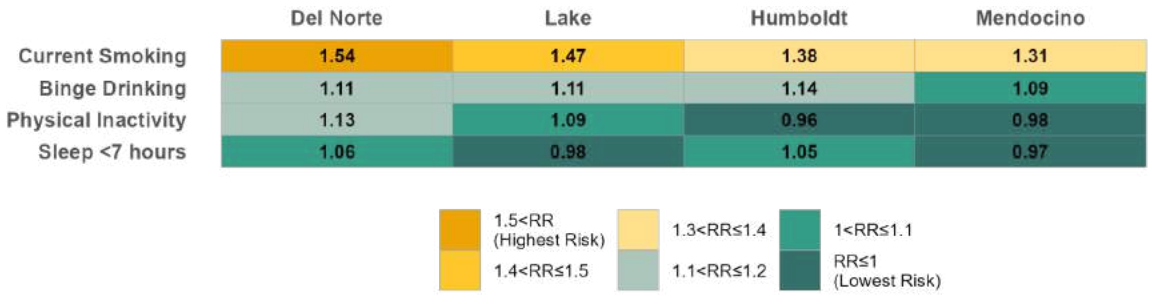
Note. Stroke data sourced from HDHHS. Emergency facility data sourced from California Health and Human Services. Humboldt County's average rate for 2005 to 2018 was 71.1 per 100,000. Gold areas indicate ZIP codes with higher than county average rates and emerald areas indicate lower than county average rates. The California rate during this time period was 43.4. ZIP codes with fewer than five stroke mortalities are not shown.

Appendix D: Further Analysis of Health Risks

Health Risk Behaviors, SAE Estimation Techniques

Figure D.1

Estimated Health Behaviors Risk Ratios (RR), SAE Technique (2019 - 2020)

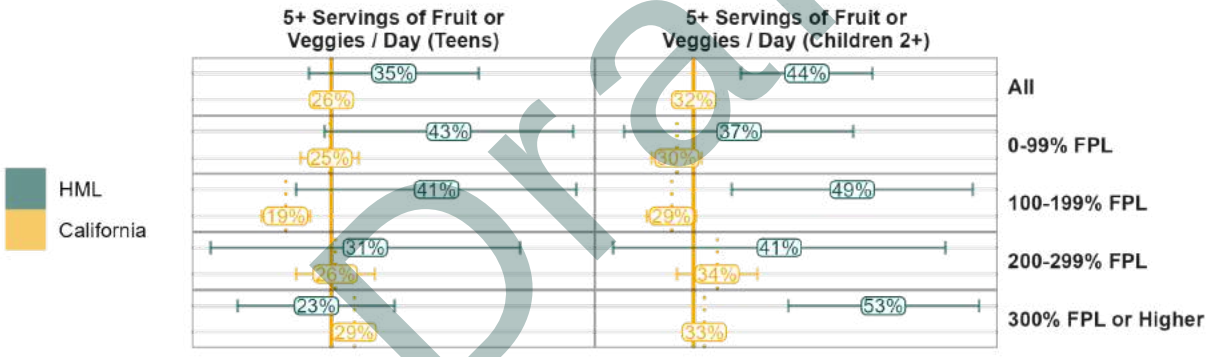


Note. Data sourced from the Centers for Disease Control and Prevention's 2022 release of the PLACES data set, *PLACES: Local Data for Better Health, County Data*. California estimates and not provided by the data source. California estimates were calculated by the author by taking a population-weighted average of all California counties using the population estimates provided in the dataset. Risk ratios (RR) calculated by taking the ratio of the local rate divided by the state rate. RR > 1 indicates higher risk relative to the state.

Diet and Physical Activity

Figure D.2

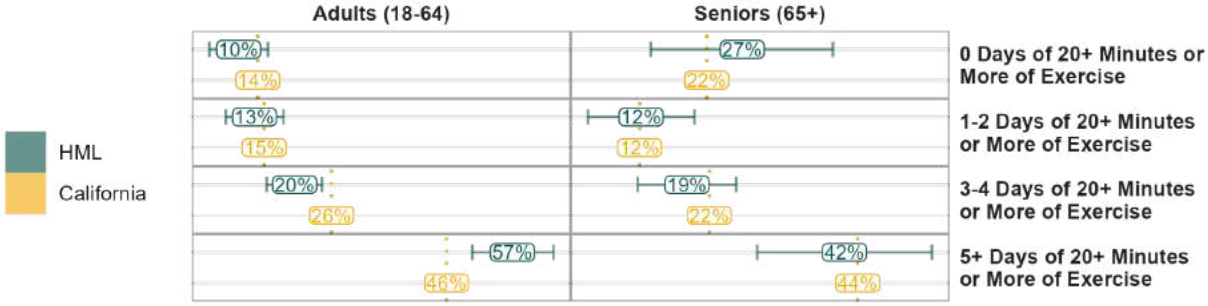
Diet Indicators, Youth (2011-2020)



Note. Data sourced from the CHIS. FPL = federal poverty line.

Figure D.3

Physical Activity (2017-2018)

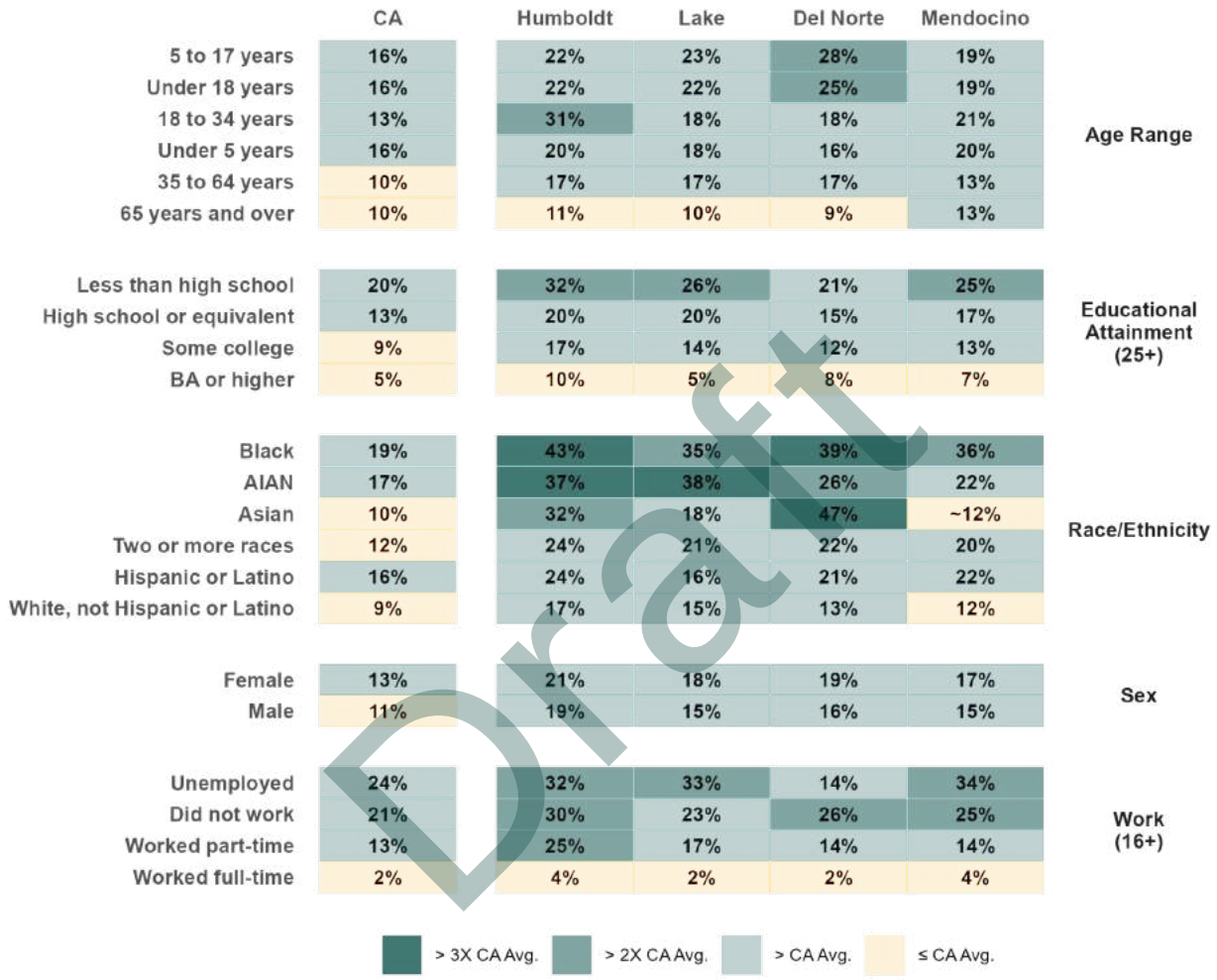


Note. Data sourced from the CHIS.

Appendix E: Disaggregated Poverty Rates

Figure E.1

Disaggregated Poverty Rates.



Note. Data sourced from the ACS. (~) denotes statistically unstable estimate[48].

Appendix F: ACEs, Child Abuse, and Domestic Violence

Figure F.1

Odds Ratios, Adjusted for Age, Gender, Race, and Educational Attainment (Anda et al., 1998)

Number of ACEs	0	1	2	3	4 or More

[48] For these data, an estimate is determined to be statistically unstable if it is not significantly higher than 0 or significantly lower than 100%.

Current smoker	1	1.1	1.5	2	2.2
Considers self an alcoholic	1	2	4	4.9	7.4
Ever used illicit drugs	1	1.7	2.9	3.6	4.7
Ever injected drugs	1	1.3	3.8	7.1	10.3
Two or more weeks of depressed mood in the past year	1	1.5	2.4	2.6	4.6
Ever attempted suicide	1	1.8	3	6.6	12.2

Figure F.2

Reported or Substantiated Abuse or Neglect per 1,000 Children Aged 0 to 17 (2020)

Note. For reported abuse, data is sourced from KidsData's 2020 data set titled "Reports of Child Abuse and Neglect;" for substantiated abuse, data is sourced from KidsData's 2020 data set titled "Substantiated Cases of Child Abuse and Neglect."

Figure F.3

Domestic Violence Calls per 1,000 Population (2016-2020)

Note. Domestic violence call totals sourced from Kidsdata.org. Population data sourced from ACS five year estimates. Data were aggregated over a five year period and rates were calculated by the author.

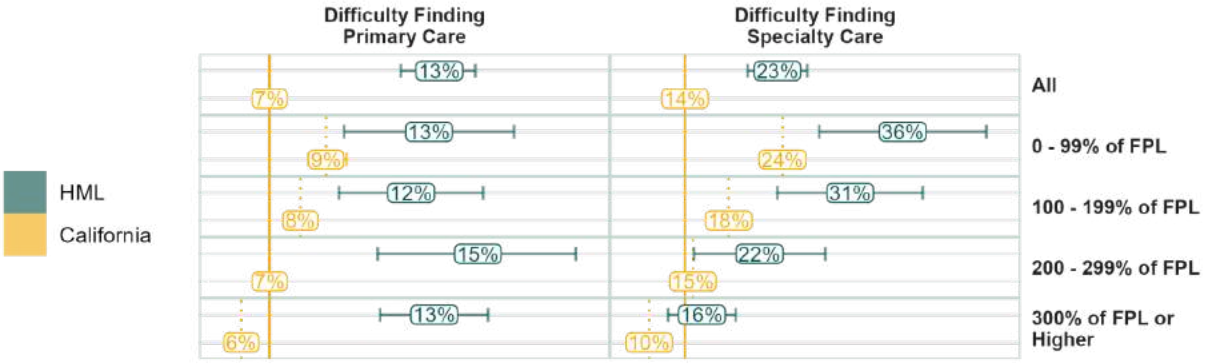
Appendix G: Further Evidence for Healthcare Barriers

'Difficulty' Accessing Care by Income Level

All income strata report 'difficulty' accessing care at rates significantly higher than the state rate.

Figure G.1

Difficulty Finding Care, Percent of Adult Population (2013-2022)



Note. Data sourced from the CHIS.

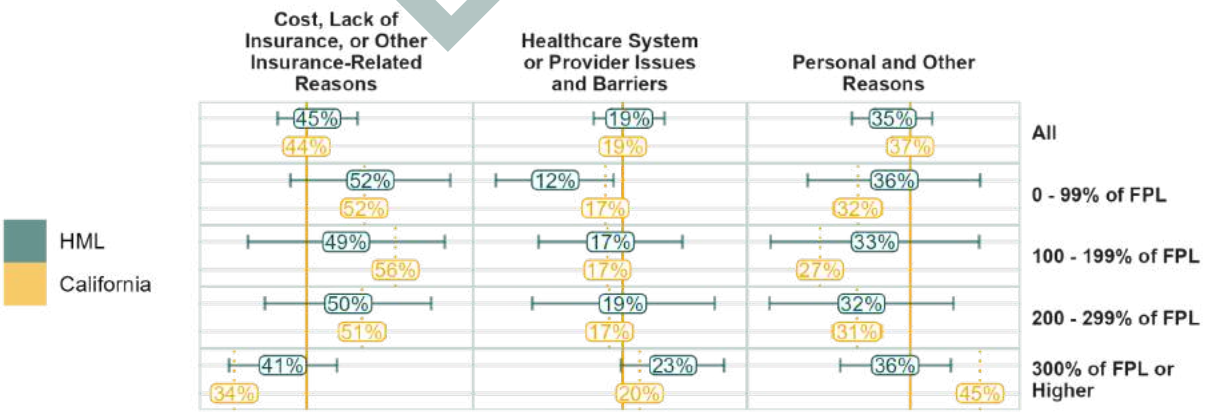
Further Analysis of Barriers to Healthcare

Rural areas are uniquely impacted by barriers to healthcare. Cultural, transportation, financial, and technology barriers as well as a simple lack of available healthcare resources all contribute to reduced healthcare access and utilization in rural areas (Biswas et al., 2015).

Regionally, issues arising specifically from the limitations of the region's healthcare system may only be one factor in producing delayed care among low income individuals, suggesting that factors not specifically tied to the shortage of healthcare providers and facilities in the region may be salient. As shown below, among low income households that delayed care, only about 12% cite the healthcare system as the reason. Roughly half cite cost of insurance issues, but a remaining one-third cite personal or other reasons for their healthcare delays.

Figure G.2

Main Reason for Delayed or Forgone Care, Population Who Delayed Care (2013 - 2022)



Note. Data sourced from the CHIS.

Cost and Insurance Barriers: Insurance barriers appear to disproportionately impact households with children, AIAN, and Hispanic communities.

Figure G.3

Uninsured Rates (2017 - 2021)

Note. Data sourced from the ACS.

Figure G.4

Disaggregated Uninsured Rates (2017 - 2021)

	CA	Mendocino	Lake	Humboldt	Del Norte	
19 to 64 years	10%	14%	11%	11%	7%	Age Range
Under 19 years	3%	7%	2%	5%	5%	
65 years and older	1%	2%	1%	~0%	~1%	
Not a citizen	22%	32%	27%	23%	~1%	Citizenship
Foreign born	13%	22%	17%	13%	~0%	
Native born	5%	8%	6%	7%	6%	
Naturalized	5%	8%	6%	4%	~0%	
Less than high school graduate	18%	19%	17%	14%	5%	Educational Attainment (25+)
High school graduate (includes equivalency)	11%	15%	8%	10%	8%	
Bachelor's degree or higher	3%	5%	4%	5%	4%	
American Indian and Alaska Native	12%	16%	22%	11%	12%	Race/Ethnicity
Hispanic or Latino (of any race)	12%	16%	12%	8%	5%	
Two or more races	8%	14%	9%	6%	11%	
White, not Hispanic or Latino	4%	7%	4%	7%	4%	
Black or African American	6%	~2%	~7%	13%	~0%	
Asian	4%	8%	~2%	6%	~0%	
Male	8%	12%	9%	9%	5%	Sex
Female	6%	8%	5%	6%	5%	
Unemployed	18%	21%	22%	15%	15%	Work (16+)
Employed	9%	14%	10%	10%	8%	
Not in labor force	12%	12%	10%	12%	4%	

> 3X CA Avg. > 2X CA Avg. > CA Avg. ≤ CA Avg.

Note. Data sourced from the ACS.

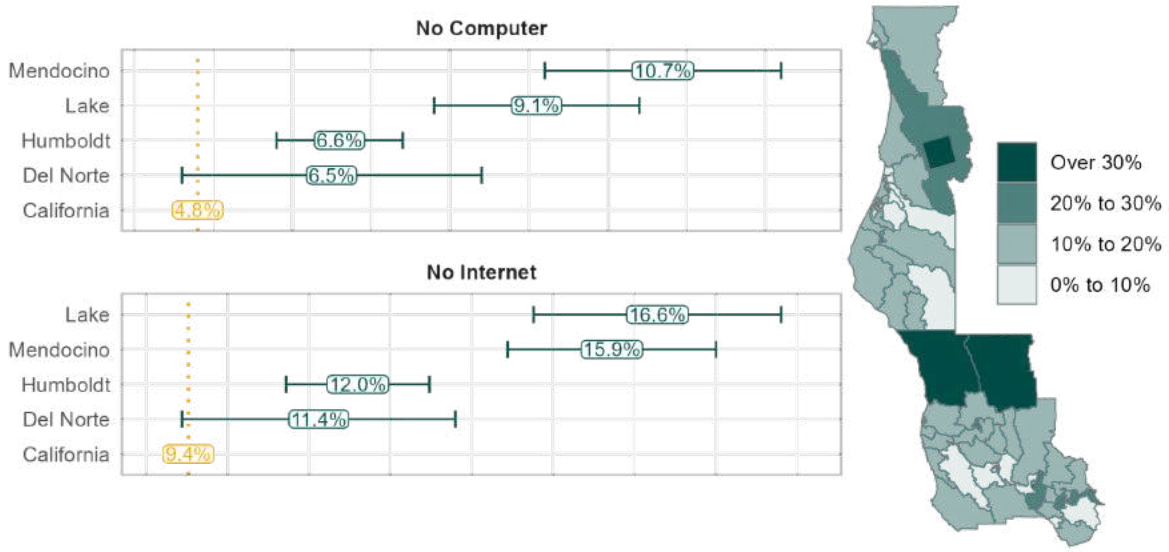
The remaining 36% of respondents (in the figure above) cited personal or other reasons as the main reason for delayed care.

Cultural Perceptions: Patients in rural areas may hesitate to seek medical care due to concerns about stigma, discrimination, and confidentiality, especially when their healthcare providers are also part of their close-knit community. Studies have shown that rural residents, including minorities and vulnerable populations, face barriers in accessing healthcare, with factors socio-economic status and stigmas influencing their treatment-seeking behaviors and the quality of care they receive (Biswas et al., 2015). For instance, as shown in "Equity Analysis and At-Risk Populations," lesbian, gay, and bisexual individuals are significantly more likely to have recently delayed care.

Transportation: Travel time has also been shown to be a barrier to healthcare-seeking and transportation barriers are particularly critical among lower income and the under or uninsured (Biswas et al., 2015; Gerber et al., 2013). Transportation may also be a complicating factor for individuals with disabilities. As shown in "Equity Analysis and At-Risk Populations," individuals with disabilities are significantly more likely to have recently delayed care.

Internet Access: With the rise of telehealth services, access to the internet (particularly in a private setting) is increasingly helpful for addressing transportation barriers to healthcare. Unfortunately, significantly more Redwood Coast households lack internet access compared with the state averages (as shown below). This problem is likely caused by a combination of the region's rural setting, which limits access to affordable broadband, and its high poverty rate, which makes internet access unaffordable for many. The rise of telehealth could be a part of the region's overall strategy to improve healthcare access; however, increasing the availability of broadband will be critical in this effort.

Figure G.5
Householders without Internet Access (2017 - 2021)



Note. Data sourced from the ACS. Map indicates percentage of households lacking any form of internet subscription.

Appendix H: Further Evidence for Social Isolation

Figure H.1

Living Alone, Percent of Population (2011 - 2021)

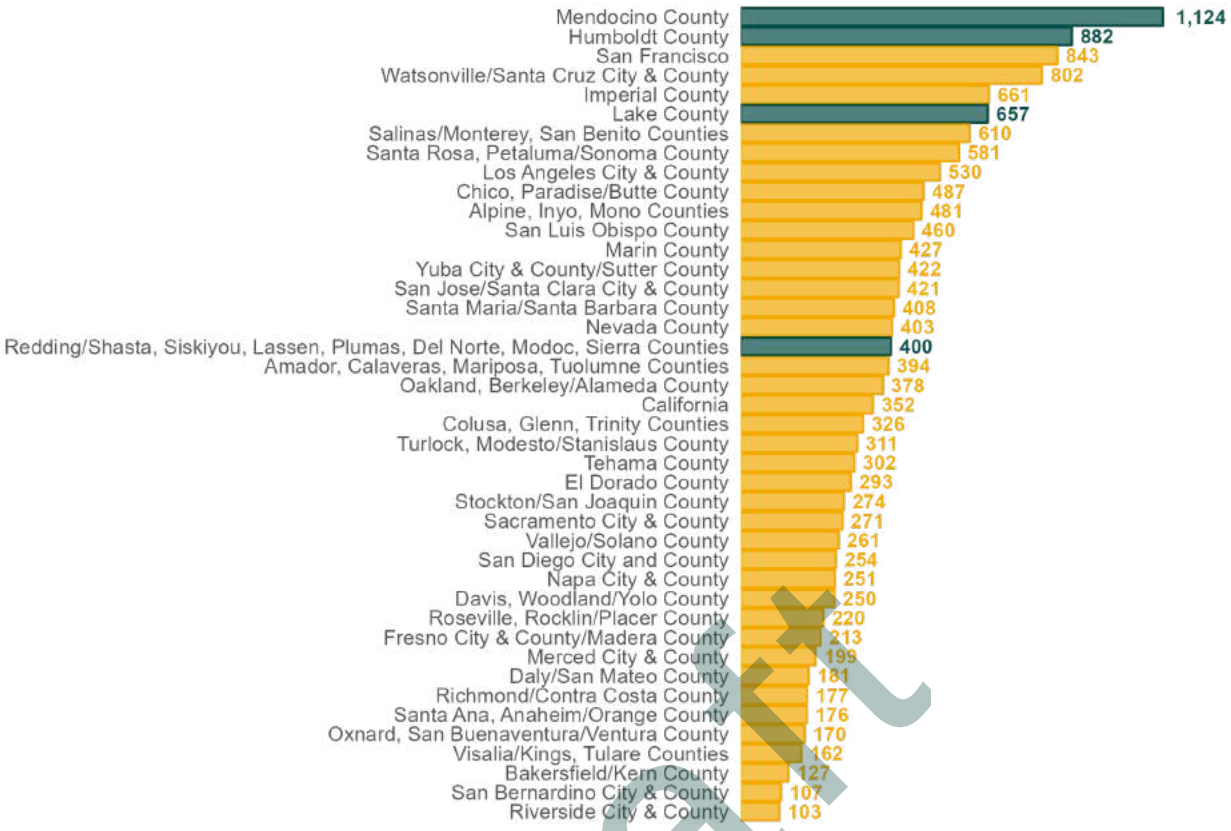
Note. Data sourced from the CHIS. Note that these data are percent of population whereas the ACS data in the body of the report are percent of households.

Appendix I: Statewide Point-in-Time Homeless Counts per 100,000 Population

Below is the complete version of the point-in-time count for each continuum of care reporting to HUD in California.

Figure I.1

Total Counted Homeless (Sheltered and Unsheltered) per 100,000 Population (2016 - 2020)

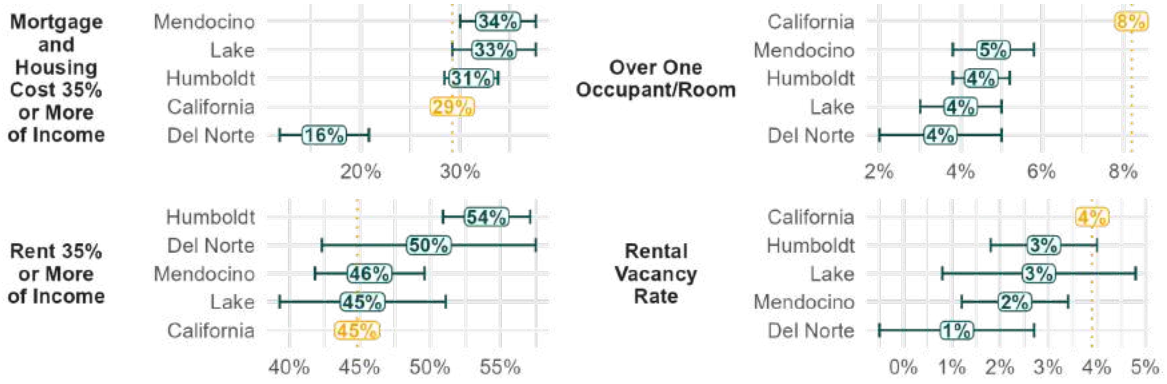


Note. Data sourced from the U.S. Department of Housing and Urban Development's datasets on Point-in-Time (PIT) estimates, a count of sheltered and unsheltered individuals experiencing homelessness. Data are 5-year averages from 2016 to 2020. Rates calculated by the author using population data are 5-year estimates from the American Community Survey from 2016 to 2020. Population estimates are summed for each CoC service area by county.

Appendix J: Housing Affordability Indicators

Figure J.1

Housing Affordability, Conditions, and Availability (2017 - 2021)

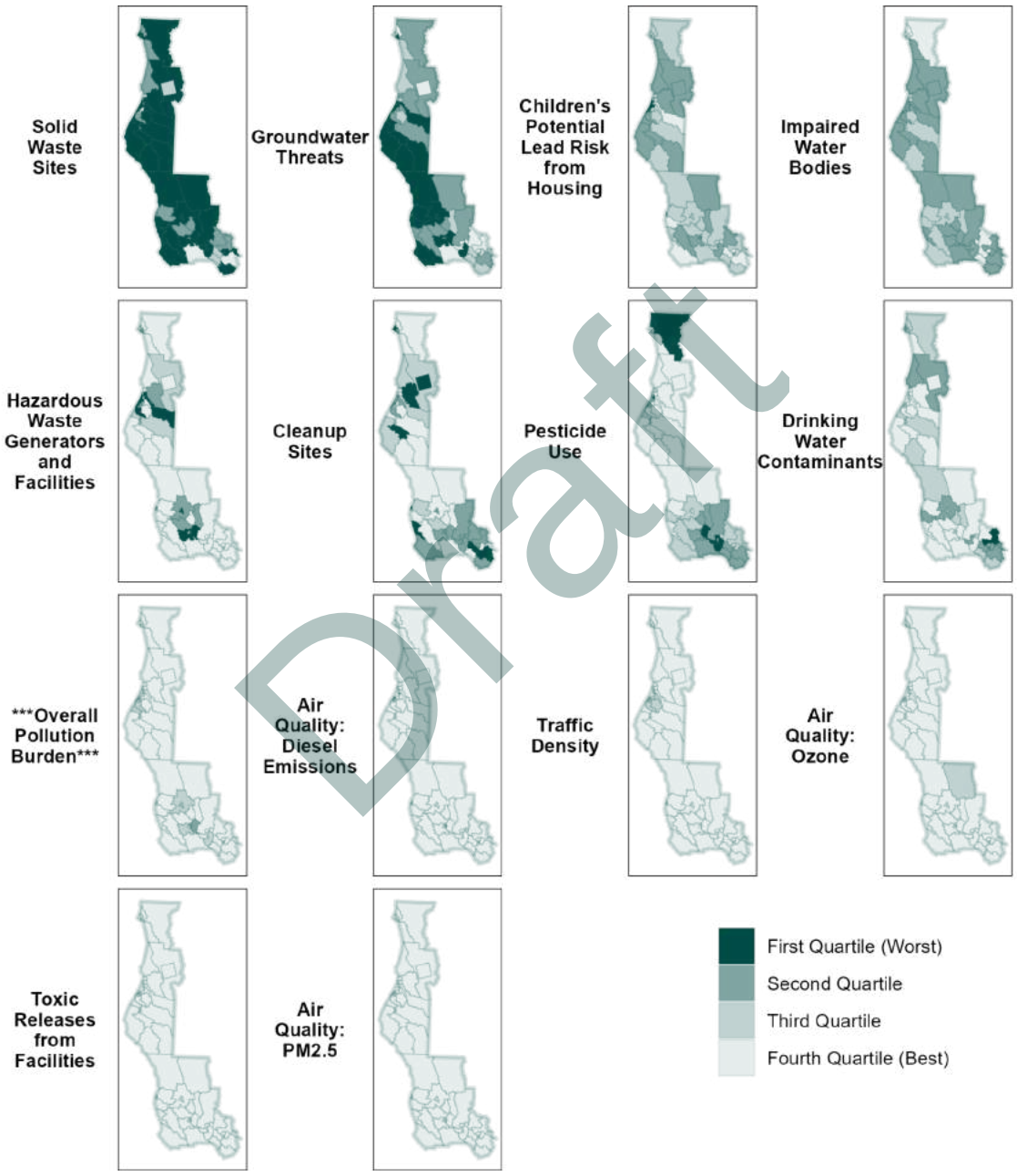


Note. Data sourced from the ACS.

Appendix K: CalEnviroScreen 4.0 All Indicators

Figure K.1

CalEnviroScreen 4.0 All Indicators



Note. Data sourced from CalEnviroScreen 4.0.

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CLIMATE & ENVIRONMENT

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Climate and Environmental Analysis - Redwood Coast

Introduction

Climate change and environmental impacts have far-reaching consequences on ecosystems, natural resources, and local economies, disproportionately affecting disinvested communities. Underserved and vulnerable populations are more likely to experience harm to their health, economic, and social well-being due to their race, gender, age, disability, poverty status, and limited access to resources. Many adverse effects on disinvested communities are systemically reinforced, and the CERF process identifies and mitigates these climate and environmental hazards.

The Redwood Coast CERF region is an ecologically and geographically diverse region with physical, emotional, and spiritual importance for many people. Most jurisdictions in the region are dependent on one or more of four main industries: (1) tourism, (2) maritime activities, (3) natural resources, or (4) agriculture. The region contains old-growth redwood forests, an active coastline, and expansive agricultural land. Communities within the region require both fiscal and physical infrastructure to provide adequate services amidst wildfires, rising temperatures, and changing precipitation patterns. These services will become even more important for the economic resilience of the Redwood Coast as the region is forced to face the climate emergency.

Climate Projections

Climate resilience is a region's ability to anticipate climate hazards, where and how those hazards will appear, and how they will impact a region. In the Redwood Coast, it is well-documented that climate change hazards can greatly impact the economic prosperity of a community. The effects of climate change hazards can be reduced in two ways:(1) climate change mitigation through actions that reduce greenhouse gas emissions or remove greenhouse gases from the atmosphere, and (2) climate change adaptation by adjusting to actual or expected future climate conditions. Climate resilience requires both mitigation and adaptation–the Redwood Coast can limit exposure to climate hazards through climate change mitigation efforts but must understand that climate hazards are caused by global emissions, therefore, climate adaptation is necessary to anticipate the hazards and adjust landscapes and communities to better handle them.

Therefore, understanding regional and local climate change projection data and implementing climate change mitigation and adaptation measures are key to developing economic resilience in this region.

Climate change projections can be used to understand the likely future climate and environmental scenarios that will exist in a region. An extensive list of indicators can be used to predict future climate trends, examples include metrics like the "number of extreme precipitation events" or "number of extreme heat days." By looking at indicators that are relevant to a region's geography, economic drivers, and demographic trends, planning efforts can be established to adapt to future climate scenarios.

Climate projections are important when developing mid to long-term economic forecasts and planning efforts. For example, increasing temperatures and changing precipitation patterns will likely lead to extensive drought which can lead to surface water shortages used to irrigate vineyards in Lake and Mendocino counties. The wine industry is a major economic contributor to these counties, and losses for grape production due to drought-induced pest infestation and water shortages could cause economic losses on larger scales than seen in recent years.

Climate Indicators

These indicators were chosen due to their specificity to the Redwood Coast region. Due to the varying ecosystems and climate zones within the Redwood Coast CERF region, there will be various impacts felt among the region. For example, Humboldt and Del Norte counties have a relatively safe extreme heat threshold–but the increase in the number of days may have extensive impacts on local economies and ecosystems.

Sea level rise maps are used for the coastal region since there is no readily available data at the county scale. While Lake County will not be directly impacted by sea level rise due to its inland location, there will be indirect impacts from its neighboring jurisdictions.

In this report, the following climate indicators were evaluated for future projections:

1. Annual Cooling Degree Days: measured in days per year, this indicator measures how many days in the 15 years will require indoor cooling because outdoor air temperatures are above a threshold temperature of 65 degrees Fahrenheit. While most households do not need cooling at this temperature, it is a common baseline temperature used by energy providers to indicate how many days will require high energy use for indoor space cooling.

2. Extreme Heat Days: measured in days per year above a threshold temperature (i.e., the daily high temperature representing the 98th percentile for the county) This indicator measures how many days will be hotter than the historical baseline and can be used to see how increases in extreme heat will impact a region.

3. Warm Nights: measured in nights per year above a threshold temperature (i.e., the nightly high temperature representing the 98th percentile for the county). While the regions tend to see

cooler nights even in the Summer months, understanding how nighttime temperatures are changing in the future may impact economic and public health planning.

4. Annual Average Precipitation: measured in inches, this indicator measures the average precipitation per year at the county level, precipitation is measured as liquid or solid water and is averaged over the county's area.

5. Area Burned: measured in hectares, this indicator measures how many acres will burn due to wildfire. This indicator can not predict where a fire will likely occur but can give an idea of how the local economy, public health, and health of local ecosystems may be impacted by wildfire overall.

Data Source and Methodology

Cal-Adapt Data

Future climate projects and historical baseline data were acquired through Cal-Adapt. Most indicators use downscaled LOCA CMIP5 modeled data provided by Scripps Institute of Oceanography.

Historical data used observed historical data for the 15 years from 1990 to 2004 where available (e.g., Area Burned does not have observed historical data available).

Indicator projections were analyzed under the emission scenario RCP8.5. RCP8.5 is a representative concentration pathway (RCP) that represents a no-mitigation scenario where global GHG emissions continue to rise throughout the 21st century. In California, annual average temperatures under this scenario are projected to increase by 4°C - 7°C by the end of this century[1]. While it may be likely that governments, corporations, and the global population will dramatically reduce the use of fossil fuel and engage in extensive greenhouse gas emission reductions, it may be beneficial to use a conservative approach and view climate projections under a "worst-case" or "business-as-usual" scenario.

Climate projections for the near future (2025–2039) and mid-future (2040–2054) are shown in this report. These 15-year timespans were chosen to show climate change impacts during the initiation and lifespan of CERF-funded projects.

Climate Engine

Additionally, observed climate change indicators of maximum monthly temperatures and average monthly precipitation from January 1969–May 2023 were collected from Climate Engine. This observed data is intended to show longer-term trends in temperature and precipitation patterns. The observed data uses the PRISM model with a 4000m scale and is aggregated by month.

[1] Cal-Adapt Glossary, Emission Scenario

EDDI Fire Projections

These datasets were provided by Dr. Daniel McEvoy of the Desert Research Institute and show wildfire risk projections[2]. These projections are under a 7-model ensemble for the historical time series from 1966–2005, and projections for the near future (2025–2039) and mid-century (2040–2054) during the summer (June, July, August) and autumn (September, October, and November). All data files used RCP 8.5 LOCA runs.

State of California Sea-Level Rise Guidance, 2018 Update

This report was published in partnership with the California Natural Resources Agency and California Ocean Protection Council. Sea-level rise projections for Cresent City, North Spit, and Arena Cove are presented in this chapter under RCP 8.5 for 2030, 2040, 2050, and 2060.

Interagency Sea Level Rise Scenario Tool – NASA Sea Level Change Portal

This tool uses sea level rise scenarios, also called Global Mean Sea Level (GMSL) scenarios, which represent possible future sea level changes in response to increasing greenhouse gas emissions and ocean and atmospheric warming. These scenarios are different than the RCP projections. As opposed to constructing a projection around a particular emissions pathway, the scenarios specify a targeted amount of sea level rise at a time in the future. The trajectory for getting to that target value relies on the same science and projection framework from the IPCC 6th Assessment Report[3].

Six GMSL scenarios together show a plausible range of sea level rise by 2100 being bound by the range 0.3-2.5m. This 0.3-2.5 m range was divided and aligned with emissions-based, conditional probabilistic storylines and global model projections into six GMSL rise scenarios: Low, Intermediate-Low, Intermediate, Intermediate-High, High, and Extreme, corresponding to GMSL rise by 2100 of 0.3 m, 0.5 m, 1.0 m, 1.5 m, 2.0 m and 2.5 m, respectively[4].

This chapter will present graphs with the six GMSL ranges showing sea level change in feet between the years 2020 and 2060.

Projections

Tables 1-4 provide an overview of the indicators' recent historical baseline and near and mid-future projections under RCP8.5[5] for each county from Cal-Adapt. The percent change from 1990–2004 to 2040–2054 is shown in the final column. Figures 1-4 are the historical maximum monthly temperature

[2]Due to various schools of thought on wildfire projections, the EDDI projections are included in addition to the Cal-Adapt Area Burned projections.

[3] What are the scenarios from the Sea Level Rise Interagency Task Force and how do they compare to the projections from the IPCC AR6?, September 2023

[4] Interagency Sea level Rise Scenario Tool, About the data

[5] Intergovernmental Panel on climate Change definition of RCP8.5

and average monthly precipitation trends. These historical trends can give context to future projections, and how the recent past may have already been impacted by climate change. Additionally, there is a second wildfire projection dataset from EDDI in Figures 5-6. Wildfire risk and secondary impacts, like wildfire smoke, loss of habitat, and the burning of hazardous materials, are likely the largest direct threats to the Redwood Coast's disinvested communities and economic resilience.

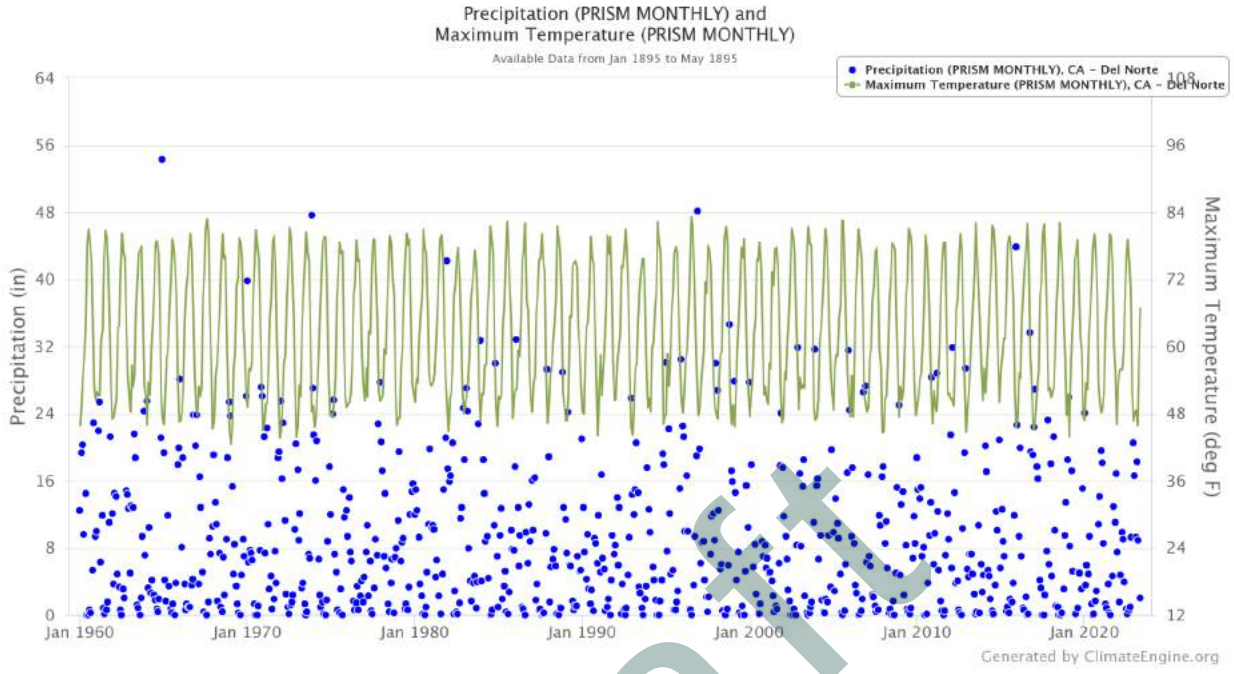
Table 1 Climate Projections for Del Norte County

Climate Indicators for Del Norte County	1990-2004 Observed Historical	2025-2039 RCP 8.5	2040-2054 RCP 8.5	Percent Change
Annual Cooling Degree Days Base 65F	0	4	10	-
Extreme Heat Days (days/yr) above 76.8F	2	10	15	650%
Warm Nights (nights/yr) above 49.2F	6	19	35	483%
Annual Average Precipitation (inches)	96	107	102	7%
Area Burned (hectares)	1,430	4,096	4,477	213%

Area Burned indicator does not have observed historical data and is modeled historical data under RCP 8.5.

Table: Sierra Business Council • Source: Cal-Adapt Tools • Created with Datawrapper

Figure 1 Historical Trends in Temperature and Precipitation for Del Norte County



Recorded rainfall has been consistently dropping since 1960. The monthly temperature high has been consistent.

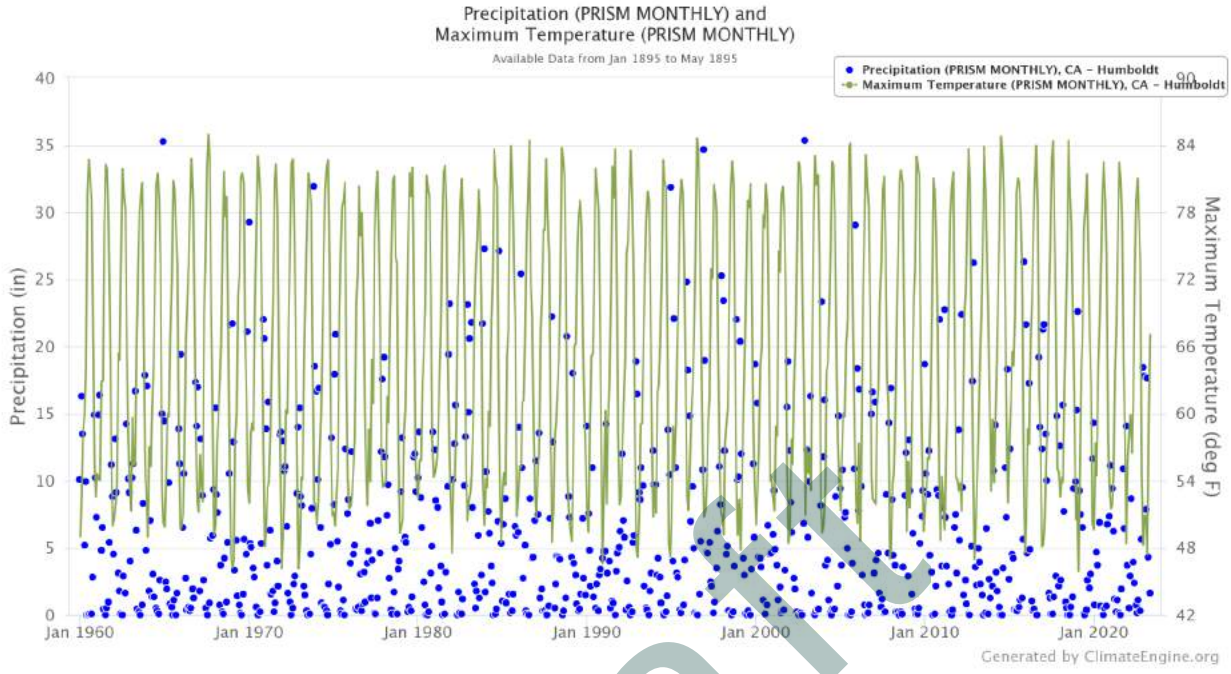
Table 2 Climate Projections for Humboldt County

Climate Indicators for Humboldt County	1990-2004 Observed Historical	2025-2039 RCP 8.5	2040-2054 RCP 8.5	Percent Change
Annual Cooling Degree Days Base 65F	3	84	129	4200%
Extreme Heat Days (days/yr) above 83.2F	1	12	18	1700%
Warm Nights (nights/yr) above 51.3F	6	33	49	717%
Annual Average Precipitation (inches)	70	80	75	6%
Area Burned (hectares)	4,787	7,543	8,156	70%

Area Burned indicator does not have observed historical data and is modeled historical data under RCP 8.5.

Table: Sierra Business Council • Source: Cal-Adapt Tools • Created with Datawrapper

Figure 2 Historical Trends in Temperature and Precipitation for Humboldt County



Temperature high is higher in the last decade than in the 60s. December 2002, the highest rainfall at 35.36 inches

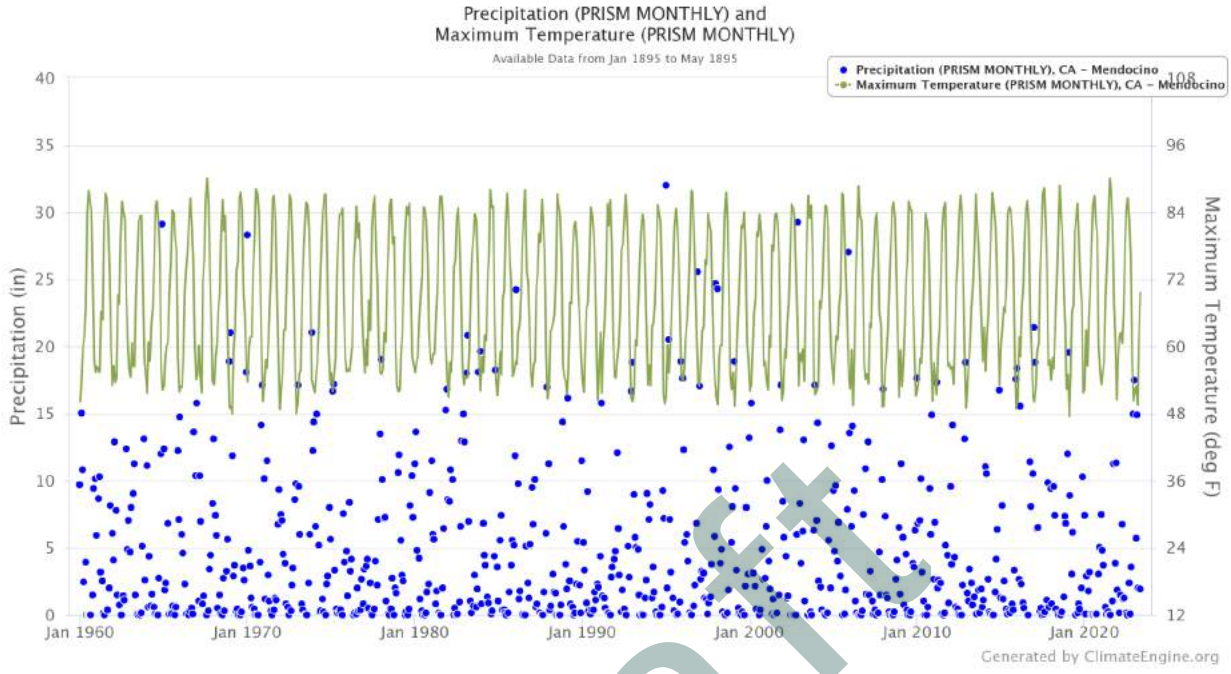
Table 3 Climate Projections for Mendocino County

Climate Indicators for Mendocino County	1990-2004 Observed Historical	2025-2039 RCP 8.5	2040-2054 RCP 8.5	Percent Change
Annual Cooling Degree Days Base 65F	135	305	366	171%
Extreme Heat Days (days/yr) above 90F	6	15	18	200%
Warm Nights (nights/yr) above 52.7F	7	27	35	400%
Annual Average Precipitation (inches)	56	62	57	2%
Area Burned (hectares)	4,586	6,159	6,962	52%

Area Burned indicator does not have observed historical data and is modeled historical data under RCP 8.5.

Table: Sierra Business Council • Source: Cal-Adapt Tools • Created with Datawrapper

Figure 3 Historical Trends in Temperature and Precipitation for Mendocino County



Precipitation has been lower in recent years. Max temperature has been rising since 2000.

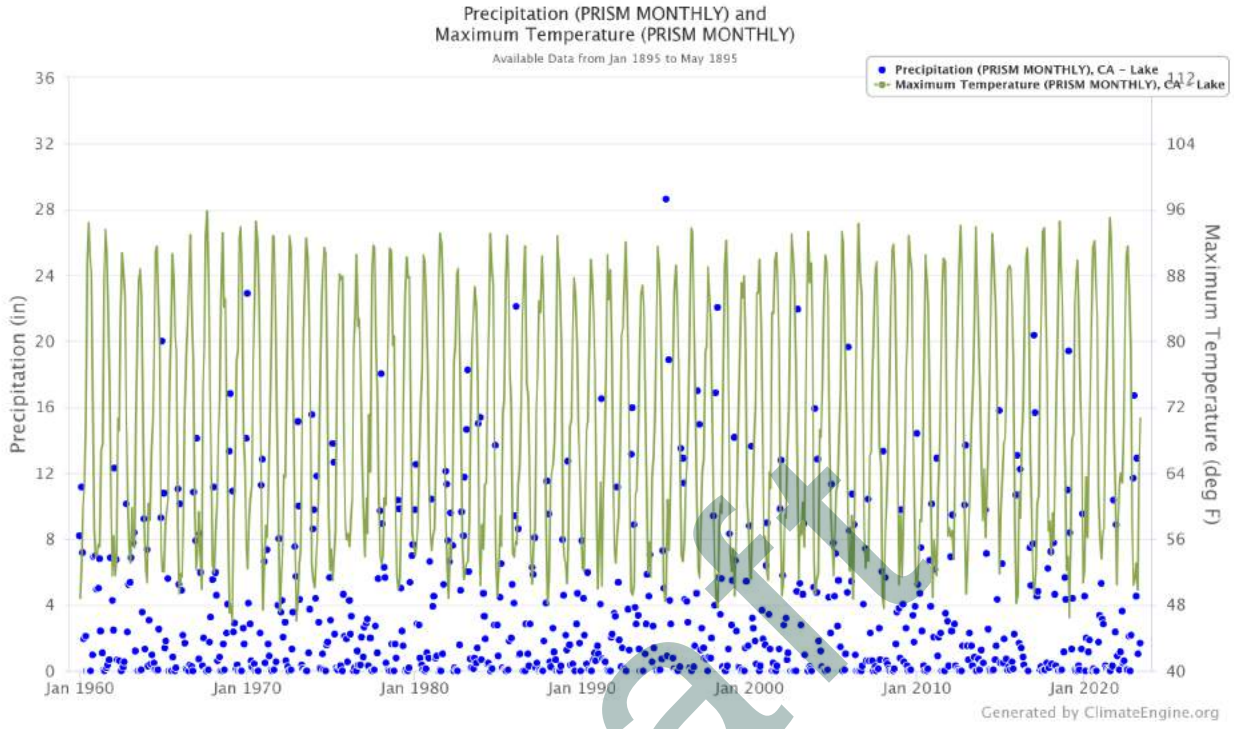
Table 4 Climate Projections for Lake County

Climate Indicators for Lake County	1990-2004 Observed Historical	2025-2039 RCP 8.5	2040-2054 RCP 8.5	Percent Change
Annual Cooling Degree Days Base 65F	319	686	805	152%
Extreme Heat Days (days/yr) above 97.1F	2	14	18	800%
Warm Nights (nights/yr) above 55.6F	5	20	27	440%
Annual Average Precipitation (inches)	44	47	44	0%
Area Burned (hectares)	3,207	3,923	4,129	29%

Area Burned indicator does not have observed historical data and is modeled historical data under RCP 8.5.

Table: Sierra Business Council • Source: Cal-Adapt Tools • Created with Datawrapper

Figure 4 Historical Trends in Temperature and Precipitation for Lake County



Since Aug 1993, the monthly max temperature has slowly risen. In the last decade, rainfall spiked in Jan 2017 and Feb 2019 but has remained low.

EDDI Projections

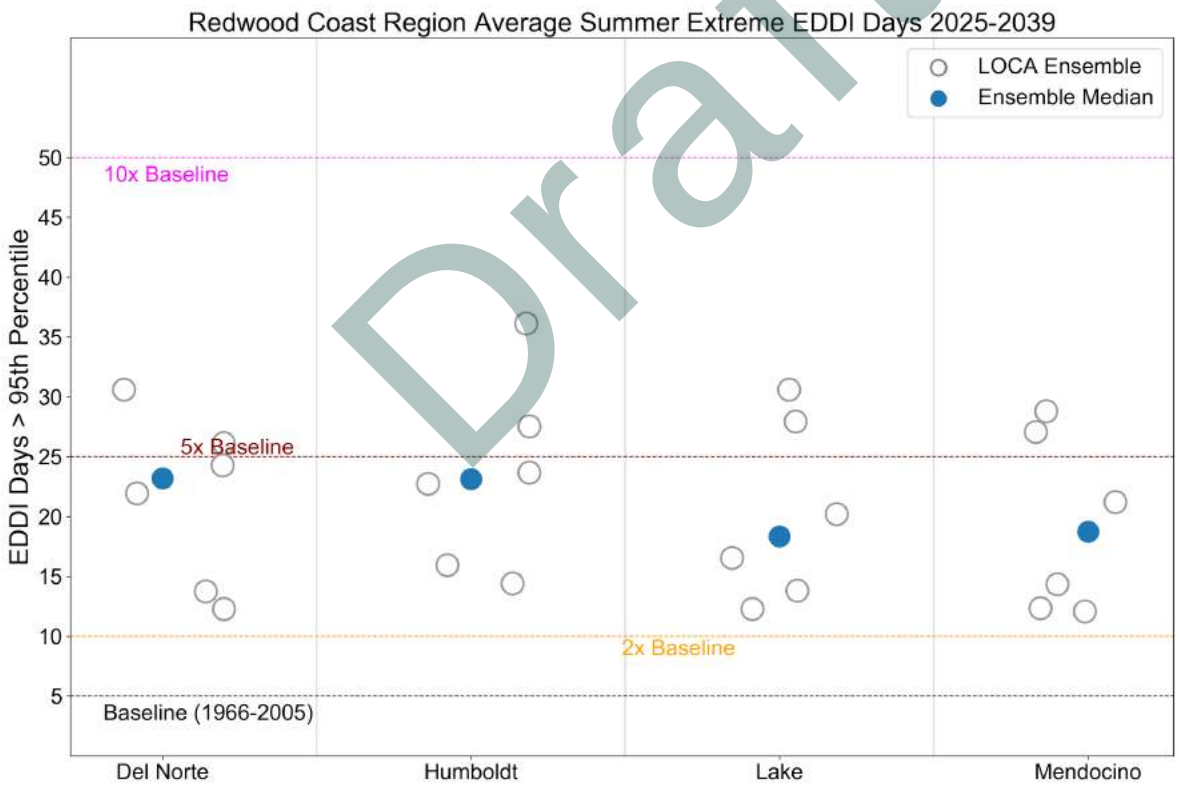
With increasing temperatures and changing precipitation patterns in the Redwood Coast region, one of the greatest climate threats to the region is wildfire. Changing climate conditions have led to greater wildfire severity with lasting economic and public health impacts in the region. As the region and state have struggled with ongoing droughts, measuring the evaporative demand can be used as a proxy for high fire danger days. As landscapes become drier, the risk of severe wildfires increases.

Recent high-impact wildfires and droughts have been linked to extremes in the Evaporation Demand Drought Index (EDDI). Evaporative demand can be thought of as how “thirsty” the atmosphere is, and how much moisture evaporates over a period of time. Increasing air temperature is the leading cause of increased evaporative demand for inland regions, and humidity has more of an overall influence on coastal regions. The likelihood of extreme wildfire potential is based on 2-week periods of elevated evaporative demand during the summer and autumn. When the 2-week EDDI is above the 95th percentile, the indicator can be used as a proxy for high fire danger days.

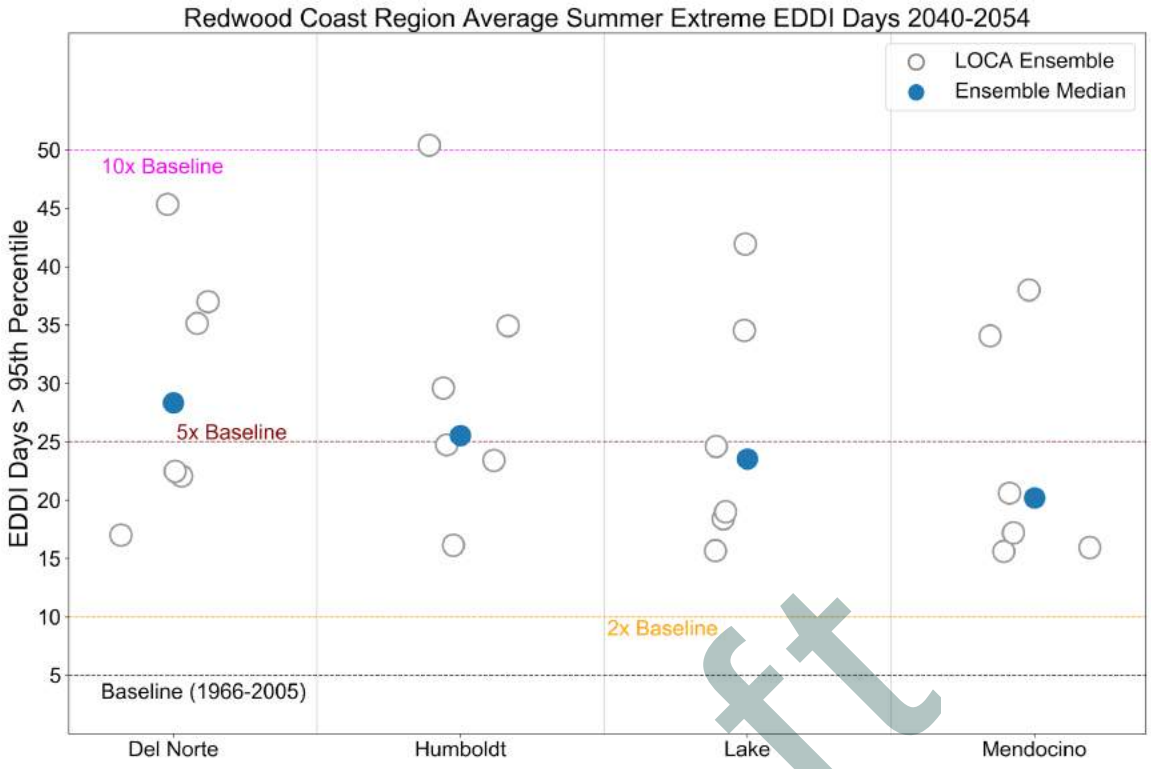
In the figures presented below, each dot is a modeled projection showing the number of days where the 2-week EDDI is above the 95th percentile, indicating a high fire danger day. The blue dot shows the ensemble median (i.e., the median of all the measured models). In the summer (June, July, and August), the total number of days possible is 92, and in the autumn (September, October, and November) 91 days are possible. If a dot has a value of 30, that indicates a third of all summer days are high fire danger days. The county data can be found in the column above the county name. The historical baseline is approximately 5 days per season have a 2-week EDDI above the 95th percentile.

All models for both the near future and the mid-century show an increase in extreme EDDI days, indicating more high fire danger days. The mid-century shows a consistent increase of over 400% from historical across the entire region, with Del Norte and Humboldt having more extreme EDDI days than the more southern counties in the region. As seen in the Autumn projections below in Fig 5 and 6, the summer months will see bigger increases in extreme EDDI days.

Figure 5 Extreme EDDI Days in Summer for Near Future and Mid-Century



Source: Dr. Daniel McEvoy, Desert Research Institute

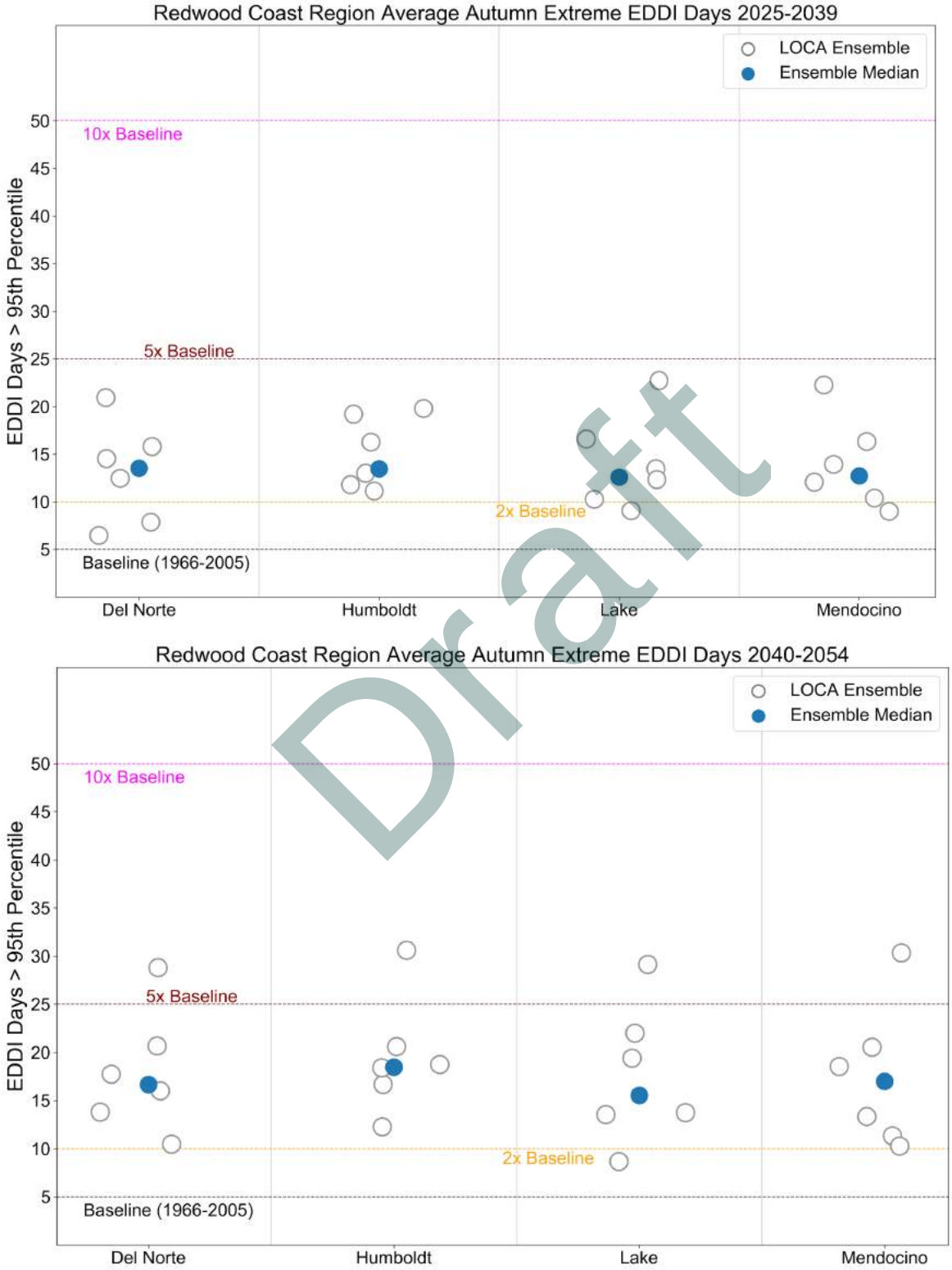


Source: Dr. Daniel McEvoy, Desert Research Institute

As seen in the two timescales in Fig 5, high fire risk days will increase for all four counties between the near future (top graph) and the mid-century (bottom graph). By the mid-century, the northern counties will see an five fold increase in the number of days with high fire risk, with Del Norte County predicted to have nearly a third of summer days be high risk.

The number of days with extreme fire risk in the fall months are shown in Fig 6. Through the mid-century, the number of days with high fire risk will be lower than in the summer months, but still have a roughly three fold increase in high risk days compared to the historical average. This may be due to cooler temperatures in the fall, an increase in humidity, or other seasonal fluctuations.

Figure 6 Extreme EDDI Days in Autumn for Near Future and Mid-Century



Source: Dr. Daniel McEvoy, Desert Research Institute

Sea Level Rise

Sea level rise is a critical threat to the region due to the region's reliance on coastline tourism, maritime activities, and the critical infrastructure and communities within the threatened zones within feet of the high-tide line. Sea level rise projections should be used for planning decisions and to develop pathways for economic development that increase the adaptative capacity of the region.

The three tide ranges within the Redwood Coast region are Crescent City in Del Norte County, North Spit in Humboldt County, and Arena Cove in Mendocino County. Data for sea level rise is developed for tide ranges and shared below.

Table 5 Cresent City Sea Level Rise Projections under RCP 8.5

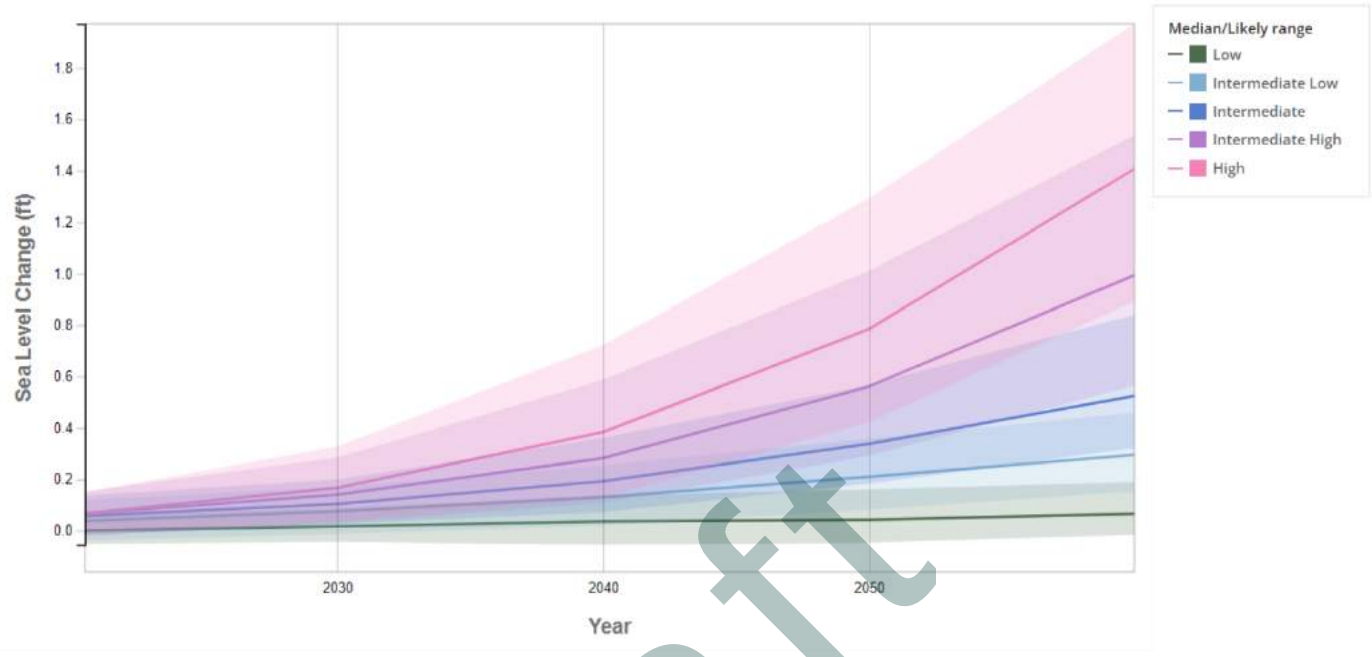
Probabilistic projections for the height of sea level rise with respect to a baseline of the average relative sea level over 1991 - 2009.

Time Period	Likely Range (ft)	1-in-200 Chance (ft)
2030	0.0 - 0.3	0.5
2040	0.1 - 0.4	0.9
2050	0.2 - 0.7	1.5
2060	0.2 - 0.9	2.1

The likely range shows a 66% probability of sea level rising between the shown range. The 1-in-200 chance shows a 0.5% probability of sea level rise reaching or exceeding the shown value.

Table: Sierra Business Council • Source: CA Ocean Protection Council • Created with Datawrapper

Figure 7 Cresent City Sea Level Rise Projections under GMSL Scenarios



Source: NASA Sea Level Change

Key Takeaways:

- Within the likely range in both datasets, Crescent City will likely see sea level rise within six inches by 2050. Even with extensive global greenhouse gas emissions reductions, most projections through 2050 are inevitable due to past emissions.
- Beaches with low gradients, like Crescent Beach could see nearly 100 feet of shoreline lost to sea level rise by 1960. It is typically assumed that beaches with slopes around 1% can expect 100 feet of shoreline lost for every foot of sea level rise.

Table 6 North Spit Sea Level Rise Projections under RCP 8.5

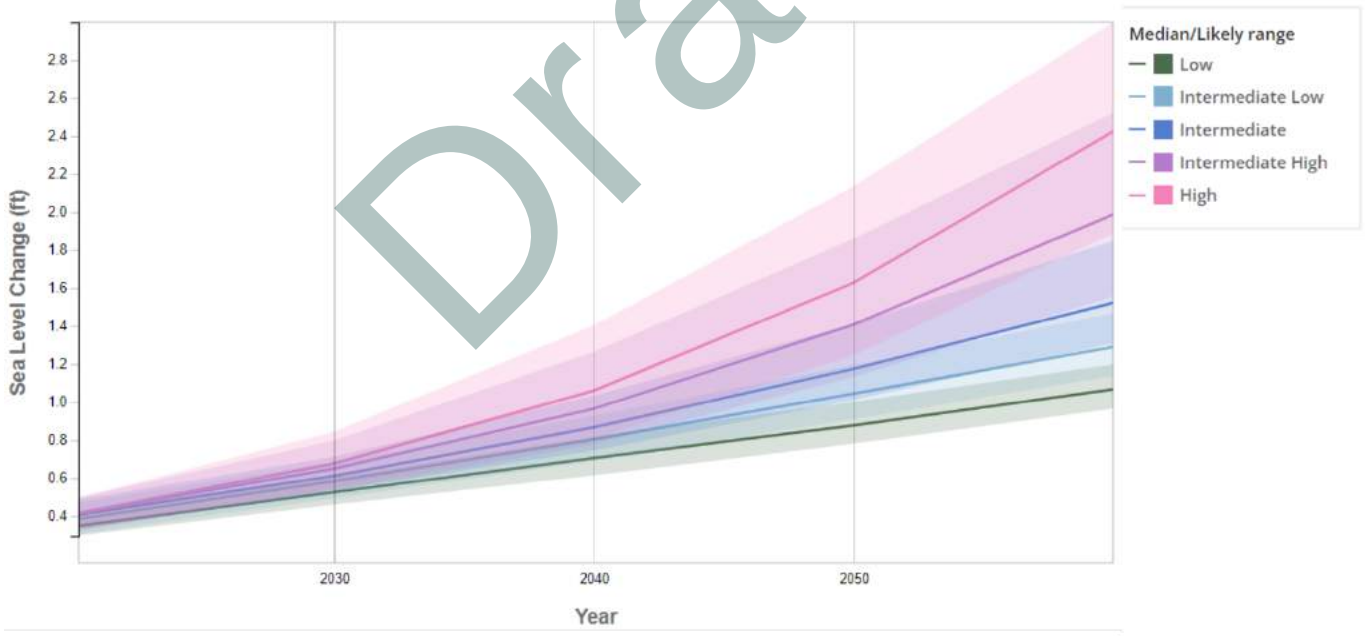
Probabilistic projections for the height of sea level rise with respect to a baseline of the average relative sea level over 1991 - 2009.

Time Period	Likely Range (ft)	1-in-200 Chance (ft)
2030	0.5 - 0.7	1.0
2040	0.7 - 1.1	1.6
2050	0.9 - 1.5	2.3
2060	1.2 - 1.9	3.1

The likely range shows a 66% probability of sea level rising between the shown range. The 1-in-200 chance shows a 0.5% probability of sea level rise reaching or exceeding the shown value.

Table: Sierra Business Council • Source: CA Ocean Protection Council • Created with Datawrapper

Figure 8 North Spit Sea Level Rise Projections under GMSL Scenarios



Source: NASA Sea Level Change

Key Takeaways:

- Subsidence, or the sinking of land, near Humboldt Bay could increase the rate of sea level rise.
- The North Spit will likely see the greatest rise in sea level in the Redwood Coast region and is one of the highest-risk tides ranges on the West Coast.

- The coastal dune habitat along the North Spit may increase coastal resilience in the region if it is restored and maintained.

Table 7 Arena Cove Sea Level Rise Projections under RCP 8.5

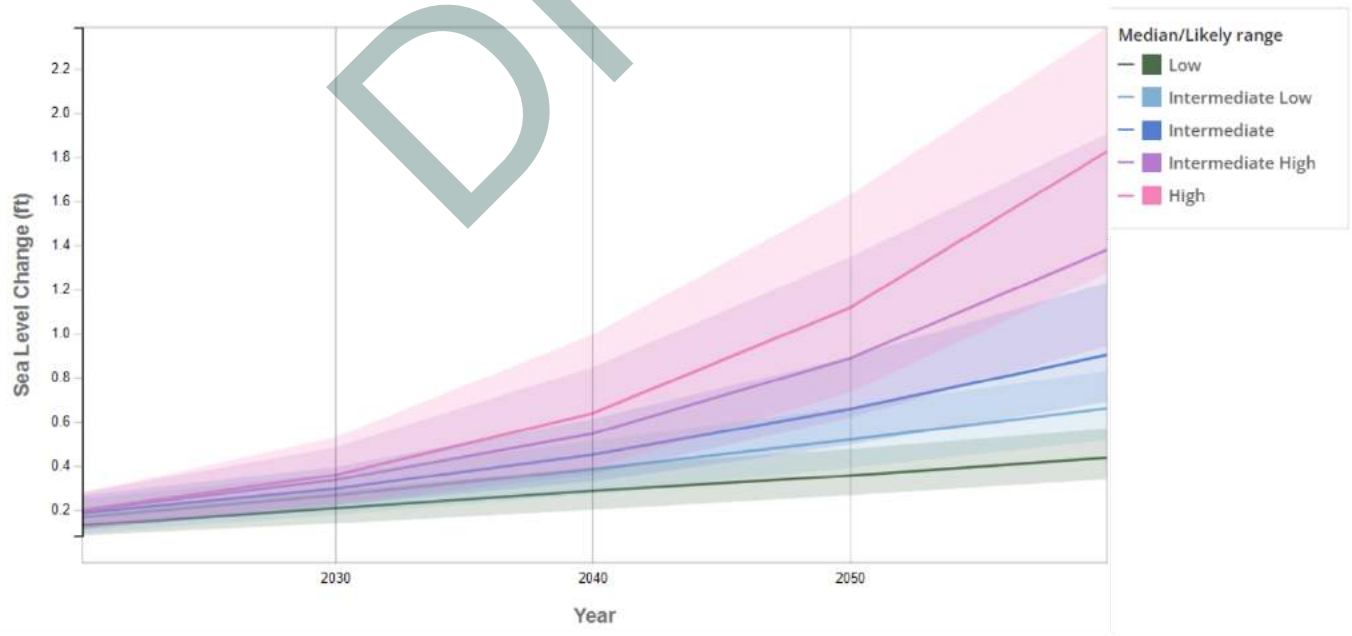
Probabilistic projections for the height of sea level rise with respect to a baseline of the average relative sea level over 1991 - 2009.

Time Period	Likely Range (ft)	1-in-200 Chance (ft)
2030	0.2 - 0.5	0.7
2040	0.3 - 0.7	1.2
2050	0.5 - 1.0	1.8
2060	0.6 - 1.3	2.5

The likely range shows a 66% probability of sea level rising between the shown range. The 1-in-200 chance shows a 0.5% probability of sea level rise reaching or exceeding the shown value.

Table: Sierra Business Council • Source: CA Ocean Protection Council • Created with Datawrapper

Figure 9 Arena Cove Sea Level Rise Projections under GMSL Scenarios



Source: NASA Sea Level Change

Key Takeaways:

- Within both datasets, Arena Cove can expect to see up to a foot in sea level rise by 2050. This may lead to a loss of shoreline near the Point Arena Pier, and cause erosion along the sea cliffs.
- Loss of shoreline in the Arena Cove area would lead to limited public and commercial access, and the Mendocino coastline with gentle slopes could see over 100 feet of shoreline lost by 2060.

Climate Change Impacts on Disinvested Communities

Disinvested populations are more likely to experience harm to their health, economic, and social well-being due to their race, gender, age, disability, poverty status, and limited access to resources. While many adverse effects are systemically reinforced, the region must identify, mitigate, and resolve these challenges to build resilience and prosperity.

Redwood Coast communities are vulnerable to climate change due to their geographical locations and environment, the lack of resources and essential services, and the reduced representation of at-risk populations. These communities tend to be defined by sparsely populated rural living, low-tech, outdoor and service-based jobs, outdoor adventure sports, and traditional values, where People of Color, people with disabilities, and families in poverty are present but silent and sometimes exist as hidden populations. Lack of diversity can lead to less state and federal funding being supplied to the region, and lead to greater disparities in climate change adaptation planning.

The populations in Table 8 may see the most impacts from climate change hazards. Young children, seniors, and people with disabilities are at higher risk of physical impacts from climate change due to reduced physical and mental capacities (due to age, illness, or isolation), and may be more reliant on caregivers and medical equipment. Power outages can cause immense physical stress on communities reliant on air conditioning, refrigeration of medicines, reliance on medical equipment, and other powered products. Additionally, these groups are less likely to be able to evacuate without assistance.

People experiencing poverty and those unable to work are more likely to face economic barriers to climate adaptation. This can present as insufficient shelter or mobility during extreme weather events. These groups are also more likely to leave the area in the aftermath of a natural disaster or extreme weather event; additionally, these groups can increase in population during and after a natural disaster. Growing populations of underresourced groups in the Redwood Coast can lead to lower community resilience, an increased need for climate planning, and more social services.

Table 8 Populations with Critical Risk to Climate Hazards

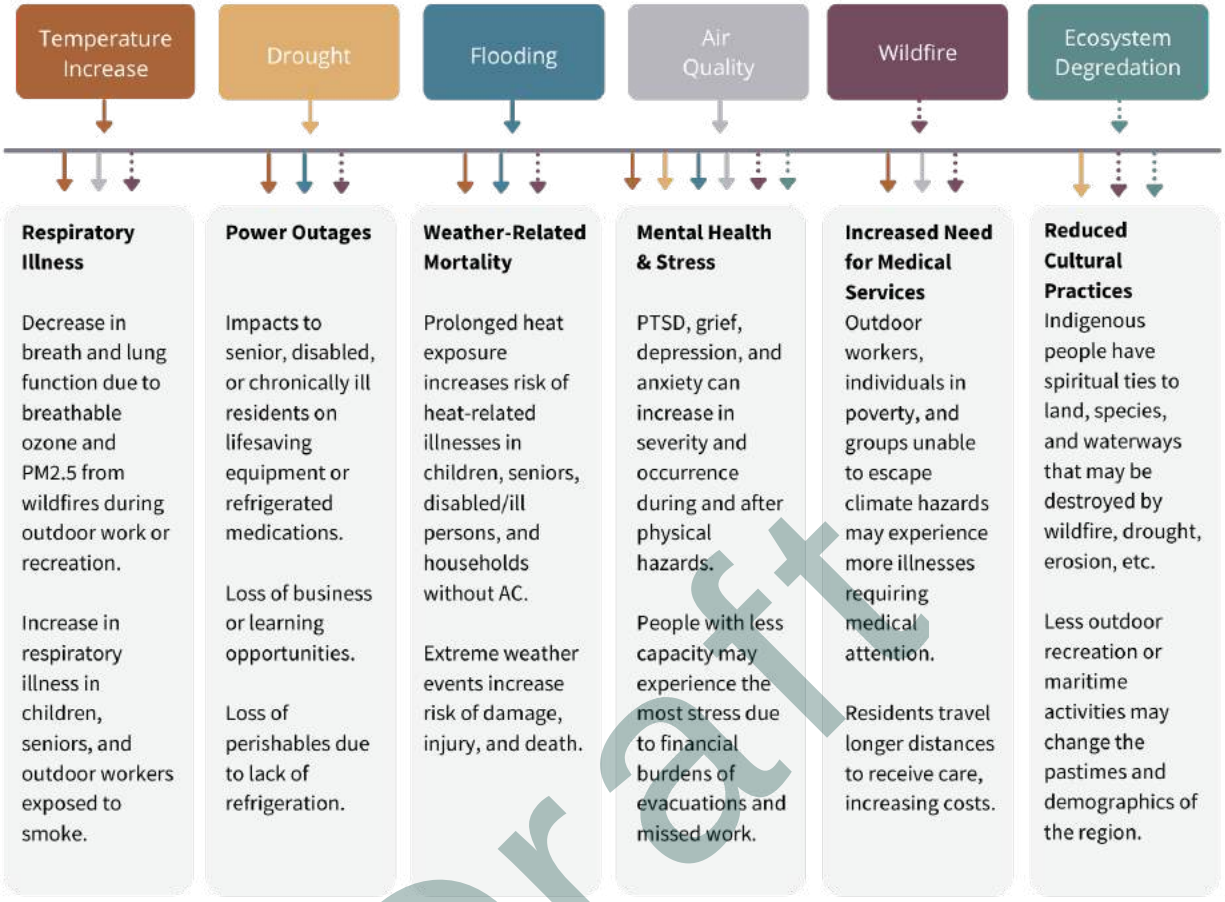
Population	Number of People	Percent of Total Population	Critical Risks
Under 5	17,421	5.4%	Extreme heat, air quality
Over 65	65,563	32.9%	Extreme heat, air quality, reduced evacuation ability
People of Color	79,956	64.6%	Extreme heat, air quality
People in poverty	56,819	17.8%	Extreme heat, air quality, reduced evacuation ability, water shortages (i.e., dry wells), extreme precipitation events
People that did not work (aged 16-64)	58,611	29.4%	Extreme heat, air quality, reduced evacuation ability, water shortages (i.e., dry wells)
Households with no car	8,104	6.6%	Extreme heat, air quality, reduced evacuation ability, water shortages (i.e., dry wells), extreme precipitation events
People with disabilities	58,697	18.4%	Extreme heat, air quality, reduced evacuation ability, power outages
People without health insurance	25,042	7.9%	Extreme heat, air quality

Various Total Population values were used based on population type. For example, the percent of households with no car is based on the total number of households in the Redwood Coast region, and not total population.

Table: Sierra Business Council • Source: U.S. Department of Commerce. 2022. Census Bureau, American Community Survey Office, Washington, D.C. • Created with Datawrapper

Most of the impacts felt by climate hazards will be similar across vulnerable populations and can be briefly summarized in the graphic below.

Figure 10 Climate Impacts on Vulnerable Populations



Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions are air pollutants including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and nitrogen trifluoride (NF3). Each of these gases has a different potency or ability to contribute to global warming.

Common sources of GHG emissions include the generation of electricity for lighting, appliances, cooking, and heating in homes and businesses; the burning of fossil fuels to power passenger cars and road freight; and the burning of agricultural residues (i.e., crop burning) which all release CO2, N2O, and CH4.

While new technologies and renewable energy sources have contributed to lower energy-related GHG emissions, rising populations, and commercial growth result in increasing emissions. During the CERF process, it will be important to find a balance between increasing the number of high-quality jobs in the Redwood Coast region without compromising on GHG emissions reduction goals.

Some widely accepted methods for reducing emissions at the local level include energy efficiency retrofits (e.g., LED light bulbs, hot water heat pumps) in homes, commercial spaces, and public buildings, as well as increasing the adoption of fuel-efficient vehicles.

There are GHG emission data gaps in the Redwood Coast region, and it is recommended that all jurisdictions without a GHG emission inventory prepared within the last five years complete a comprehensive inventory to better understand existing emission sources and trends. This will allow local governments to develop reduction targets and strategies.

Data Source and Methodology

For the Redwood Coast CERF region, a community-level GHG emissions inventory was only available for Humboldt County but was more than five years old and the data was scaled using demographic changes and emission trends to estimate 2020 emissions. A detailed methodology for this normalization technique can be found in Appendix B. Due to the limitations of this methodology, only emissions from the Residential, Nonresidential, and Transportation sectors will be shown here. Local emissions from the Solid Waste and Water and Wastewater sectors can increase emission totals by varying proportions depending on the existence of treatment plants, landfills, and other sites that emit GHG within a jurisdiction's boundary. These sectors have been omitted from this analysis due to restraints on normalizing these values.

Del Norte, Lake, and Mendocino counties had greenhouse gas emission estimates available through Google Environmental Insights Explorer (Google EIE). The methodology used by Google EIE differs from the method used by Sierra Business Council and most consulting firms performing local and regional emissions inventories. Google EIE methodology can be found here. Due to the lack of available greenhouse gas inventories in the Redwood Coast CERF region, it was beneficial to utilize Google EIE to give a sense of regional emission totals and an estimated emission source breakdown by sector.

Due to the mixed methodologies used, the regional GHG emissions totals are inaccurate and should be used as a proxy.

DISCLAIMER: Due to the extensive reliance on estimated values, the county and regional totals shown below are not accurate. Further, the calculation methods and tools used do not align with GHG emission inventory best practices. Therefore, all GHG emissions shown should not be used for climate action planning purposes. They are provided for educational purposes only. It is highly recommended

that jurisdictions complete comprehensive emissions inventories. comprehensive emissions inventories. For jurisdictions interested in having a GHG inventory developed, resources are available from CARB, ICLEI, and Redwood Coast Energy Authority.

Sources of Greenhouse Gas Emissions

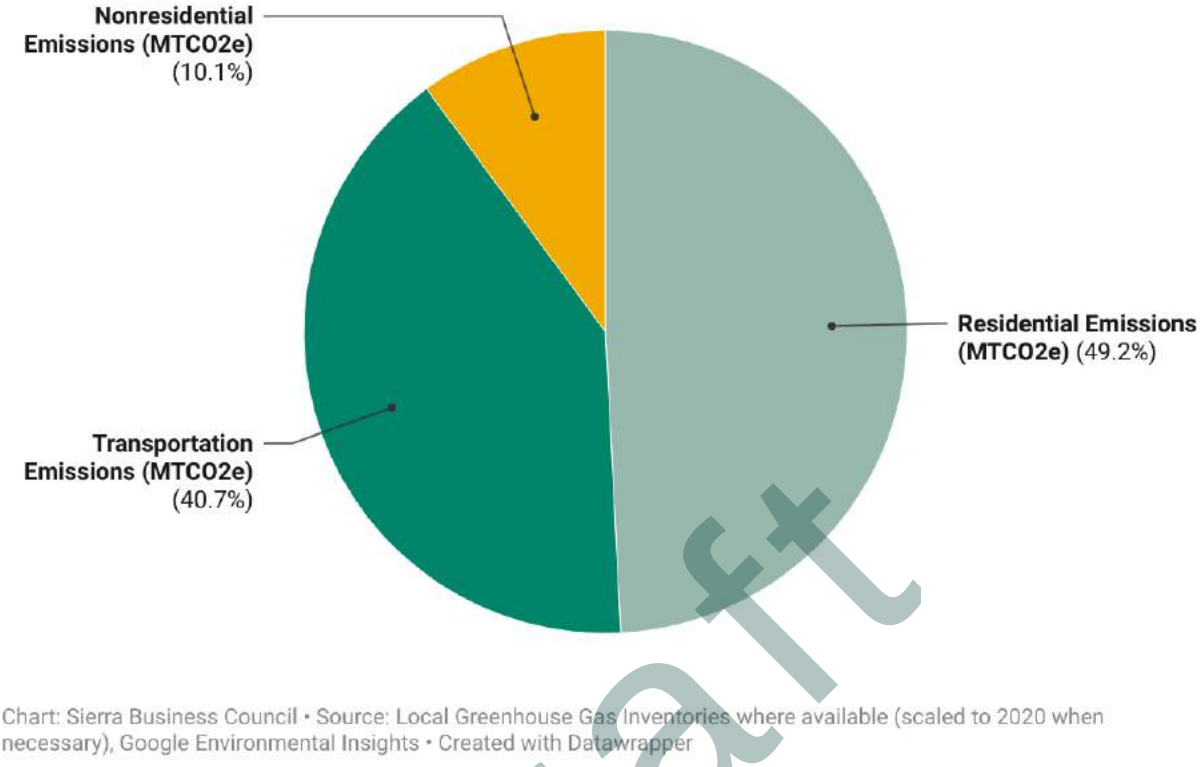
County Emissions by Sector

Table 9 County and Regional Emissions by Sector

County	Year	Residential Emissions (MTCO2e)	Nonresidential Emissions (MTCO2e)	Transportation Emissions (MTCO2e)	Total Emissions (MTCO2e)
Del Norte	2022	1,196,000	140,500	181,300	1,317,800
Humboldt	2020	1,131,228	190,673	1,680,088	1,901,990
Lake	2022	1,521,000	158,000	1,173,000	1,752,000
Mendocino	2022	1,647,000	1,117,000	1,301,000	11,065,000
Regional	-	**11,495,228**	**1,306,173**	**11,235,388**	**13,036,790**

Table: Sierra Business Council • Source: Local Greenhouse Gas Inventories where available (scaled to 2020 when necessary), Google Environmental Insights • Created with Datawrapper

Figure 11 Regional GHG Emissions by Sector



In California, the Transportation sector is the largest contributor to GHG emissions, and many rural California regions see this trend. While the Redwood Coast region analysis shows the residential sector as the largest contributor to GHG emissions, it should be noted that emission data from Google EIE tends to show lower proportions of emissions from transportation than traditionally conducted GHG emission inventories.

Transportation is still heavily reliant on the burning of fossil fuels (e.g., gasoline and diesel), which contribute large amounts of greenhouse gases to the atmosphere. In rural areas, like the Redwood Coast region, it is unsurprising to see the transportation sector make up the vast majority of emissions due to residents needing to travel farther distances to town centers and typical services like schools, grocery stores, and health care. Rural areas with economies based on natural and working land industries may see even larger percentages of emissions associated with the Transportation sector due to the increased use of off-road vehicles and equipment.

Rural regions are also slower to adopt new technologies like electric vehicles (EVs); this may be due in part to local resistance, but largely in part to the lack of EV infrastructure and funding to support a transition, as well as the individual cost barriers to residents and cultural resistance to change.

Residential building energy use is typically rural regions' second largest GHG emitting sector. This is due to rural regions' reliance on natural gas and propane as primary fuel sources of home heating. As California begins to mandate cleaner energy sources and a transition to electrification, it will be important that the Redwood Coast region has access to energy efficiency resources, clean energy workforce development, and funding opportunities. Additionally, it will be important that large energy providers of the region can provide reliable transmission and distribution infrastructure to ensure power outages will not disproportionately affect rural communities where extreme weather conditions have led to a reliance on natural gas and propane.

Significant Stationary Sources of GHG Emissions

California Air Resources Board (CARB) requires facilities emitting 10,000 metric tons or more of carbon dioxide equivalent (MTCO2e) or more to report annually[6]. Only Lake and Humboldt County have facilities that meet or exceed the mandatory reporting thresholds for 2020. The following facilities were identified using CARB's Pollution Mapping Tool.

Table 10 Significant Stationary Sources of GHGs in 2020

County	City/Address	Source Name	Emissions (MTCO2e)	Year	NAICS	Sector
Lake	10350 Socrates Mine Rd, Middletown, CA 95461	Calpine - Geysers Power Company, LLC - Geothermal	210	2020	221116	Electricity Generation
Humboldt	97 Bay Street, Samoa, CA 95564	DG Fairhaven Power LLC	16	2020	221117	Electricity Generation
Humboldt	153 Main St, Scotia, CA 95565	Humboldt Sawmill Company	296	2020	221117	Cogeneration
Humboldt	1000 King Salmon Ave, Eureka, CA 95503	PG&E Humboldt Bay Generating Station	227	2020	221112	Electricity Generation
Humboldt	3160 Upper Bay Road, Arcata, CA 95521	The Sun Valley Group	12	2020	111422	Other Combustion Source

Table: Sierra Business Council • Source: CARB Pollution Mapping Tool, 2023 (Reporting Year 2020) • Created with Datawrapper

All of the facilities required to report annual GHG emissions to CARB are within the energy sector.

[6]Facilities report their emissions to CARB using CARB-designated quantification methods, and the data are stored in CARB's MRR database. GHG emissions data for facilities emitting over 25,000 metric tons of CO2 equivalents are subject to independent third-party verification by a CARB-accredited verifier.

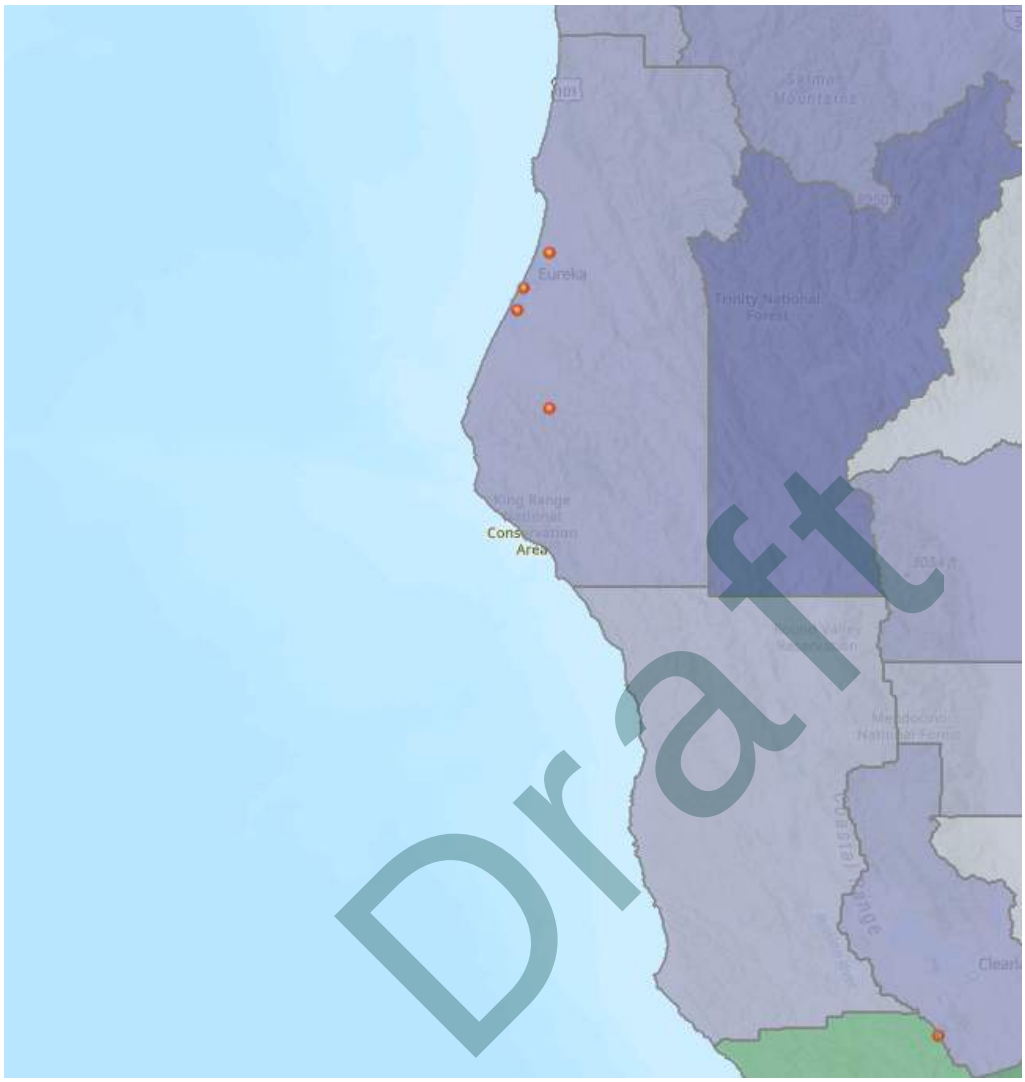
Greenhouse Gas Emissions Impacts on Disinvested Communications

Air pollutants from GHG emissions in the Redwood Coast CERF region have modest direct impacts on disinvested populations due to the low number of large stationary sources in the region and minimal multilane roadways with traffic congestion that leads to smog and air pollution. These GHG emissions impacts occur more frequently in areas with high volumes of manufacturing, mining, and extraction industries, or large roadways with heavy traffic near residential areas.

Because GHG emissions lead to climate change by trapping heat, the greatest impact disinvested populations in the region will face is the various climate change impacts discussed in the previous section titled 'Climate Change Impacts on Disinvested Communities.' Most threatening will be the increase in extreme weather events like heavy winter storms, wildfires, and rising temperatures. It should be noted that wildfires are likely the leading source of GHG emissions in the region. There is currently no agreed-upon emissions accounting methodology across the state, and wildfire-induced GHG emissions are not included in this report.

The Redwood Coast region has five mandatory reporting facilities as mentioned in Table 10. As can be seen in Figure 12, these facilities are all located in census tracts with a median household income (MHI) far below the state's median household income of $84,097 and the national MHI of $69,000. Two of these facilities are within the Humboldt Bay region and may be at risk of sea level rise or flooding events. This could lead to pollution in the Bay and ocean waters that could pose a risk to ecosystems and public health. Two of these facilities are located in tracts with MHI's below $40,000.

Figure 12 Median Household Income and Large Emission Point Source Facilities



A zoomable version of this map is available here.

Air Pollution

In the Redwood Coast region, the scent and sensation of the coastal breeze and misty redwood forests are a crucial part of the desire to live and work in the area. “Pure air” is a mixture of gases containing about 78% nitrogen, 21% oxygen, less than 1% carbon dioxide, argon, and other gases, and varying amounts of water vapor. Air pollution is the degradation of air quality from unwanted chemicals or materials in the air. Any amount of foreign or natural substances in the air that may have negative impacts on humans, animals, and ecosystems are known as air pollutants or criteria.

Criteria air pollutants are pollutants where acceptable levels of exposure can be determined and a standard level for ambient air quality has been established. The following criteria pollutants will be discussed in this report (all definitions are from the California Air Resources Board [CARB]):

- **Ozone:** A strong-smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a product of the photochemical process involving the sun's energy and ozone precursors, such as hydrocarbons and oxides of nitrogen. Ozone exists in the upper atmosphere ozone layer (stratospheric ozone) as well as at the Earth's surface in the troposphere (ozone). Ozone in the troposphere causes numerous adverse health effects and is a criteria air pollutant. It is a major component of smog.
- **Carbon monoxide:** A colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. Over 80 percent of the CO emitted in urban areas is contributed by motor vehicles. CO is a criteria air pollutant.
- **Nitrogen oxides:** A general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO2), and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation and acid deposition. NO2 is a criteria air pollutant and may result in numerous adverse health effects.
- **Sulfur dioxide:** A strong-smelling, colorless gas that is formed by the combustion of fossil fuels. Power plants, which may use coal or oil high in sulfur content, can be major sources of SO2 and other sulfur oxides contributing to the problem of acid deposition. SO2 is a criteria air pollutant.
- **PM10:** A criteria air pollutant consisting of small particles with an aerodynamic diameter less than or equal to a nominal 10 microns (about 1/7 the diameter of a single human hair). Their small size allows them to make their way to the air sacs deep within the lungs where they may be deposited and result in adverse health effects. PM10 also causes visibility reduction.
- **PM2.5:** Includes tiny particles with an aerodynamic diameter less than or equal to a nominal 2.5 microns. This fraction of particulate matter penetrates most deeply into the lungs.

This report will also look at the emissions of non-criteria pollutants. The most common non-criteria pollutants are Total Organic Gases (TOG), which include gases at atmospheric pressure and ambient temperatures, and Reactive Organic Gases (ROG), also known as Volatile Organic Compounds (VOC).

Data Source and Methodology

CARB Emission Tool, 2017 baseline year

Sources of Air Pollution

Stationary sources or point sources are sources that can be identified by locations and are often permitted by local Air Districts. Stationary sources may be power plants, landfills, or industrial processes.

Table 11 Stationary Sources of Air Pollution, 2017. All data is in tons per day.

STATIONARY SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
FUEL COMBUSTION									
ELECTRIC UTILITIES	5.82	0.31	0.11	0.11	0	0.22	0.21	0.13	1.72
MANUFACTURING AND INDUSTRIAL	0.16	0.09	2.54	2	0.47	0.35	0.34	0.33	0
FOOD AND AGRICULTURAL PROCESSING	0.24	0.22	6.04	0.08	0.07	0.08	0.07	0.07	0
SERVICE AND COMMERCIAL	0.03	0.01	0.1	0.4	0.01	0.02	0.02	0.02	0
OTHER (FUEL COMBUSTION)	0	0	0.01	0.05	0	0	0	0	0
*** TOTAL FUEL COMBUSTION**	**6.25**	**0.63**	**8.8**	**2.64**	**0.56**	**0.67**	**0.64**	**0.55**	1.72
WASTE DISPOSAL									
LANDFILLS	39.75	0.26	0	0	0	0	0	0	0.08
OTHER (WASTE DISPOSAL)	0	0	0	0	0	0	0	0	0.13
*** TOTAL WASTE DISPOSAL**	**39.75**	**0.26**	**0**	**0**	**0**	**0**	**0**	**0**	**0.22**
CLEANING AND SURFACE COATINGS									
LAUNDERING	0.08	0.01	0	0	0	0	0	0	0
DEGREASING	1.09	0.93	0	0	0	0	0	0	0
COATINGS AND RELATED PROCESS SOLVENTS	0.49	0.48	0	0	0	0	0	0	0

ADHESIVES AND SEALANTS	0.21	0.19	0	0	0	0	0	0	0
*** TOTAL CLEANING AND SURFACE COATINGS**	**1.86**	**1.62**	0	0	0	0	0	0	0
PETROLEUM PRODUCTION AND MARKETING									
OIL AND GAS PRODUCTION	1.23	0.33	0	0	0	0	0	0	0
PETROLEUM MARKETING	2.39	2.39	0	0	0	0	0	0	0
*** TOTAL PETROLEUM PRODUCTION AND MARKETING**	**3.62**	**2.72**	0	0	0	0	0	0	0
INDUSTRIAL PROCESSES									
FOOD AND AGRICULTURE	0.36	0.36	0	0	0.12	0.01	0	0	0
WOOD AND PAPER	0.1	0.1	0	0.73	0	1.13	0.79	0.47	0
OTHER (INDUSTRIAL PROCESSES)	0	0	0	0	0	0.08	0.08	0.06	0
MINERAL PROCESSES	0.02	0.01	0.14	0.18	0.05	2.03	1.02	0.26	0
*** TOTAL INDUSTRIAL PROCESSES**	**0.47**	**0.47**	**0.14**	**0.91**	**0.17**	**3.25**	**1.9**	**0.79**	0
**** TOTAL STATIONARY SOURCES**	**51.96**	**5.7**	**8.93**	**3.56**	**0.73**	**3.92**	**2.54**	**1.34**	**1.94**

Key takeaways from the stationary sources include:

- Waste disposal is the largest emitter of total organic gases.
- Industry, namely mineral processes, is the largest stationary source of particulate matter.

Areawide sources do not have specific locations and are spread over large areas, such as paved road dust, use of fertilizers, and controlled burning (agricultural or forestry-related).

Table 12 Areawide Sources of Air Pollution

AREAWIDE SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
SOLVENT EVAPORATION									

CONSUMER PRODUCTS	2.54	2	0	0	0	0	0	0	0
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	1.1	1.03	0	0	0	0	0	0	0
PESTICIDES/FERTILIZERS	0.32	0.32	0	0	0	0	0	0	4.75
ASPHALT PAVING / ROOFING	3.48	3.48	0	0	0	0	0	0	0
*** TOTAL SOLVENT EVAPORATION**	**7.46**	**6.83**	0	0	0	0	0	0	**4.75**
MISCELLANEOUS PROCESSES									
RESIDENTIAL FUEL COMBUSTION	7.31	3.33	18.61	0.83	0.23	2.76	2.57	2.48	0.15
FARMING OPERATIONS	21.63	1.74	0	0	0	0.87	0.4	0.07	4.26
CONSTRUCTION AND DEMOLITION	0	0	0	0	0	5.08	2.49	0.24	0
PAVED ROAD DUST	0	0	0	0	0	6.51	2.98	0.45	0
UNPAVED ROAD DUST	0	0	0	0	0	24.51	14.57	1.46	0
FUGITIVE WINDBLOWN DUST	0	0	0	0	0	0.98	0.58	0.08	0
FIRES	0	0	0.07	0	0	0	0	0	0
MANAGED BURNING AND DISPOSAL	6.8	4.8	61.05	0.82	0.36	6.53	6.32	5.46	0.54
COOKING	0.08	0.02	0	0	0	0.18	0.18	0.18	0
OTHER (MISCELLANEOUS PROCESSES)	0	0	0	0	0	0	0	0	0.52
*** TOTAL MISCELLANEOUS PROCESSES**	**35.81**	**9.89**	**79.7**	**1.65**	**0.6**	**47.43**	**30.08**	**10.42**	**5.47**
**** TOTAL AREAWIDE SOURCES**	**43.28**	**16.72**	**79.7**	**1.65**	**0.6**	**47.43**	**30.08**	**10.42**	**10.21**

Key takeaways from the area sources include:

- The bulk of the areawide sources come from dust being blown across unpaved roads and contributing to particulate matter. This is to be expected in rural areas.

- Residential fuel combustion is made up of wood burning and the use of natural gas for heating and cooking and is one of the largest areawide pollution sources in the region.
- Farming operations emit the most total organic sources.

Mobile sources of air pollution come from on-road vehicles, including personal and commercial travel, and off-road sources such as recreational boats and aircraft.

Table 13 Mobile Sources of Air Pollution

MOBILE SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
ON-ROAD MOTOR VEHICLES									
LIGHT DUTY PASSENGER (LDA)	1.42	1.27	11.65	1.17	0.02	0.28	0.27	0.11	0.17
LIGHT DUTY TRUCKS - 1 (LDT1)	0.78	0.72	4.39	0.52	0	0.05	0.05	0.02	0.03
LIGHT DUTY TRUCKS - 2 (LDT2)	1.12	1.03	7.5	1.07	0	0.13	0.13	0.05	0.09
MEDIUM DUTY TRUCKS (MDV)	0.97	0.9	6.55	0.89	0	0.11	0.11	0.05	0.07
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDGT1)	0.58	0.55	1.92	0.32	0	0.03	0.03	0	0
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDGT2)	0.03	0.03	0.12	0.03	0	0	0	0	0
MEDIUM HEAVY DUTY GAS TRUCKS (MHDGT)	0.05	0.04	0.33	0.05	0	0	0	0	0
HEAVY HEAVY DUTY GAS TRUCKS (HHDGT)	0	0	0.02	0	0	0	0	0	0
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDDT1)	0.16	0.14	0.66	2.87	0	0.09	0.09	0.05	0.05
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDDT2)	0.03	0.03	0.13	0.46	0	0.02	0.02	0	0.01
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDDT)	0.1	0.08	0.22	1.01	0	0.05	0.05	0.05	0.02

HEAVY HEAVY DUTY DIESEL TRUCKS (HHDDT)	0.17	0.15	0.66	2.85	0	0.1	0.1	0.08	0.05
MOTORCYCLES (MCY)	0.51	0.45	2.58	0.12	0	0	0	0	0
HEAVY DUTY DIESEL URBAN BUSES (UBD)	0.01	0	0.09	0.01	0	0	0	0	0
HEAVY DUTY GAS URBAN BUSES (UBG)	0	0	0	0	0	0	0	0	0
SCHOOL BUSES - GAS (SBG)	0	0	0.02	0	0	0	0	0	0
SCHOOL BUSES - DIESEL (SBD)	0	0	0	0.16	0	0.01	0.01	0	0
OTHER BUSES - GAS (OBG)	0	0	0.07	0.01	0	0	0	0	0
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0	0	0	0.01	0	0	0	0	0
ALL OTHER BUSES - DIESEL (OBD)	0	0	0	0.01	0	0	0	0	0
MOTOR HOMES (MH)	0	0	0.17	0.07	0	0	0	0	0
*** TOTAL ON-ROAD MOTOR VEHICLES**	**6**	**5.45**	**37.11**	**11.67**	**0.05**	**0.91**	**0.89**	**0.45**	**0.55**
OTHER MOBILE SOURCES									
TRAINS	0	0	0	0.02	0	0	0	0	0
AIRCRAFT	0.05	0.05	1.26	0.04	0	0	0	0	0
OCEAN-GOING VESSELS	0.89	0.75	0.94	13.6	0.3	0.12	0.12	0.12	0.02
COMMERCIAL HARBOR CRAFT	0.08	0.07	0.22	0.62	0	0.03	0.03	0.03	0
RECREATIONAL BOATS	4.1	3.8	12.54	0.74	0	0.24	0.23	0.17	0
OFF-ROAD RECREATIONAL VEHICLES	0.3	0.28	1.24	0.02	0	0	0	0	0
OFF-ROAD EQUIPMENT	2.67	2.44	24.91	2.08	0	0.16	0.16	0.13	0
OFF-ROAD EQUIPMENT (PERP)	0.01	0.01	0.1	0.22	0	0.01	0.01	0.01	0

FARM EQUIPMENT	0.31	0.28	2.34	1.28	0	0.08	0.08	0.08	0
FUEL STORAGE AND HANDLING	0.11	0.11	0	0	0	0	0	0	0
*** TOTAL OTHER MOBILE SOURCES**	**8.55**	**7.8**	**43.56**	**18.61**	**0.31**	**0.66**	**0.63**	**0.53**	**0.02**
**** TOTAL MOBILE SOURCES**	**14.56**	**13.25**	**80.68**	**30.28**	**0.37**	**1.57**	**1.51**	**0.98**	**0.56**

Key takeaways from mobile sources of air pollution:

- On-road motor vehicles produce less air pollution than other mobile sources.
- Light-duty passenger cars, meaning typical vehicles driven by residents and visitors are responsible for more air pollutants than any other on-road motor vehicle.
- Off-road equipment produces the most air pollutants of any individual mobile source.

Natural sources of air pollution are non-anthropogenic sources and include emissions from vegetation, petroleum seeps, and wildfires.

Table 14 Natural Sources of Air Pollution

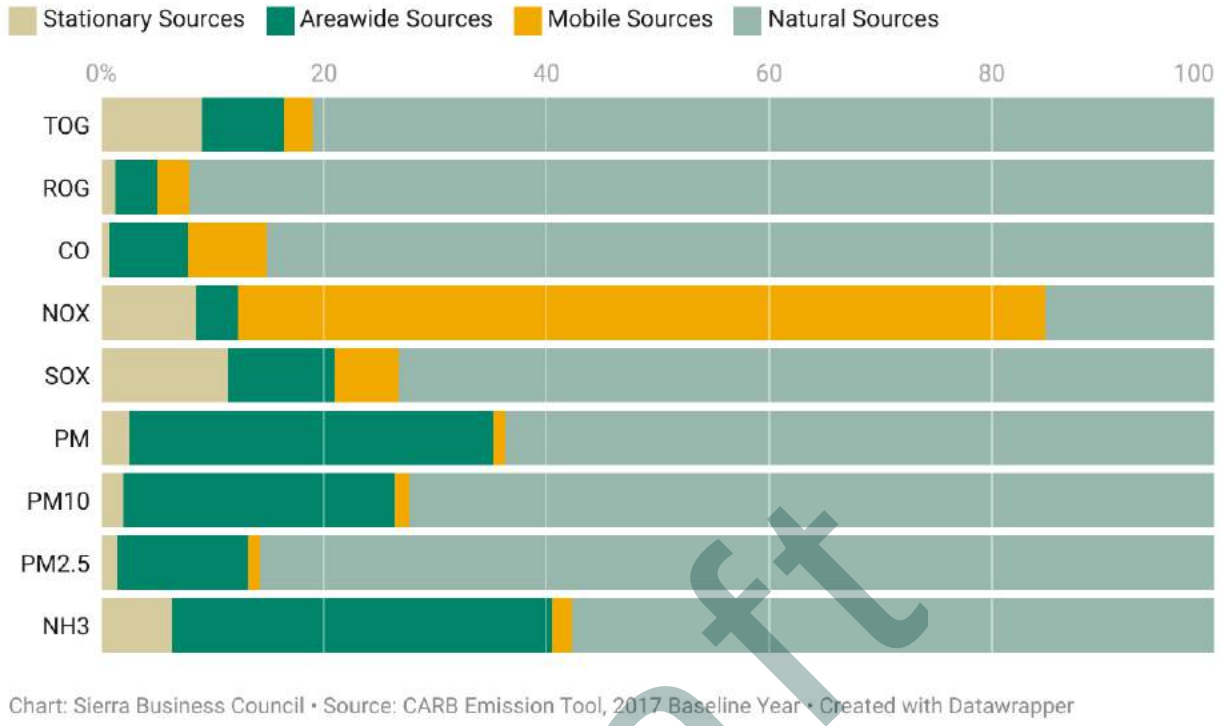
NATURAL SOURCES	TOG	ROG	CO	NOX	SOX	PM	PM10	PM2.5	NH3
NATURAL SOURCES									
BIOGENIC SOURCES	382.67	338.87	0	1.7	0	0	0	0	1.09
GEOGENIC SOURCES	0.38	0.07	0	0	0	0	0	0	6.51
WILDFIRES	81.88	67.62	966	4.67	4.64	92.81	89.2	75.56	9.66
*** TOTAL NATURAL SOURCES**	**464.91**	**406.57**	**966**	**6.37**	**4.64**	**92.81**	**89.2**	**75.56**	**17.26**

Key takeaways from natural sources of air pollution:

- Wildfire is the largest contributor to air pollution from natural sources.
- Biogenic sources like the breakdown of plants contribute the most total organic and reactive organic gases.

Across all sources of air pollution in the Redwood Coast region, natural sources contribute the most, followed by areawide sources.

Figure 13 Summary of Regional Sources of Air Pollution



Air Pollution Impacts on Disinvested Populations

In the Redwood Coast region, many residents and visitors are most affected by air pollution from wildfires, where smoke contributes heavily to local levels of carbon monoxide, and particulate matter (PM10 and PM2.5). Wildfire smoke in the North State region leads to public health and economic impacts. Wildfire smoke has been shown to cause respiratory illnesses in sensitive populations and outdoor workers. It limits the tourism and recreation industry which fuels many local economies in the summer months. As shown in the data above, wildfire is the leading cause of air pollution in the region.

The other leading air pollution causes like dust from unpaved roads and wood burning for residential heating can be mitigated through paving and residential energy retrofits. In many local circumstances, financial barriers impact disinvested communities more and may not be viable solutions.

Water Pollution & Quality

The rivers and streams of the North Coast region flow west to the Pacific Ocean and account for nearly 40% of the state's total runoff[7]. These rivers not only supply local water, but they are also used for sportfishing, white-water rafting, and river recreation, and are important spawning habitats for local wildlife. Drinking water in the region primarily comes from surface water sources, but groundwater aquifers are also tapped, namely in Humboldt County.

Maintaining these water sources and water infrastructure is critical for the well-being of residents and for the economic growth of the region. The North Coast Regional Water Quality Control Board has several programs to address and regulate polluted runoff that can be viewed on the California Water Boards' website.

Data Source and Methodology

Data is from the CalEnviroScreen Indicator Maps and was requested by Sierra Business Council in July 2023. Individual Indicator Maps are not available to the public as of the writing of this report.

CalEnviroScreen 4.0 Indicator Map for Impaired Water Bodies is from the 2018 303(d) List of Impaired Water Bodies developed by the State Water Resources Control Board (SWRCB). The data from this source provided by CalEnviroScreen is from water quality data collected before May 3, 2017.

CalEnviroScreen 4.0 Indicator Map for Groundwater Threats is from two sources from the SWRCB, the GeoTracker Database and the California Integrated Water Quality System Project. These datasets were downloaded and analyzed by CalEnviroScreen in 2021.

Sources of Water Pollution

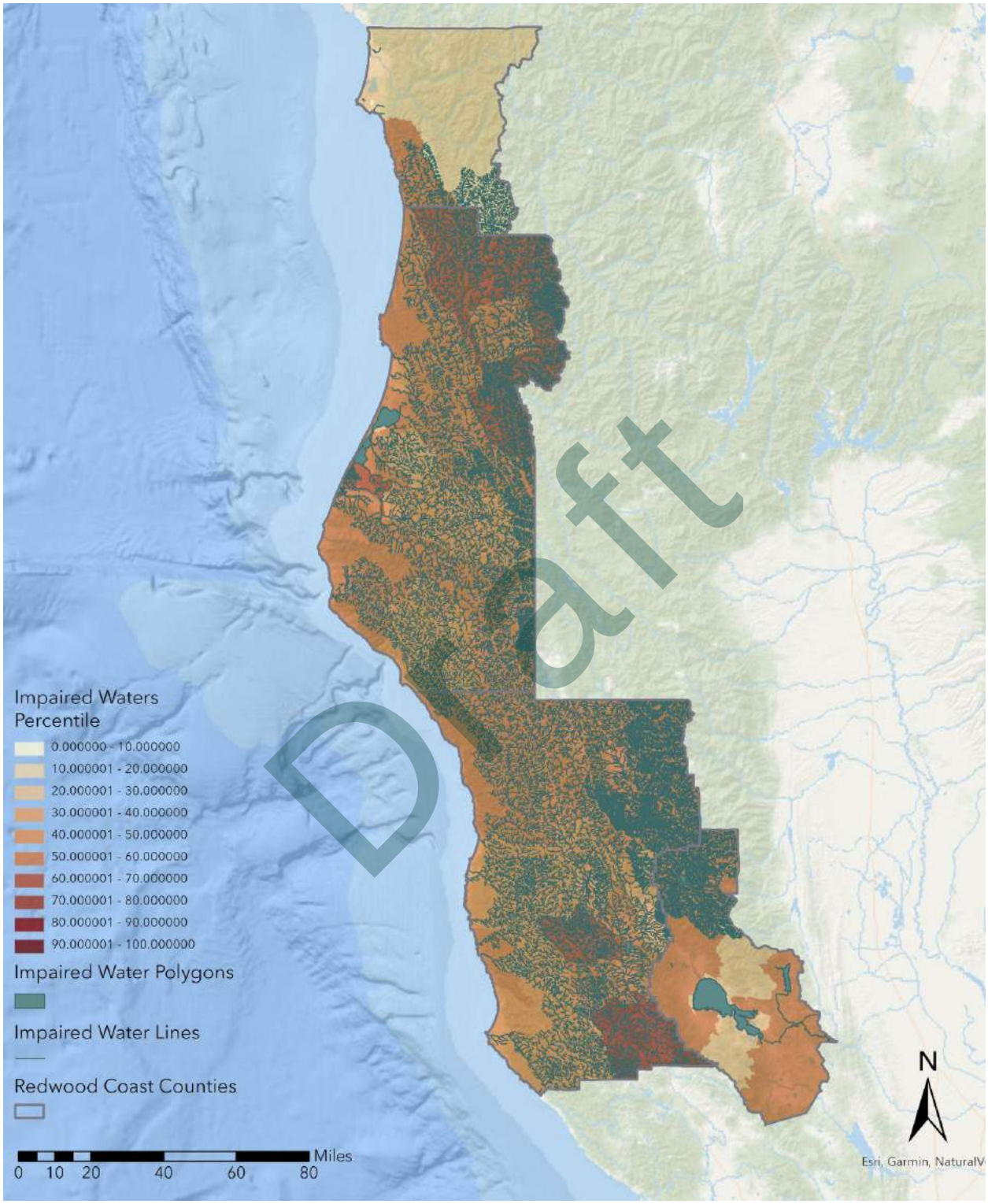
The greatest source of water quality impairment is from nonpoint sources (NPS), or polluted runoff. NPS is caused by water runoff moving across the ground picking up various natural and man-made pollutants and depositing them into lakes, rivers, wetlands, groundwater, and coastal waters. Common sources of NPS pollution include agricultural activities like feedlots and dairies, erosion from timber harvesting, construction, and roads. These sources are not easily cataloged and this section will primarily review point sources of water pollution.

Impaired waters are defined by the Office of Environmental Health Hazard Assessment as bodies of water like streams, rivers, lakes, and shorelines that have been contaminated by pollutants. These

[7] Water Education Foundation, North Coast Rivers, web access in November 2023.

impairments can harm ecosystems, and wildlife habitats, and prevent recreational or sustenance-based uses of the water body.

Figure 14 Impaired Water Bodies



Source: CalEnviroScreen Indicator Maps: Impaired Water Bodies, requested July 2023. For an interactive version of this map, visit this link.

Across the region, there are over 36,000 miles of rivers and streams that are considered impaired due to pollutants. Fifty-eight river and stream locations have tested for at least one pollutant that is over the safe threshold as deemed by the California Water Boards. Of the recorded locations, 67% have Sedimentation listed as a pollutant, 66% have heightened water temperature, and 45% have Aluminum. Other listed pollutants include indicator bacteria, mercury, copper, and dissolved oxygen. Sediment can create shallower waterways increasing the risk of flooding, harming ecosystems and habitats, reducing water clarity, and increasing the cost of drinking water processing, among other impacts. Increasing water temperatures in streams and rivers impact wildlife and can lead to reduced biodiversity. Aluminum is a naturally occurring element in nature, but large amounts of it can lead to health effects in high doses.

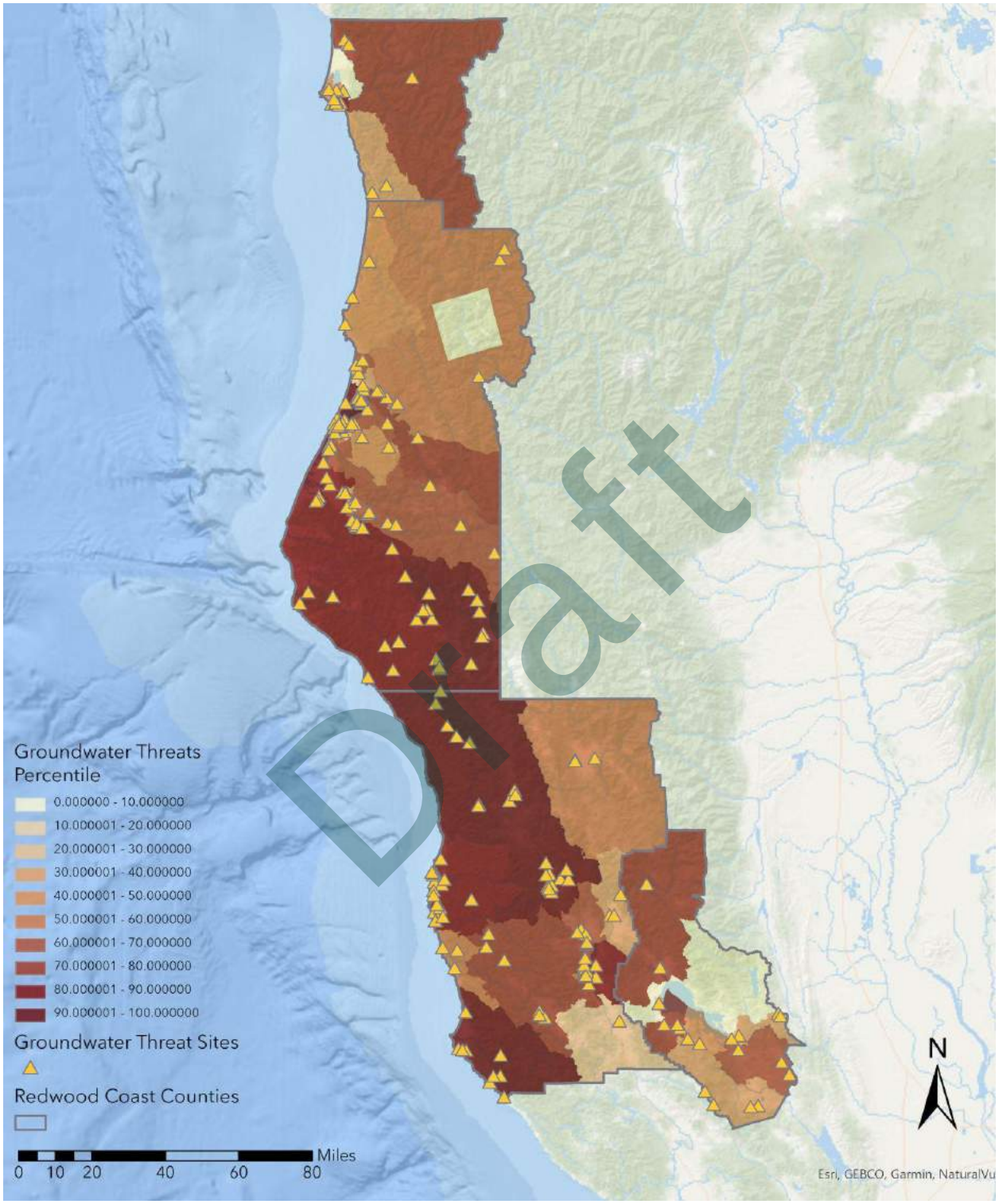
There are just over 11 miles of impaired coastal and bay shoreline, across 16 beaches in Humboldt and Mendocino counties (there is no listed impaired coastline in Del Norte County as of this report). Each of these locations is polluted by indicator bacteria, surrogates used to measure the potential presence of fecal material and pathogens. The source of most indicator bacteria is the feces or other waste of humans and various warm-blooded animals (e.g., birds and mammals). The presence of indicator bacteria in water sources can lead to illness in humans and pets, and contaminate food sources caught or collected from contaminated waters.

Among the many lakes, reservoirs, harbors, and estuaries in the region, eight bodies of water comprising over 63,000 acres are listed as polluted. Three-quarters of them are contaminated by mercury, which increases levels of mercury found in fish species in the region. This can lead to advisories for eating fish caught locally, and interrupt recreation or economic activities related to fishing.

A more in-depth review of the pollution sources and levels can be viewed on the map. Impaired water bodies can disproportionately impact tribal or low-income communities who may depend on the fish and wildlife in local water bodies and may become ill from the catching, processing, or consuming of foods from these locations; additionally, culturally important locations may be impacted by pollutants and mitigate the visitation or cultural practices that happen near water bodies. Other impacts may result from reduced economic value due to less visitation, mandated restrictions, or advisories due to public health concerns.

Impaired groundwater can also affect drinking water and soil and lead to adverse health impacts. The State Water Resources Control Board (SWRCB) hosts a GeoTracker Database that oversees and tracks projects at cleanup sites that can impact groundwater, and hosts the California Integrated Water Quality System Project which tracks information about environmental impacts, manages permits, tracks inspections, and manages enforcement activities. Fig. 15 and the associated interactive map link in the caption can provide more detailed information on each site.

Figure 15 Groundwater Threats



Source: CalEnviroScreen Indicator Maps: Groundwater Threats, requested July 2023. For an interactive version of this map, visit this link.

There are approximately 270 locations across the region that have led to common soil and groundwater pollutants being leaked and threatening the safety of drinking water or exposing people to contaminated soil and air. Of these sites, 30% are land disposal sites, 40% are Cleanup Program sites, and the remaining sites are Leaking Underground Storage Tanks (LUSTs) and military cleanup sites. Common groundwater pollutants are gasoline and diesel fuels at gas stations, as well as substances like pesticides or heavy metals that are leaked from landfills or burn sites. Land and groundwater that has been contaminated can take years or decades to clean up. This can lead to water shut-offs, mandatory bottled water deliveries to impacted communities, and public health concerns if exposure goes undetected.

Hazardous and Toxic Waste

Rural regions tend to have fewer hazardous waste storage facilities and generators than more urban regions where material produced by factories and businesses is more commonplace. Still, 120 locations produce hazardous waste and one permitted storage facility in the Redwood Coast region.

Data Source and Methodology

Data is from the CalEnviroScreen Indicator Maps and was requested by Sierra Business Council in July 2023. Individual Indicator Maps are not available to the public as of the writing of this report.

CalEnviroScreen 4.0 Indicator Map for Hazardous Waste Generators and Facilities is from the EnviroStar Hazardous Waste Facilities Database and Hazardous Waste Tracking System maintained by the Department of Toxic Substances Control (DTSC).

CalEnviroScreen 4.0 Indicator Map for Cleanup Sites is from the EnviroStar Cleanup Sites Database maintained by the Department of Toxic Substances Control (DTSC). Data on the Superfund Sites comes from the Region 9 NPL Sites (Superfund Sites) Polygons (2021 Draft Data), managed by the US Environmental Protection Agency, Region 9.

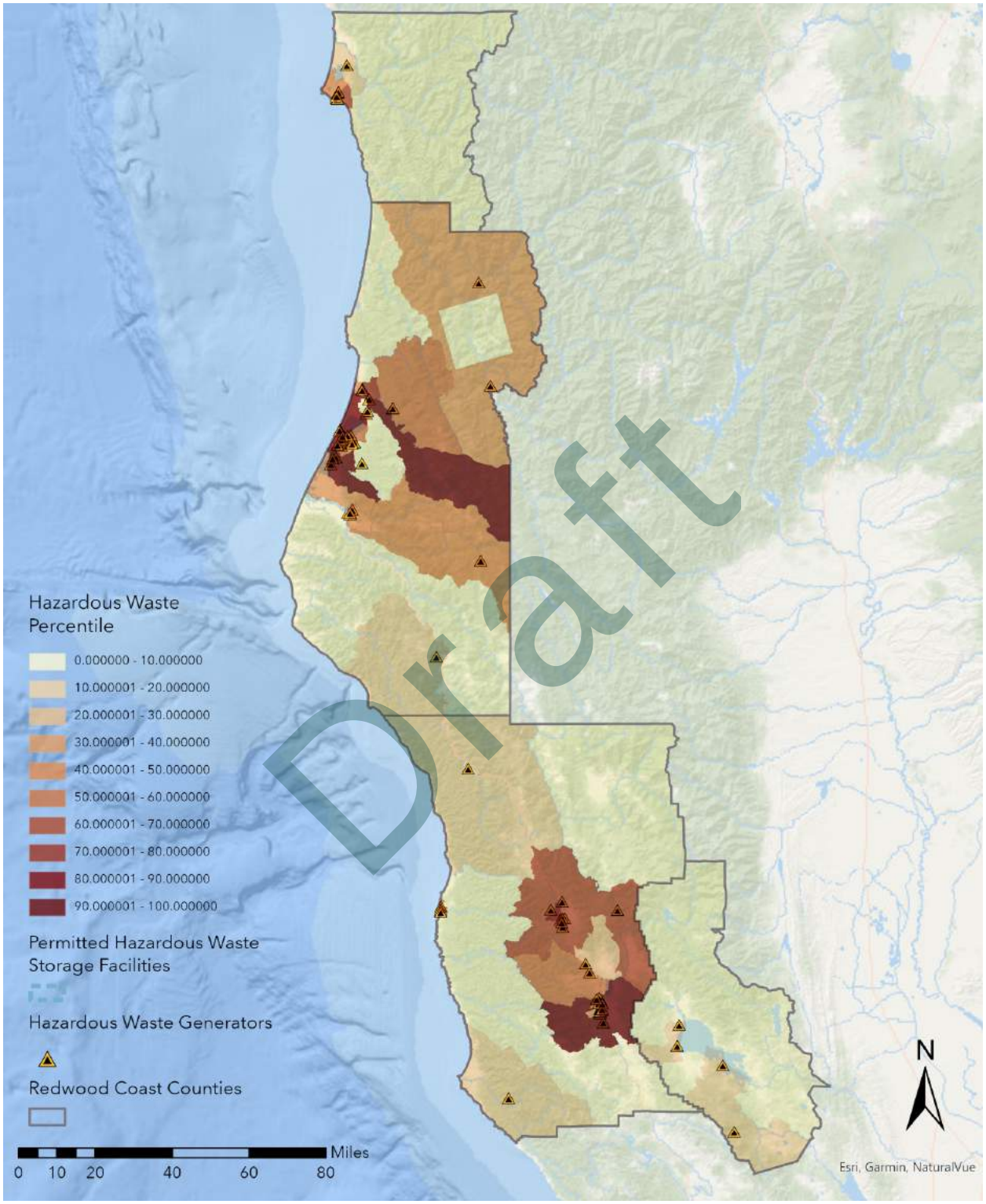
The data provided to Sierra Business Council is from 2018–2020 and was downloaded by CalEnviroScreen in 2021 for inclusion in the CalEnviroScreen 4.0 Indicator Maps.

Sources of Hazardous and Toxic Waste

Across the region, there are 120 hazardous waste generators. Just over 15% of these generators are drug stores and supermarkets like Rite Aid, Safeway, and Walmart. These locations are considered hazardous waste generators due to the pharmaceutical waste they produce, as well as the products they sell like pesticides, bleach, paint, and aerosols; these products must be delivered to a person or

facility authorized to manage hazardous waste. Other hazardous waste generators in the region are Pacific Gas and Electric, forest products companies, and health care facilities.

Figure 16 Hazardous Waste Generators and Storage Facilities



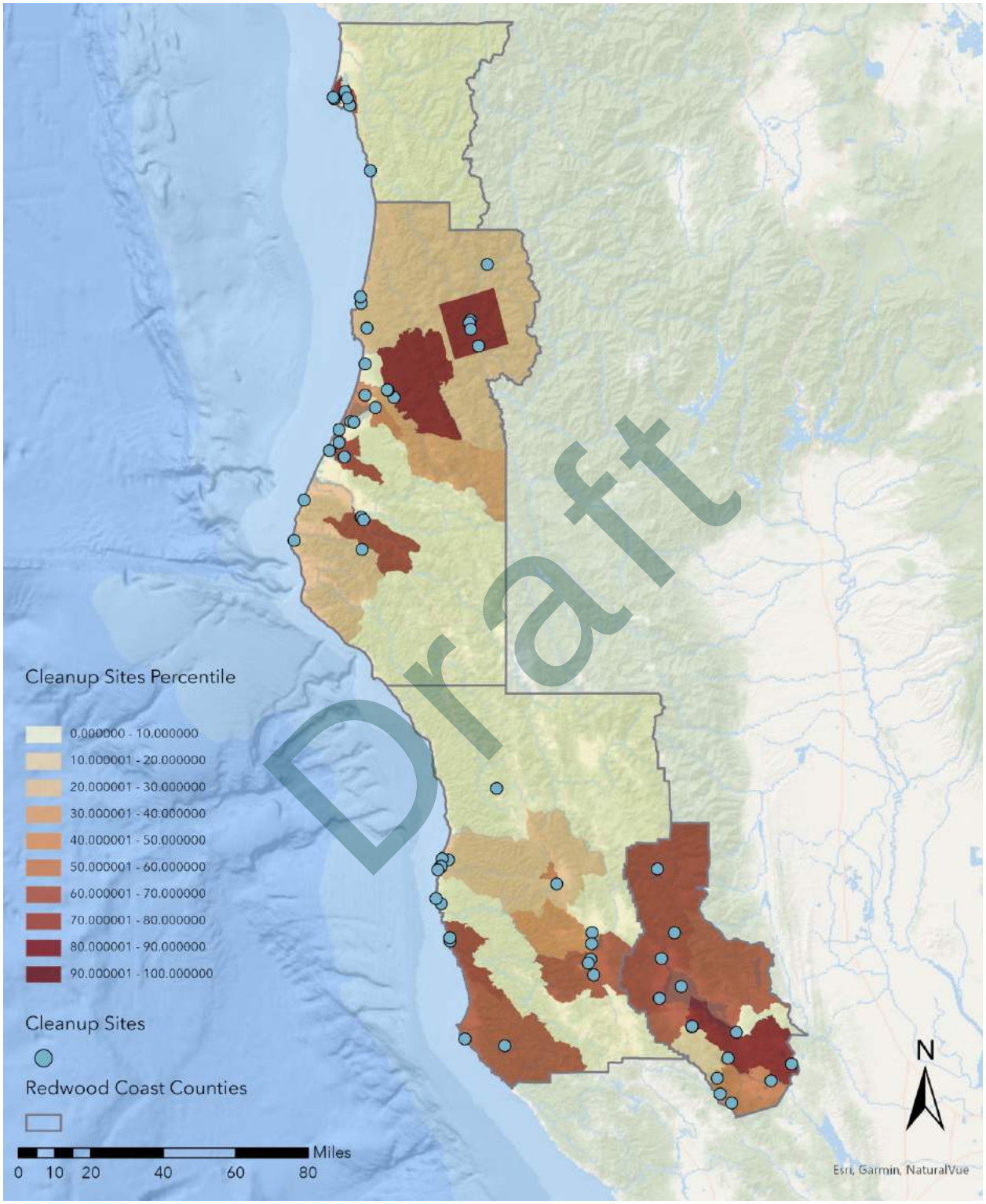
Source: CalEnviroScreen Indicator Maps: Hazardous Waste, requested July 2023. For an interactive version of this map, visit this link.

Notably, hazardous and toxic waste related to disasters like wildfires can lead to exposure to emergency personnel, the public, the environment, and restoration workers. Mendocino and Lake counties have hazardous waste generator locations affiliated with the 2020 August Complex Fire (2020), the Redwood Valley Fire (2017), and the Mendocino Complex Fire (2018).

Within the region, there is only one permitted hazardous waste storage facility, located in the City of Fortuna in Humboldt County. It is located in a census tract with 4,606 people.

When a site has had mismanagement of hazardous materials or accidental spills or leaks of dangerous chemicals, a site is deemed a Cleanup Site by the Department of Toxic Substances Control and requires cleanup by property owners or government agencies. Within the region, there are 74 listed Cleanup Sites, with seven qualifying as Federal Superfund Sites. 21 sites are under Military evaluation, 12 that require state response, and 15 that are voluntary cleanup sites. As of the writing of this report, 13 sites are listed as inactive, and 24 require no further action. When no further action is required, the site has been deemed safe with no more potential hazards related to the hazardous chemicals.

Figure 17 Cleanup Sites



Source: CalEnviroScreen Indicator Maps: CleanupSites, requested July 2023. For an interactive version of this map, visit this link.

Hazardous Waste Impacts on Disinvested Communities

These sites are potentially dangerous for humans and wildlife to be exposed to. As with other hazardous waste sites, the waste at cleanup sites can move through air or groundwater, potentially exposing more people to harm. People living near these sites are at higher risk of exposure.

In general, Cleanup Sites are typically located near poorer neighborhoods. Within the region, there are only eight sites that are located in a census tract with a median household income above the national median of $69,000.

Climate Impacts on Regional Economies

The abundance of natural resources in the region was the foundation of economic growth for the Redwood Coast. Extensive logging in the region depleted much of the forested regions, but the ecosystems have proved resilient and are still home to some of the highest-quality habitats for wildlife in California. The extraction industries have declined, and today government and social services employ the majority of workers in the region. Visitation to the region has increased, and the service industry has grown. Despite the abundance of natural resources and natural beauty of the region, the Redwood Coast is weaker than most coastal regions in California.

Across the region, the economic drivers will be impacted by varying climate hazards. Rising temperatures will impact agriculture productivity and rising surface water temperatures will lead to tourism impacts due to harmful algae blooms, and endangered fish populations will reduce fishing opportunities. Changing precipitation patterns will likely result in longer dry spells and extreme precipitation events which will lead to water shortages for crops and pasture land, and severe storms lead to flooding, infrastructure damage, and ruined agricultural lands.

Increasing wildfire risk and recent wildfire activity in the region have caused economic losses in the agriculture industry and can threaten the historic Redwood forests along the inland boundary of the region.

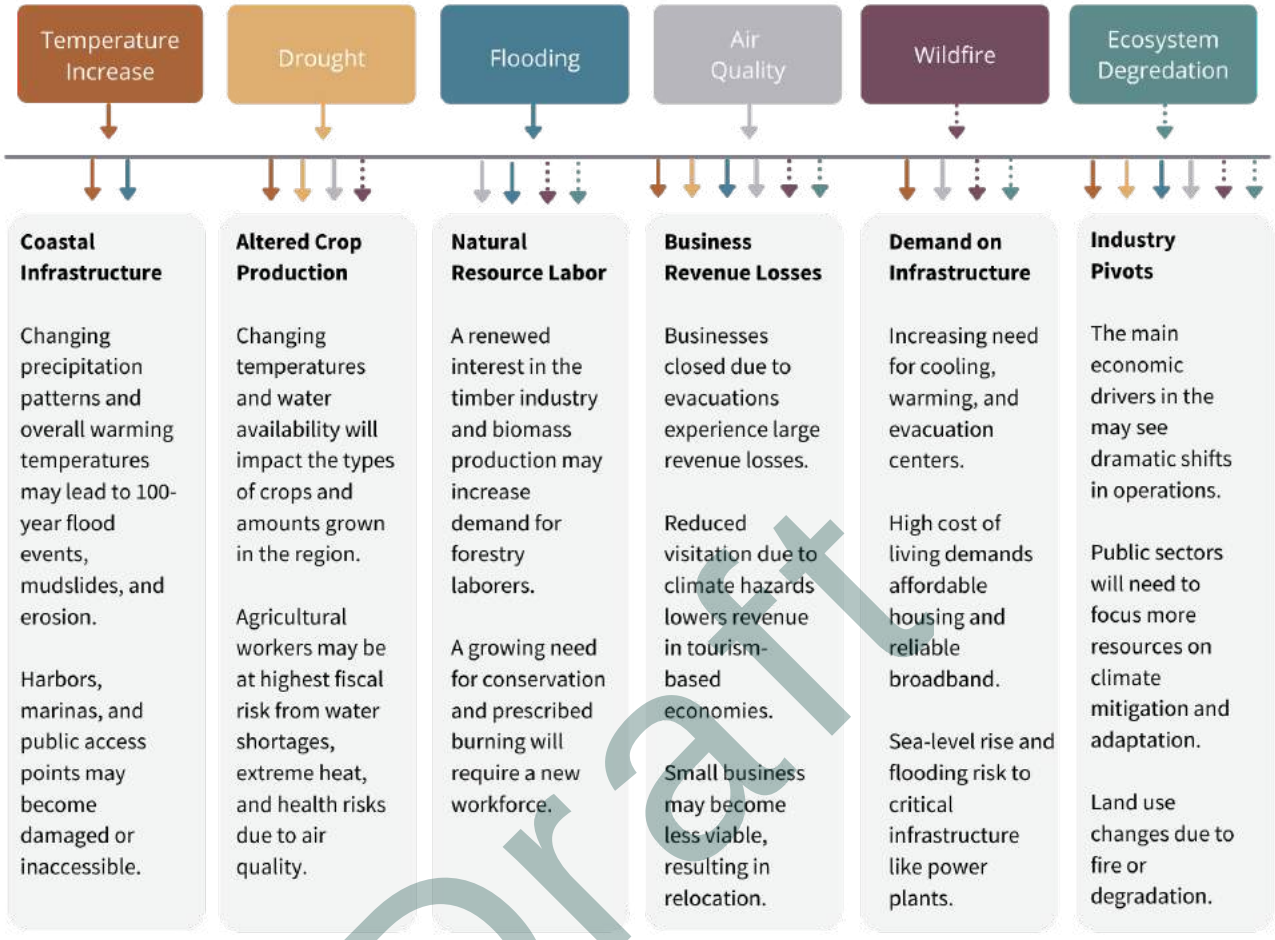
Sea-level rise in Humboldt Bay could lead to flooding and erosion which would lead to severe infrastructure damage and could cause public health concerns. Sea-level rise projections indicate that communities around Humboldt Bay could become inundated, not only displacing residents and causing personal financial injury, but may also lead to lowered home values, a reduced tax base, and more poverty in the region. Public infrastructure like roads, water pipes, electricity towers, and wastewater treatment plants are within the inundation zone.

Examples of how climate change can impact the targeted industries in the region include:

1. Allied Health and Caregiving: an increased need to accessible healthcare during extreme events like wildfire and flooding that can have disproportionate impacts on aging populations and outdoor workers.
2. Working Lands and Blue Economy: the output of natural resources, crops, and ranching may be impacted by changing temperature and precipitation patterns and at risk from wildfire or heavy precipitation events. As sea level rise increases, maritime activities, fishing and harvesting, and ocean transportation may be impacted and need to pivot based on emerging needs and outcomes.
3. Arts, Culture, and Tourism: extreme climate patterns can lead to ecosystem degradation and negatively impact culturally important landmarks, sites, and infrastructure leading to spiritual, cultural, and economic losses. Extreme weather events like flooding, impacted air quality from wildfire, and wildfire can decrease visitation numbers and lead to economic losses.
4. Renewable and Resilient Energy: increased need for building cooling, and reliable energy sources during heat waves, wildfires, and storms will increase with climate change impacts. Mitigating greenhouse gas emissions due to building energy will be a key strategy in decreasing the state's emissions. This sector could prove to have high demand as climate change impacts accelerate in the future.

Some ways the current economic drivers in the region may be impacted by climate change are shown in Figure 18.

Figure 18 Climate Impacts on Regional Economies



Appendices

Appendix A: Climate Projections

Cal Adapt Data Methods

All Cal-Adapt climate indicators will be analyzed for three different time periods

1. Observed Historical (1990–2004)
2. Near Future (2025–2039) under RCP 8.5
3. Mid Future (2040–2054) under RCP 8.5

Steps:

1. Go to the Cal-Adapt Tools webpage
2. Instructions by Climate Indicators:
    a. Extreme Heat Days
        i. Change Location to the correct County
        ii. Select Climate Variable: Extreme Heat Days
        iii. Select Indicator: Frequency
        iv. Select Scenario: High (RCP 8.5)
        v. Set Threshold: 98th Percentile
        vi. Select Models: 4 auto-selected models
        vii. Record the threshold temperature
        viii. Baseline Box -> Change Period
            1. Click Observed Historical (not MODELED DATA)
            2. Custom year range 1990 – 2004
            3. Record 15 year average
        ix. Mid-Century Box -> Change Period
            1. Custom year range: 2025 – 2039
            2. Record 15 year average
        x. End-Century Box -> Change Period
            1. Custom year range: 2040 – 2054
            2. Record 15 year average
    b. Warm Nights
        i. Change Location to the correct County
        ii. Select Climate Variable: Warm Nights
        iii. Select Indicator: Frequency
        iv. Select Scenario: High (RCP 8.5)
        v. Set Threshold: 98th Percentile
        vi. Select Models: 4 auto-selected models
        vii. Record the threshold temperature in the Warm Night row in spreadsheet
        viii. Baseline Box -> Change Period
            1. Click Observed Historical (not MODELED DATA)
            2. Custom year range 1990 – 2004
            3. Record 15 year average
        ix. Mid-Century Box -> Change Period
            1. Custom year range: 2025 – 2039
            2. Record 15 year average
        x. End-Century Box -> Change Period
            1. Custom year range: 2040 – 2054
            2. Record 15 year average
    c. SWE/Snowpack
        i. Click the Chart Tab at the top (the Map is cool, but not helpful for us)

ii. Change Location to the correct County
iii. Select Scenario: High (RCP 8.5)
iv. Select Month: April (this tells us how much water we will get from spring snow melt)
v. Select Models: 4 auto-selected models
vi. Baseline Box -> Change Period
    1. Click Observed Historical (not MODELED DATA)
    2. Custom year range 1990 – 2004
    3. Record 15 year average
vii. Mid-Century Box -> Change Period
    1. Custom year range: 2025 – 2039
    2. Record 15 year average
viii. End-Century Box -> Change Period

d. Wildfire
    i. Click the Chart Tab at the top (the Map is cool, but not helpful for us)
    ii. Change Location to the correct County
    iii. Select indicator: Area Burned
    iv. Select Scenario: High (RCP 8.5)
    v. Select Simulation: Annually
    vi. Select Models: 4 auto-selected models
    vii. Baseline Box -> Change Period
        1. THIS INDICATOR DOES NOT HAVE HISTORICAL RECORD, used modeled historical
        2. Custom year range 1990 – 2004
        3. Record 15 year average
    viii. Mid-Century Box -> Change Period
        1. Custom year range: 2025 – 2039
        2. Record 15 year average
    ix. End-Century Box -> Change Period
e. Average Precipitation
    i. Change Location to the correct County
    ii. Select Climate Variable: Precipitation
    iii. Select Scenario: High (RCP 8.5)
    iv. Select Models: 4 auto-selected models
    v. Baseline Box -> Change Period
        1. Click Observed Historical (not MODELED DATA)
        2. Custom year range 1990 – 2004
        3. Record 15 year average
    vi. Mid-Century Box -> Change Period
        1. Custom year range: 2025 – 2039

2. Record 15 year average

vii. End-Century Box -> Change Period

1. Custom year range: 2040 – 2054
2. Record 15 year average

Climate Engine Data Methods

Steps:

1. Go to the Climate Engine app
    a. Make Graph tab
2. Time Series Calculation:
    a. Native Time Series
    b. Two variable
3. Region:
    a. Custom Polygon from Table -> click Show US counties example
    b. Pick a county! Drop-down menu appears
4. Variable 1
    a. Type: Climate & Hydrology
    b. Dataset: PRISM - 4km - Monthly
    c. Variable: Precipitation (PPT)
        i. Units: Inches
    d. Scale: 4000m
    e. Statistic: Mean
5. Time Period: Custom
    a. Jan 1960
    b. May 2023
6. Variable 2
    a. Type: Climate & Hydrology
    b. Dataset: PRISM - 4km - Monthly
    c. Variable: Maximum temperature
        i. Units: deg F
    d. Scale: 4000m
    e. Statistic: Maximum
7. Time Period: Custom
    a. Jan 1960
    b. May 2023

Appendix B: Greenhouse Gas Emissions

Redwood Coast Greenhouse Gas Inventories

The following inventory was available for one county. Inventories that were greater than five years old were normalized to reflect 2020 emissions estimates.

Humboldt County, 2015

Scaling GHG Emissions Methodology

For emissions data from GHGi from 5+ years ago, the data was scaled to 2020 using demographic and emissions trends. Note that this process was used as a means of estimation and has a high margin of error.

For emissions trends, percent change [(final value - initial value) / initial value] in California statewide emissions between the GHGi year and 2020 was calculated. Emissions trends data was acquired from the California Air Resources Board (CARB), linked here. For transportation emissions, CARB's transportation parameter was used. For residential and non-residential emissions, CARB's electric power generation parameter was used.

For demographic trends, the percent change in employment and population data between the GHGi year and 2020 was calculated. Residential energy was normalized using population by county, based on Census data. Non-residential energy was normalized using the number employed by the county, based on labor market information from the California Employment Development Department. Transportation emissions were normalized using service population, the sum of each county's population, and the number employed.

To scale the GHGi data to 2020, the following formula was used for each of the three sectors (residential energy, non-residential energy, and transportation): unscaled emissions * (1 + % change in emissions) * (1 + % change in demographics). Estimated total emissions were calculated by finding the sum of the three sectors.

Below is a walkthrough of the calculations for Alpine County, starting with the initial emissions data from their 2014 GHGi.

Data Year	Residential Energy	Non-Res Energy	Transportation	Solid Waste	Potable/Wastewater	Total Emissions
2014	4972	4156	31442	357	285	41212

First, find the percent change in emissions between 2014 and 2020 using CARB Emission Trends.

Sector	2014	2020	% change ('14-'20)
Transportation	157.7	135.8	(135.8-157.7) / 157.7 = -13.89%
Electric Power Generation (Res & Non-res)	89.8	59.5	-33.74%

Then, find the percent change in county-specific demographics – population, employment, and service population – between 2014 and 2020.

Demographic	2014	2020	% change ('14-'20)
Population (Res)	1083	1119	3.32%
Employment (Non-res)	470	460	-2.13%
Service Population (Transportation)	1553	1579	1.67%

Lastly, scale the GHGi data to 2020 using both emission trends and demographic changes:

Estimated Year	Residential Energy	Non-Res Energy	Transportation	Solid Waste	Potable/ Wastewater	Total Emissions
2020	(4972 * (1 + [-33.74%]) * (1 + 3.32%) = 3404	2695	27529	x	x	33628

Appendix C: Air Pollution

1. Go to [CARB Emission by County Tool]
2. Click on County Name
3. Copy and Paste the table into the spreadsheet tab for each county
4. For each air pollutant source, sum across all county tabs to get a regional total
    a. For example, all counties have air pollution under Mobile Sources from Light Duty Passenger vehicles. The tons per day for each ccriterionair pollutant is summed so the ROG presented in the final table is the total amount emitted by Light Duty Passenger vehicles for the region.

Collaborative Planning Support Document:

Economic Summary

Prepared by

Redwood Region Rise High Road Transition Collaborative

December 2023

Contents

Contents

INTRODUCTION

The following section includes:

- Background Information
- Economic Development Opportunities
- Economic Development Disparities
- Addressing Wage Disparities
- Impacts Of Economic Shocks and Shifts
- New Economic Development Opportunities

Background Information

This document provides planning support material for the Redwood Region Rise (High Road Transition Collaborative (Collaborative). The discussion mixes direct input from collaborative members with supportive and explanatory economic development research.

The Collaborative goal is to create equitable access to opportunity for workers in the Redwood Region to attain quality jobs (with the potential for upward mobility) in resilient industries. With communities, businesses, government, tribes, and other stakeholders, the task will be to build on regional assets and competitive advantages to diversify existing and emerging industries with the potential to advance the regional economy and create quality jobs. The goal is to encourage resilient economic development by building on regional strengths and assets, supporting traded sectors, fostering innovation, encouraging talent development, and developing public-private partnerships (PPPs) that move regional industries up the value chain to advance emerging economic opportunities. All this while creating new jobs, new wealth, and a new roadmap for the Redwood Region, focusing on disinvested communities.

Equitable distribution. Marek Gootman (LHC, 2022) notes that a regional development strategy looking to create quality jobs at scale and advance a regional economy may not be able to provide jobs everywhere: “You can’t bring the economy into neighborhoods. You have to connect neighborhoods into where the economy works, which is the region.” In a large region with a dispersed population, those closest to the problem are often the farthest from the resources needed to solve it. Thinking creatively about equitable distribution of resources, and the most effective means of providing ED assistance throughout the varied communities and sub-regions of the Redwood Region, will be an ongoing issue for the Collaborative.

Economic growth can reach disinvested communities if barriers to opportunity are addressed, if *community* development strategies are deployed (as opposed to purely economic development approaches, see discussion below), and if key stakeholders—wherever they are located—involved with

creating pathways to training and employment in quality jobs can be engaged. A key goal and challenge of the California Jobs First (CJF) program is thus to identify ED strategies that create jobs while elevating equity and environmental resilience/sustainability *region-wide* as much as possible. There is also a need to figure out how to distribute implementation resources across the region: to spread available resources broadly, or to focus them on select industries and sub-regions/communities, and then (as Gootman notes) connecting members of disinvested communities with those industries. The result will likely fall in the middle somewhere and will be determined in part by Collaborative deliberation about project prioritization, as well as by available funding.

Building capacity. One approach—less focused on target sectors or "clusters" per se—is to build widespread regional capacity to pursue inclusive regional economic development by 1) dedicating ongoing funding for regional collaboratives like the Collaborative, 2) planning for how to structure and systematize regional collaboration and capacity-building after the end of CJF, and 3) implementing cross-cutting "opportunities" that could apply to most or all economic sectors (discussed below). That is, to see the initial tranche of implementation funds as effectively a first phase in which regional capacity-building and development of cross-cutting efforts occur alongside the implementation of a few major, sector-specific projects.

Cross-Cutting Approaches. A basic challenge faced by the Collaborative (and presumably all CJF regions) in connecting disinvested communities with economic opportunity is figuring out how exactly to create quality growth and quality jobs that are accessible for people in those communities. One approach, in addition to focusing on specific sectors and/or target industries, is to tap into broader trends and driving forces that cut across all sectors and industries—a "cover your bets" approach. For example, the cross-cutting EDOs discussed below (TEK, employee engagement, placemaking, etc.) could work to create a broader framework within which businesses in *any* sector would operate, a framework within which high road strategies and EDOs that create sustainable jobs for the long term can be situated and widely distributed.

Brookings Institution Research. Researchers at Brookings (Wright et al., 2020) identify five components that underlie regional economic success: 1) traded sectors (which bring money into the region and tend to foster growth in productivity and innovation), 2) talent (the pool of knowledge, skills, and expertise in a region, as well as the region's ability to provide residents with in-demand skills and training), 3) innovation (which supports business creation, the development of new products and services, and helps with improvements in productivity, 4) infrastructure (which makes it possible for residents to connect to jobs and allows employers to connect to workers, customers, and suppliers), and 5) governance (which determines the ability of regional institutions to deliver on a common economic development agenda). While these five elements are not strategies or opportunities per se, they reflect important elements that should be kept top of mind in overall ED program planning and implementation.

Regarding governance (#5), for example, the success of economic development initiatives in the Redwood Region will depend on strong leadership (from both political and business leaders), adequate funding, clear strategic priorities, the ability to align investment and stakeholders around the priorities, and commitment to pursuing strategies long enough for them to bear fruit. The last clause is important to remember: many ED initiatives require longer periods of time (decades) and often cannot be completed in a short funding cycle.

Capacity over the long term. In fact, governance capacity and "long-termism" issues were highlighted during the Collaborative meeting held in Ukiah, California, in September 2023. There, participants in the regional SWOT analysis noted: 1) a lack of "supportive" government policies, 2) institutional capacity concerns including working in silos, none, some, or duplicative economic development efforts and lack of depth of experience in economic development), 3) difficulty with finding and applying for grants, 4) unsustained cooperation among ED collaborators, 5) lack of a collective vision, 6) fear of success and a "dream small" mentality, and 7) egos, grudges, a scarcity mindset, and mistrust. Regarding #2, the capacity to identify and respond to grant opportunities was noted several times. These are important factors to consider in defining a roadmap that ensures the needed capacity exists to implement selected projects.

The Redwood Region has many opportunities. Despite the numerous challenges with making Redwood Region-wide ED work well (distributing resources equitably, weighing short- versus long-term approaches, etc.), there are significant opportunities for economic development in the Redwood Region. The region's natural beauty and abundance of natural resources make it a prime location for tourism, outdoor recreation, and sustainable agriculture, and the region is home to a growing number of creative businesses and artists. Cal Poly Humboldt provides significant regional expertise across a range of disciplines tied to critical economic sectors. Emerging business opportunities are already being explored in the application of smart technologies, AI, and machine learning by both existing and startup businesses.

Improved digital connectivity throughout the Redwood Region is enabling more remote work opportunities, a particularly valuable opportunity given the relative immobility of the more remote regional populations. Opportunities to use traditional ecological knowledge (TEK), either alone or combined with high-tech applications (e.g., drone work in forest and fire management using TEK-based management principles), are becoming more socially and ecologically important and more economically valuable. Blue economy applications in aquaculture are on the horizon, including distributed hydroponics systems monitored by easy-to-use intelligent platforms. And the potential for a blue-green economy "big push" industry—off-shore wind—looms literally and figuratively on the horizon.

To capitalize on these opportunities, Collaborative participants note that the Redwood Region needs to explore both public and private sector approaches, including (but not limited to) 1) investing in balanced and effective infrastructure, education, community, business, and workforce development, and 2)

supporting entrepreneurship and innovation, whether in the form of new startups or new entrants, or within existing firms seeking to grow.

But identifying and prioritizing economic development opportunities (EDOs) and forces driving economic activity and change in the Redwood Region is no small task. With the diversity found in four counties and tribal lands spread over close to 10,500 square miles, from coastal to inland areas, widely dispersed populations in unincorporated areas, and myriad other differences among Redwood Region residents (age, ethnicity, race, educational attainment, income level, etc.), there are likely to be a wide range of opportunities to choose from and many ideas about which ones are most important.

Dispersed populations. During the SWOT, participants acknowledge that disinvested, priority communities[1]—including tribal nations—are often united as much by ancestry, identity, status, and experience than by location. For example, many Native Americans in the Redwood Region do not live within formal reservation boundaries. Even so, tribal communities in the Redwood Region have a long history and culture that is woven through the broader region's communities and identity—their unique economic challenges, such as high rates of unemployment and poverty, are the region's challenges as well. Other disinvested communities prioritized by the Collaborative are also widely dispersed throughout the region. What this means is that program *coverage* may be as important as place-based *targeting* of projects. That is, projects selected for implementation need to be crafted in ways that both maximize equity and spread wealth broadly.

The extensive collaborative processes to date have worked to identify gaps in existing ED programs and ED capacity, and to identify strategies to fill those gaps with both specific projects and through capacity-building efforts that will help ensure that programming is sustainable after CJF funds are expended. Of course, the EDOs identified and pursued by regional stakeholders will not meet all defined needs perfectly—nor will there be a perfectly equitable distribution of "access to opportunity" from these efforts. What we can anticipate is a significant movement toward identifying and addressing unmet needs, optimizing resource distribution, and making significant regional strides toward providing equitable

[1] Disinvested communities are defined here as people who face a confluence of relatively severe and often interconnected hardships including, but not limited to, poverty, disability, lack of access to household or community resources, or lack of economic or educational opportunities; these communities disproportionately experience poorer outcomes when compared to state averages on several key indicators.

access to opportunity and greater economic participation, mobility, and well-being for Redwood Region residents.

Strategies and Opportunities

There is a close connection between ED strategies (EDS) and ED opportunities (EDOs). Generally, a strategy is a way to exploit and develop an opportunity, and often, as economic opportunities evolve, business and ED strategies evolve as well. This is how capacity-building works in a complex, adaptive system: just as opportunity definition in the business world sometimes misses the mark (the hoped-for demand does not materialize)—requiring modifications, pivots, and possibly the tossing out of a product or service idea—strategies must continually evolve to meet changing economic and market realities.

These new realities reflect and are often driven by forces outside the control of ED practitioners (e.g., disruptions such as the pandemic, broad economic swings, and so on). The goal, ultimately, is to shape effective, robust, and adaptable ED programs that help people, businesses, communities, tribes, and the broader Redwood Region become better prepared for and able to respond and move forward from unpredictable disruptions with uncertain impacts. Continuous improvement, iteration, improvisation, and adjustment to ED programs will always be needed, in both business-as-usual and disruptive times.

Unintended consequences. Selected ED opportunities and strategies can themselves have unintended consequences that are difficult to predict accurately. For example, an ED strategy focusing on developing an opportunity with a large employer in a centralized location (e.g., Eureka) could negatively impact Redwood Region-wide equity if it draws labor away from smaller towns. In fact, many ED strategies are designed to attract businesses and industries to larger towns and cities where there is a larger pool of labor and a more developed infrastructure. Of course, this often leads to a concentration of jobs and economic opportunities in these leading areas, while *increasing* disinvestment in lagging communities.

To counterbalance this potential, ED practitioners in the Redwood Region will need to work hard to consider the needs of disinvested communities and look carefully at the distributive impacts of various approaches under consideration. This includes approaches that might draw labor away from communities, as described above, but also other approaches operating within communities. For example, focusing on attracting high-tech businesses to the region may not provide job opportunities for residents, if they do not have the necessary skills or education, regardless of where they live. While this calls out the need for widely available and equitably distributed workforce education and training programs (including, importantly, on-line offerings), there is still a potential to exacerbate existing inequalities if those programs are not easy to access, making it even harder for people without such skills to get ahead.

To mitigate these risks and ensure that economic development benefits all residents, it is important to implement projects that are inclusive and equitable, including prioritizing investments in digital infrastructure and public services in smaller towns and more remote rural areas in the Redwood Region.

Providing training and support to local residents will be important for the up-skilling needed for jobs in a digital economy. A part of this effort may be encouraging businesses to locate in (or at the very least partner with) smaller towns and the more remote rural and tribal areas in the Redwood Region. As noted by SWOT participants, facilitative programs that offer incentives (tax breaks or grants) or that provide support services (e.g., childcare, or transportation) may be needed to help smaller tribal and nontribal communities catch up.

Further, encouraging businesses to form or relocate in disinvested areas may also require investments in community development and initiatives that improve the quality of life, revitalize downtowns, create affordable housing, or improve access to healthcare and education—things that make it more appealing for a business in choosing a location regardless of the economic sector in question. All these factors require catalytic leadership tied to enough resources to ensure that they can be meaningfully taken into consideration in program development, and that the resources and leadership are sustained over the long term.

Local engagement. The Collaborative's efforts to engage with local residents in all aspects of the planning process have been and will continue to be critical to ensure that all unseen needs are surfaced, to take all concerns into account, and to ensure transparency and equity. Through multiple meetings, listening sessions, interviews, and data collection, the Collaborative project team has worked to gather qualitative and quantitative data, and to disaggregate both by race, gender, and other factors where possible to better identify and address disparities in economic opportunity in the Redwood Region. While this will ultimately make it easier to target resources and interventions to the communities that need them most, it still requires the participation and involvement of those who "own" the data and the narrative the data tells. It also requires that the input of disinvested communities be appropriately translated into actionable goals that accurately reflect their needs and values, not those of outside ED policymakers.

Investments in Community Development. Robert Pittman (ESI, 2021) notes that "definitions of community and economic development are parallel: community development produces assets for improving the quality of life and business climate, and economic development mobilizes these assets to realize the benefits of the community." Along these lines, the Collaborative is exploring programs, such as "capital absorption," that provide community- and/or region-level investments in pipelines of coordinated projects, with the goal of developing individual and community assets and building wealth.

The goal with such efforts is to create more equitable (and more distributed) access to economic opportunities and to financial inclusion, with the understanding that wealth inequities across the Redwood Region are strong barriers to accessing opportunity. Ultimately, with participation and buy-in, wealth-building strategies like (capital absorption) can help ensure that economic development efforts are sustainable (persisting after the CJF intervention) while remaining responsive to community-defined needs.

The correlation between community and economic development is strong and is a continued emphasis of Collaborative participants. Fostering the interaction of disinvested populations and creating more social connectivity with businesses, non-profits, schools, etc., and tracking such foundational measures as the social determinants of health, is an acknowledgement that all people and all voices matter, that everyone should be able to have job that confers dignity and provides a living-wage income, that helps build wealth (e.g., home equity), and that confers true economic inclusion.

As the Little Hoover Commission (LHC, 2022) notes: "Ultimately, regions will likely need to invest both in communities and in long-term strategies for economic growth, and carefully balance the goals of growth and inclusion. They will need to work to simultaneously create economic opportunity and eliminate barriers to that opportunity. They will also need to determine how to integrate and combine the distinct but interrelated investments and interventions required to advance both communities and the regional economy."

ED Driving Forces

Many forces combine to drive economic activity, including the factors of land, labor, capital, and entrepreneurship. These factors all affect economic growth and impact supply and consumer demand. Driving forces can be exogenous (from the outside) or endogenous (from within). Exogenous forces are often global in nature, and include (among others): policies and practices supporting economic liberalization (viz., multi-market interdependence), global trends toward a digital economy and remote work, increased automation, gains in worker productivity (often at the expense of certain types of jobs), and the impacts of global disruptions (pandemics, environmental and climate change impacts, recessions, supply chain disruptions, etc.) on economic systems, communities, families, and individuals. Driving forces are also local, rising from the ground level up.

As one example, the ability to identify and implement EDOs (that both shape and respond to consumer demand) is often driven by a community's or region's leadership capacity, the availability of assets (e.g., land, labor, capital, know-how), and the entrepreneurial capacity of a community or region. These are all important driving forces affecting how an economic system is structured and how it is set up to identify, create, and capture opportunities (i.e., how customers and increased demand for goods and services are created (Pipa and Galston, 2023). Taking this broader view, the driving forces of economic change and opportunity in the Redwood Region include (but are not limited to):

1) Deliberate equity-based strategies to address settler-colonial economic practices, acknowledge different ways of structuring economic activity and related barriers to participation in economic development processes (both planning and implementation) such as barriers to employment, to engaging in entrepreneurship, and to other ways of participating (i.e., acting as a consumer or producer) in the economy. A straightforward example is "food deserts" in rural areas, which represent an inequitable barrier to participation in the economy that also directly impacts health

and well-being. Strategies to address these barriers include programs and policies designed to increase participation for priority communities in such areas as affordable childcare, healthcare, transportation, and housing, among others.

2) Similar to #1, the broader "enabling environment" within the Redwood Region, including the physical and human capital within which the regional economy functions, is an important driving force as far as it both is shaped by and directly impacts consumer demand. As noted by many Collaborative participants, the generally poor infrastructure and lower educational and skills attainment among Redwood Region residents, particularly among disinvested communities, present significant challenges (on the supply side) to employment, business startup and growth, and business retention and long-term sustainability. As many communities are struggling with job losses, population decline, high poverty, empty buildings, and crumbling infrastructure, strategies that build on the assets, defined needs, and desires of each community will be critical in efforts to spur economic activity, create jobs, and foster more equitably distributed wealth and prosperity.
3) An emerging focus in policy and practice toward policy development and program implementation support for resilient and sustainable economic activity can play a strong role in shaping economic activity on the supply and demand sides. These government-led approaches (policies and regulations) can incentivize more robust and adaptive responses to both gradual (business as usual) and disruptive (economic, natural, climate) changes and create demand for more resilient products and services.
4) Digital economy: Technological advancements in communication, transportation, and e-commerce have opened new markets, reduced barriers to remote work, altered business models, and made rural areas more accessible and attractive for businesses and individuals; more widespread use of smart technology (AI, machine learning) has had impacts on labor productivity and jobs.
5) Economic disruption and ensuing change from long-term structural changes in the regional and global economy that shape supply and demand, including (but not limited to): a) the Redwood Region region-wide shift from an extractive to more mixed-industry model, b) economic disruptions such as the Great Recession, c) economic globalization and liberalization of trade, e) (potentially) long-term higher interest rates, f) the pandemic, and g) natural disasters.
6) Global environmental changes, particularly the threat of climate change, impact the factors of economic growth, limit economic activity in some instances, and provide incentives for new forms of economic activity in others. One example is the implementation of policies, programs, and economic and business models based on circular systems and regenerative design (e.g., the circular bio-economy).
7) Regional out-migration (brain drain) and population decline, with impacts on consumer demand, labor force availability and participation, and business growth and sustainability.
8) Workplace norms and generational (Boomer, Gen X, Millennial, Gen Z) dynamics, including a growing older population and differences in approach to work, life, and work-life balance, among younger generations, all impact economic activity. Differences include the rise of gig and remote

work (particularly during and after the pandemic), the desire for greater workplace flexibility, and more attention to individual needs (e.g., neurodivergence) and family schedules.

9) Government initiatives and investments to support economic development and infrastructure improvements in rural areas can help create a more receptive framework for economic activity.
10) Business management that increases firm innovation and productivity through employee engagement and entrepreneurial thinking programs. Such programs focus on the workplace environment and have a stronger focus on "customer creation" (i.e., demand-driven economic development) as a precursor to job creation (Nink, 2023).

Equity and Resilience

At the highest level, equity and resilience are the key EDOs and driving forces for economic development in the Redwood Region (admitting that successful exploitation of opportunities is in itself a potent driving force of economic activity). To achieve equity and resilience requires "flipping the script" about who gets to generate, interpret, and hold the data that informs change (and ultimately determines success). In identifying EDOs, key questions to ask include:

- How do we best identify and prioritize community-developed, equitable, and resilient EDOs in preparation for project selection and implementation?
- How do we facilitate needed structural changes in economic and industry dynamics in the widely varying contexts within the Redwood Region?
- How do we build equitable wealth among Redwood Region residents for the long term?

For the Collaborative, centering equity requires 1) a clear understanding of shared priorities in the Redwood Region among counties and communities, and 2) the creation of capacity at all levels to organize community members and convene key community stakeholders. To this end, as described elsewhere, the Collaborative has been working to: 1) determine a high-level vision for the Redwood Region, 2) set criteria to guide collaborative planning and implementation at the regional, county, community, and tribal levels, and 3) establish models for effective governance of the overall process that is able to elicit key issues related to equity.

Generational issues. Several other issues should be considered in the design of equitable, inclusive, and resilience-promoting ED strategies, including (as noted above) differences introduced by generation gaps and, for example, how Millennials and Gen Z might approach the work world compared to Boomers or even Gen X. For example, as Millennials and Gen Z (the younger generations) enter the workforce in significant numbers, they bring new expectations and preferences that are having a profound impact on labor availability (as they often migrate to locations where they can find more educational opportunities and jobs), productivity, and the nature of work itself (Chetty et al., 2014). Younger generations are more likely than older generations to participate in the gig economy (more short-term, independent work assignments), perhaps driven by a desire for flexibility, autonomy, and more control over work-life

balance. The gig economy can provide flexibility and opportunities for entrepreneurship, but it often also involves lower wages, fewer benefits, and less job security (Rural Innovation, 2023).

Remote work. Similarly, younger generations may prefer more remote work opportunities, in part owing to their greater familiarity with digital technology, as well as to satisfy a desire for a different work-life balance than their elders. Remote work has several benefits, such as reduced commuting time, increased productivity (in some cases), and a wider pool of talent for employers (e.g., drawing workers from across the Redwood Region and beyond). But it can also lead to challenges, such as communication breakdowns, isolation, and a lack of work-life boundaries (e.g., too much couch time) that impact productivity and job satisfaction (Choudhury, 2020). As noted, younger generations are also more likely to leave rural areas for urban centers in search of better job opportunities, higher wages, and more diverse lifestyles, creating a rural brain drain with negative impacts to the rural labor supply. The preferences and expectations of the younger generations are challenging traditional notions of work and are forcing employers to adapt to ensure they are positioned to attract and retain talent from this group.

Tribal and at-risk youth are a particularly important demographic to understand in terms of defining pathways out of poverty. Input from Collaborative stakeholders (SWOT) identified behavioral and mental health and trauma (particularly historical), substance use, and high Adverse Childhood Experience (ACE) counts among at-risk youth. Dropout rates, absenteeism, and completion of "A-G requirements" (courses students must take to be eligible to attend a California State University) were also identified as more prevalent among at-risk youth. SWOT participants noted insufficient skills building, lack of career technical education and workforce development in regional schools. There was overall agreement that the region is not a place of opportunity for young people, and that they leave their communities to pursue higher education and work opportunities elsewhere. Because many of these out-migrants do not return, one of the consequences is a lack of professionals to "pass the torch to" in what is becoming a growing crisis in business succession.

One goal of programming for Native and other at-risk youth is to redefine what educational attainment means and to offer alternatives to traditional higher education, including work in the trades and training in digital technologies. An RRR expert panel discussion highlighted the importance of "Cradle to Career" career technical education and other pathway programs. As one example, the Blue Lake Rancheria (BLR; located in the City of Blue Lake, Humboldt County) tribe's Toma Resilience Campus project (under construction) and K-12 *Pathmakers* program (discussed below) provide programs offering mentorships and apprenticeships for Native Youth (and others), and are designed around college and career readiness, among other goals. BLR is currently developing an apprenticeship program for several sectors, focusing initially on the renewable energy industry, including solar technology development (e.g., PV arrays) and off-shore wind tracks.

But perhaps an even more important focus for regional youth, in addition to developing the skills needed for specific occupations, is to develop their self-efficacy, well-being, overall thinking skills, and social

skills, including their ability to create personal and professional networks (a goal facilitated in part by internships and apprenticeships). As the IFAD (n.d.) notes: "To thrive in this new world of work, youth need to know how to search for information and create networks. In addition to basic technical skills, they need to know how to think critically and solve problems. And they must possess non-cognitive skills to be conscientious, open to ideas and able to get along well with others. Educational institutions face a big challenge to meet the emerging needs of this new world of work."

ECONOMIC DEVELOPMENT OPPORTUNITIES (EDOS)

Identifying 3-5 projects for the implementation phase of the CJF program is no small task, given the large number of economic development opportunities (EDOs) spread across the four counties of the Redwood Region. Prioritizing EDOs for implementation will require balancing several factors, including 1) equity (addressing both priority disinvested communities and cross-region distribution), 2) the resilience-related impacts and/or design of selected projects, 3) the project's "shovel-readiness," and 4) other factors identified by the Collaborative collaborative processes as important criteria for project selection.

Below we discuss issues with the identification and selection of EDOs in the Redwood Region, exploring 1) how barriers identified by the Collaborative can be seen as EDOs, 2) potential EDOs identified by the Collaborative for the four Redwood Region target sectors, and 3) "cross-cutting" EDOs that have broader impacts that affect many (if not all) industry sectors.

Turning Identified Barriers into Opportunities

Often, opportunities are found in overcoming barriers, or by effectively responding to change–a hallmark of a resilient system. From the Collaborative SWOT analysis, several Redwood Region-wide barriers were identified. These are all barriers that can be turned into economic development opportunities (EDOs), as follows:

- Limited regional skill pool for emerging industries. In some cases, though not always, the skill pool reflects a region's education levels. If these levels are generally lower, which is the general pattern for rural vs. urban (the Redwood Region is no exception), the ability to attract businesses that need specialized and/or high-tech skills can be impacted. Opportunity: provide higher education and/or job opportunities inside the region, plugging the "brain drain" that exacerbates the skills gap.
- Lack of diverse industries, which can increase vulnerability to economic fluctuations. Opportunity: Enable economic diversification by fostering entrepreneurship and business incubation (see below), and by training a skilled workforce more capable of supporting new, diverse industries across a range of sectors (i.e., horizontal skills that can be transferred between different sectors).

- Inadequate infrastructure (e.g., transportation, utilities, digital connectivity, etc.) can impede economic growth by hindering business operations and limiting access to markets. Opportunity: develop policies and plans to improve infrastructure.
- Limited entrepreneurship, including skills, entrepreneurial culture, and access to capital, can inhibit business creation and growth, dampening innovation, customer creation, and job creation. Opportunity: create business incubators and work to develop a culture of entrepreneurship and a region-wide entrepreneurship ecosystem. Cal Poly Humboldt is developing an entrepreneurship ecosystem, as one example, which includes a partner venture capital outfit (Lost Coast Ventures). Creating a culture around entrepreneurship is cited by researchers as one of the foundational elements to getting more startups going in a region (Krueger, 2007).[2]
- Low consumer spending power and low median incomes means limited disposable income, which can discourage businesses from investing in a region as they foresee insufficient demand for their products and services. Opportunity: this is a classic economic development dilemma, where the attractiveness of a community for business formation, attraction, and retention depends on a certain element of anticipated customer demand, and that demand would be facilitated by the existence of said businesses. Priming the pump in some manner is needed in this situation.
- Outdated or restrictive policies and regulations present hurdles, particularly for small businesses, generally discouraging business development and investment. Opportunity: review policies and regulations, explore examples from other regions and communities, and adopt new approaches that better serve emerging interests.
- Resistance to change is common in communities with long-standing traditions and cultural norms, which can make it difficult to introduce new businesses or technologies. Opportunity: work to build a new narrative incorporating emerging ideas into existing narratives.

RRR Target Sector EDOs

The Collaborative has targeted four sectors for more rigorous exploration of regional economic development opportunities (EDOs) and innovation opportunities, including:

- Health and Caregiving (HC)
- Arts, Culture, and Tourism (ACT)
- Resilient and Renewable Energy (RRE)
- Working Lands and Blue Economy (WLBE)

[2] The 2011 City of Arcata report "Developing the Seedbed for Arcata's Emerging Entrepreneurs" contains several recommendations for the development of a comprehensive entrepreneurship development system that are widely applicable today. See: https://www.cityofarcata.org/DocumentCenter/View/278/Developing-the-Seedbed-PDF.

These four broad-based sectors represent a wide range of business types across the region. As discussed above, several place- and people-based cross-cutting strategies can facilitate the exploitation of these sector-specific EDOs (both within and across sectors). Recommendations for EDOs identified below were developed by the Collaborative, including input from the SWOT session, sector tables, listening sessions, and other research and communications from Collaborative stakeholders.

Health and Caregiving (HC)

Several workforce and industry-development initiatives are planned or underway to improve healthcare in the Redwood Region. Workforce initiatives include: 1) attracting and retaining healthcare providers (e.g., loan repayment programs, 2) scholarship programs for rural youth, 3) improving compensation and benefits, 4) expanding scope of practice (e.g., allowing nurse practitioners, physician assistants, and other qualified professionals to provide a wider range of services), 5) developing K-18 pipeline programs, 6) developing a rural residency program, and 7) developing a community health worker program (training local residents to serve as liaisons between patients and the healthcare system). Telehealth and mobile healthcare initiatives include: 1) procurement of equipment and expanded healthcare worker training, 2) education and outreach to address digital literacy gaps, 3) equipping vans or remote clinics with diagnostic and treatment tools and supplies needed for vaccinations, screenings, ongoing care for chronic conditions, etc. (this can also be coordinated with local transportation providers to improve patient access to mobile services).

The Healthcare Education Hub. One economic development opportunity underway (involving the repurposing of an industrial facility in Arcata) is a project between Cal Poly Humboldt and College of the Redwoods: the "Healthcare Education Hub" (HEH). The HEH is designed to provide educational programs for Cal Poly nursing programs and training for healthcare service providers. A subsidiary goal of the HEH is to provide expertise and support applied research and technical assistance in the development and implementation of regional health industry job-creation strategies, high-skilled regional talent pools, and HC "innovation cluster" business expansion. The goal of the facility is also to partner with healthcare stakeholders across the Redwood Region to facilitate commercialization efforts in areas like telehealth, and to entrepreneurial activities in high-growth health products and services.

One approach under review for the HEH is to work with the Regional Innovation Accelerator Network (RIAN) as a venture development organization (VDO), partnering, as one example, with the BLR tribal Health Clinic and other tribal healthcare providers (e.g., UIHS), deploying best practices that target identified economic development objectives in the HC sector. In the proposed framework, something like EDA's "Innovation Index 2.0" would provide regional practitioners with an easy-to-compare method of assessing innovation capacity across the Redwood Region by providing a composite index of innovation inputs and outputs built on data on: 1) human capital, 2) business dynamics, 3) business profiles, 4) employment and productivity, and 5) economic well-being.

Broadband and healthcare. Many Collaborative participants have pointed to the importance of a cross-cutting strategy for opening new EDOs exploiting the Redwood Region's expanding broadband connectivity and creating new telehealth options. In the Redwood Region, as in most rural regions, healthcare provision is suffering due to hospital consolidation and a general difficulty in retaining medical professionals. Tele-healthcare services promise access to quality healthcare from home, a great solution, but one that also requires a reliable broadband network. While broadband in the Redwood Region has begun to change the regional HC sector by supporting interconnectivity between clinic locations, healthcare partners, and patients, upwards of 10-20% of the population in the Redwood Region still lacks broadband access, and in tribal areas the number is closer to 30% (UCLA, 2022). As the Redwood Region healthcare industry moves to more telehealth options, rural residents must be able to access these services or continue to suffer from higher levels of poor health. In short, telehealth is a major economic development issue for rural regions and could be considered a keystone EDO for the Collaborative.

Working Lands and Blue Economy (WLBE)

Working lands include agriculture, forestry, and ranching, forming a significant economic base for the Redwood Region. Key characteristics of the working lands sector in the region include: 1) agriculture: diverse agricultural production, including food crops (ground-based and hydroponic), dairy, cannabis, and wine, 2) forestry: extensive forests, providing timber, recreation, and environmental benefits, and 3) ranching: cattle and sheep ranching, contributing to the region's agricultural economy.

The so-called "blue economy" encompasses economic activities related to oceans, coasts, and marine resources. Key aspects of the blue economy in the Redwood Region include: 1) commercial fishing: diverse fisheries, including salmon, crab, and groundfish, 2) aquaculture: emerging aquaculture industry, including oyster and seaweed cultivation, and farmed fish, 3) coastal tourism: scenic coastline, attracting recreational fishing, surfing, beachcombing, and wildlife viewing activities.

During the Collaborative listening sessions and the regional SWOT, the natural beauty and abundant natural resources of the Redwood Region were mentioned often as a regional strength and as a source of manifold EDOs. Participants noted a high potential for innovation in the WLBE sector, including developing the ecosystems and microbiomes that provide diverse opportunities for regenerative agricultural practices (e.g., on grasslands). Cultural factors contribute to the Redwood Region's strength in this domain: the original inhabitants and stewards of the land are still living here, and traditional ecological knowledge (TEK) has high value in more effective land and forest management practices. Tribal governments and nations in the Redwood Region are known for their work to protect and restore our lands, forests, and rivers. Improved salmon populations from dam removal on the Klamath River (along with other river-restoration activities) presents an important EDO. An additional EDO noted by participants is the "back to the land" movement, which centers low-impact, off-the-grid, sustainable living in the Redwood Region hinterlands.

Another significant WLBE EDO noted is in reducing the fuel load in our forests and developing commercial uses for that biomass. Specifically for the communities adjacent to forest conservation areas, there is excitement for workforce training opportunities (e.g., a proposed heavy equipment training site in Orick). Controlled burns, cultural burns, and other fire and conservation activities are workforce development opportunities that offer great potential for integration of TEK. Other economic development opportunities in the Redwood Region's WLBE sectors identified by the Collaborative include (but are not limited to):

- Sustainable agriculture and horticulture to enhance productivity and environmental stewardship, with incorporation of TEK where possible.
- Local foods hubs, farm-to-table offerings, and dockside fish markets.
- Development of sustainable nature-based infrastructure and nature-based solutions, including wetlands and forest restoration.
- Hydroponics development to provide distributed and resilient food production.
- Increased mariculture activities, including seaweed (kelp), fungi, and abalone farming.
- Aquaculture development to diversify the region's seafood industry.
- Increased value-added product development and marketing.
- Development of ecosystem services markets (e.g., carbon offsets/GHG sequestration) to monetize the environmental benefits of working lands.
- Sustainable fisheries that ensure the long-term health of marine ecosystems.
- Coastal tourism, including recreation opportunities that also protect natural resources and eco-tourism (see below)--a cross-sector (WLBE/ACT) approach.

Arts, Culture, and Tourism (ACT)

The Arts, Culture, and Tourism (ACT) sector has multiple EDOs. Firms in the ACT sector encompass a wide range of activities, including visual arts, music, performing arts, cultural heritage preservation, tourism (and eco- and agri-tourism offshoots), among others. Key characteristics of the ACT in the Redwood Region as noted by Collaborative participants include: 1) many arts organizations, including museums, theaters, and art galleries, 2) cultural events, including festivals, concerts, and art exhibitions, and 3) cultural efforts, including traditional arts and Indigenous cultural practices, and 4) heritage sites. All of these are attractive amenities for tourists and residents alike.

Tourism in the Redwood Region encompasses activities related to travel and leisure and includes: 1) natural attractions such as redwood forests, wild coastlines, mountain ranges, and scenic rural countryside, 2) outdoor recreation opportunities such as hiking, camping, fishing, and kayaking, and 3) diverse cultural attractions, including museums, art galleries, historical sites, and other offerings on tribal and nontribal lands. Activities supporting ACT EDOs identified by the Collaborative include:

- Support and invest in arts organizations, cultural events, and arts education programs.

- Foster cultural heritage preservation, including protection and promotion of cultural heritage sites and traditions.
- Enhance tourism infrastructure (lodging, transportation, recreation) and facilities.
- Market Redwood Region tourism destinations and activities through targeted marketing campaigns.
- Develop integrated arts and tourism experiences.
- Explore cross-sector opportunities such as agri-tourism.
- Market certain areas of the Redwood Region as a destination for climate refugee tourists (seeking a vacation spot away from the heat at home) by showcasing the cool climate, coastal clean air, and access to abundant water.

Resilient and Renewable Energy (RRE)

The energy sector (primarily focusing on renewable energy and energy efficiency, and movement away from fossil fuels to the maximum extent possible) is rapidly growing and presents significant economic development opportunities for the Redwood Region. The Collaborative process identified several EDOs in the RRE sector. Lake County has a unique advantage, for example, with their geysers and geothermal energy production, possessing one of only three sites in the world where it is possible to tap into geothermal resources close to the surface. The coastal counties offer good sites for offshore wind development (a process of development well underway), with prospects of developing what is currently envisioned as the largest offshore wind farm in the nation. There is great potential that is already being exploited for distributed energy resources such as solar photovoltaic arrays and microgrids, particularly in Humboldt County (e.g., the Blue Lake Rancheria tribal microgrid, and the Redwood Coast regional airport microgrid in McKinleyville). Reducing wildfire risk from above-ground power transmission infrastructure provides an additional benefit from the development of distributed energy resources across most of the Redwood Region communities and tribal lands.

Examples of other EDOs identified by the Collaborative include (among many others):

- investing in residential, commercial, and industrial energy efficiency retrofits,
- entrepreneurship and innovation in the design of energy-efficient products and services (e.g., new devices, or rebate and audit programs),
- developing workforce development opportunities in energy efficiency and renewable energy to prepare people for jobs in the sector,
- developing the “hydrogen highway” for the Redwood Coast, an idea aligned with fleet conversion for transport in the region, and
- wide-scale development of distributed energy resources, including large projects (community-scale microgrids, off-shore wind), and small-scale applications (residential, commercial, and community-scale), designed to bolster regional resilience.

Many participants noted that there are often competing sector interests. For example, there is a need to balance multiple demands of other sectors, such as RRE, on the Redwood Region's harbors. For example, many fishing-allied associations have expressed concern with the potential disruptions caused by the construction of offshore wind turbines, when that industry takes off. Questions raised during the Collaborative meetings include: "How can the fisherman still be allowed to fish when the wind turbines are being transported?" and "How can we find a way that both groups can use the waterways?"

Tribal EDOs

The Blue Lake Rancheria (BLR) tribe (located adjacent to the City of Blue Lake, in Humboldt County) is an example of a tribe that has worked for decades with regional partners on sustainable, resilient economic development. Building off the priorities outlined in the tribe's CEDS, BLR is currently constructing the "Toma Resilience Campus" (funded by the U.S. Economic Development Administration). The Toma project was designed in collaboration with regional partners and is focused on developing a pipeline of resilience entrepreneurs and disaster preparedness professionals with the creative, innovative, and entrepreneurial mindset and knowledge needed to build and strengthen a more resilient regional economy. As the economic conditions of the region are subject to severe impact from natural disasters and other disruptions, the Toma facility will provide programming responsive to all hazards (economic and natural) through its emphasis on regional capacity building for preparedness, response, and recovery, and its emphasis on greater regional self-reliance.

Based on conversations with regional stakeholders, the Toma will provide a place for sharing ideas and resources, learning new skills, creating resilient solutions, incubating new businesses, and training a more resilient regional workforce. The goals are to provide a testing ground for new ideas, to support both new and tried-and-true approaches to resilient economic development, to create new businesses and jobs that support regional economic resilience to disasters and other threats, and to provide a model for resilient economic development practices in other tribal communities, rural regions, and even urban areas.

The Toma project dovetails with the BLR's *Pathmakers* program for K-12 students. The program, begun in 2018, is a community-driven, comprehensive project to help K-12 Native Youth become college- and career-ready through culturally-responsive, extra-curricular, STEAM-focused "makerspace" programming that provides them with additional choices and paths for accessing educational opportunities. In the program's theory of change, Native Youth will gain the skills and competencies that make them college and career ready because they acquire greater: 1) self-efficacy, 2) abilities to set goals and persist in achieving them, and 3) interest in Science, Technology, Engineering, Arts and Math (STEAM). The *Pathmakers* program is designed to address achievement gaps and strengthen the self-determination of Native Youth as they come to see themselves as capable and contributing members of ingenious and resilient cultures.

Little Hoover Commission (LHC, 2022):

"Especially in less well-resourced regions, continued state support and funding for capacity building beyond [CJF] is likely to be necessary. This funding is a vital investment in the institutional infrastructure for inclusive development. It makes possible ongoing leadership and allows conveners to build and maintain staff, develop expertise, expand outreach and engagement with stakeholders, and enhance their ability to build relationships and trust among collaborators."

However, given a myriad of potential regional priorities and limited CERF funds, the agencies administering CERF should focus the program and regional stakeholders toward: 1) identifying and supporting opportunities to invest in sustainable industries with significant potential to attract additional private and public dollars, lift up regional economies, and create quality jobs at scale, 2) aligning those investments with strategies and programs that will ensure disadvantaged communities are able to access the quality jobs created, and 3) sharing a portion of CERF funds with community-based organizations, with the goal of building their capacity to participate in regional economic development planning and help connect communities with quality jobs and economic opportunity."

Cross-Cutting Opportunities (CCOs)

In addition to the sector-specific EDOs outlined above, a number of "cross-cutting" opportunities (CCOs) have been identified during the Collaborative process. These CCOs cut across all sectors and provide a different focus for economic development activities that includes (among others) 1) consideration of and response to the broader economic driving forces outlined above, 2) response to community and cross-region needs as defined by the Collaborative, by regional CEDS documents, and other sources, and 3) the needs of individuals as expressed by a variety of institutions and by people themselves. As with other portions of this assessment, the CCOs themselves can be considered as opportunities and economic driving forces in their own right. Further discussion of CCOs is provided below.

CCO: Governance and Collaboration

Input from across the region is clear that capacity building in governance and collaboration in the planning and implementation of EDOs across the region requires effective governance and collaboration, which in turn requires effective leadership at all jurisdictional levels. As the Little Hoover Commission (2022) notes: "It requires significant time, energy, and commitment to manage cross-sector relationships, build trust and understanding, and maintain common purpose among stakeholders with different interests, priorities, and expectations."

Regional capacity to sustain economic development requires 1) "institutional alignment," 2) sufficient resources, 3) investments in training, research and development, 4) modernized infrastructure, and 5) entrepreneurship (Ibid.). To get industry buy-in and participation, the LHC advises that regions like the Redwood Region figure out how to move beyond existing coalitions and build broader partnerships (like the Collaborative) able to have "meaningful conversation based in data, lived experience, and community desires about where there are opportunities to grow middle-skill jobs and connect young people to solid career pathways" (Ibid.).

CCO: Wealth-Building

The rural wealth gap is an issue for disinvested communities in the Redwood Region but presents an important cross-cutting opportunity for wealth-building. Across the nation, rates of homeownership (owing in no small part to difficulties making down payments) are much lower in disinvested areas, and much lower for people of color than for whites. In addition, wage stagnation, income inequality, and a growing shortage of affordable homes have increased cost burdens, such that many people pay as much as 50% of their income for housing. Disinvestment in low and moderate-income communities, especially communities of color, produces substandard living conditions and spurs displacement, often to communities with fewer opportunities, services, and resources. This is an economic and a public health issue.

Existing community development tools and institutions in the Redwood Region leave many gaps: places, firms, and people that do not have ready access to capital. Determining how residents and businesses lacking wealth can reap more benefits when investments are made in underinvested communities is a key issue for the RRR HRTP. This will require a greater understanding of wealth-generation and economic empowerment dynamics, and of community investment models such as "capital absorption," an approach that seeks to develop a pipeline of investable projects across a portfolio of projects with similar focus and needs (e.g., affordable housing). To effectuate this CCO, and to center equity and build community wealth through economic development programming, will require 1) developing shared priorities and vision for what wealth sharing and access looks like, 2) organizing community members and firms, 3) establishing implementation criteria and providing guidance and monitoring, and 4) advocating for supportive policies and funding.

CCO: Building a "Hope Economy"

Communities in the Redwood Region often grapple with high rates of mental health issues and substance abuse. These challenges can hinder economic development by limiting the ability of individuals to participate in the workforce, engage in entrepreneurial pursuits, and contribute to the overall vitality of the community. To address these challenges, community and ED leaders can adopt several strategies, including:

- Mental health awareness campaigns and educational programs to raise awareness about mental health issues, reduce stigma, and to encourage individuals to seek help and support.
- Telehealth services and virtual counseling to provide better access to mental health services, overcoming geographic barriers and ensuring that residents have better access to the care they need.
- Creating a network of support groups and peer-to-peer connections to provide more safe spaces for individuals to share experiences, receive encouragement, and build a sense of community.

Some Collaborative participants noted a general sense of gloom and despair in many communities in the Redwood Region. One idea that was brought forth is the "Hope Economy," which emphasizes the importance of fostering a sense of hope, possibility, and optimism in rural communities—so-called "psychological capital" As Pleeging and Burger (2020) note: "Neoclassical economic theory has tended to focus only on subjects that can be measured objectively and can be generalized to universal rules. . . . [H]umans are much more complex than the traditional image of the calculating, rational homo economicus leads us to believe. . . . [E]conomics might become a more hopeful field by incorporating more of the complexity of human behavior and experience."

In the Hope Economy theory of change, by cultivating a (realistic) belief in a hopeful future, individuals are more empowered to act, innovate, and better contribute to economic activity and growth, thereby restoring a sense of agency, self-efficacy, and community pride. An additional benefit of the Hope Economy model is found in its emphasis on recognizing and appreciating the contributions of a diverse range of individuals and embracing the diversity of perspectives and talents within the community. The idea is that the approach helps create an inclusive environment that supports innovation and growth in disinvested communities by fostering hope, thereby tapping into a latent creativity resource, and likely multiple new marketable opportunities.

CCO: Creativity, Innovation, and Entrepreneurship

From 1997-2022, SMEs created 12.9 million net new jobs despite the pandemic, accounting for two of every three new jobs (SBA, 2022). The creativity and innovative capacities of regional entrepreneurs represent an important cross-cutting opportunity for the region–not just for startups and new business creation, but for innovation occurring within existing firms that can further competitiveness and job retention/creation. As discussed elsewhere in this summary, a number of regional strategies and projects are underway that focus on entrepreneurship ecosystem development (e.g., Cal Poly Humboldt), business incubation (e.g., Blue Lake Rancheria), the development of technology commercialization pathways, K-18 entrepreneurship education, and other approaches that seek to build on the creativity, knowledge, and unique skillsets of Redwood Region residents and the unique physical and natural assets the region provides.

Convening groups in the Redwood Region around shared interest in growing research and development related to innovation and entrepreneurship can help foster new partnerships and build support for entrepreneurial networks that span industry sectors. Echoing entrepreneurship research, which identifies the importance of intermediary organizations to bridge entrepreneurial skills with entrepreneurship ecosystem assets, county residents and priority communities participating int he Collaborative have suggested forming and/or funding intermediary organizations with the capacity to train, coach, and build leadership skills–including entrepreneurial thinking–in the diverse communities of the Redwood Region, and to build social and business networks focused on specific sectoral and job-creation goals. These intermediaries can also help ensure that the voices of local entrepreneurs are heard, and that the input from disinvested and priority community entrepreneurs is an important component of intra- and cross-sectoral plans, projects, and regional partnerships that emerge in the years ahead.

CCO: Digital Economy

The digital revolution impacts all sectors and is perhaps the most impactful CCO. Lack of digital skills or access to broadband services makes economic mobility more difficult, as even formerly blue-collar work like the trades and auto repair are almost completely digital now. At present, the impacts of the digital economy are often felt in the Redwood Region in changes to labor supply and relative wages, with out-migrants seeking digital skills or jobs in tech industries leaving the area. However, as many participants noted, the digital revolution also fosters new connectivity, networking, and cooperation opportunities within the Redwood Region (as well as between the Redwood Region and other regions)–the Redwood Region-wide Collaborative Zoom sessions are an example of such fruitful connectivity.

Further, digital connectivity can provide improved coordination and "knowledge spillover" possibilities (that used to require closer geographic proximity), which are important for improving innovation and new firm creation–one of the leading sources of new jobs (Wagner, 2023). Digital automation can also increase worker productivity (of course, with likely negative job impacts). In addition, as Redwood Region gains better digital connectivity, it will be more able to participate in distributed business models as partners in the value chain (e.g., something like a marketing company run out of a cabin in the Lake County mountains).

The digital revolution affects all economic sectors. One approach highlighted by the Collaborative is distributed manufacturing. The "design global, manufacture local" (DGML) business model, for example, deploys open access information sharing and inter-firm cooperation and trust in a high-tech, distributed, networked business model where product designs are shared globally, but fabrication and manufacturing occur locally. (The Toma facility at the Blue Lake Rancheria is exploring this model in its economic development portfolio.) In DGML, as in other emerging business models, high-speed digital connectivity provides a way to connect supply and demand and improve the speed and accuracy of information exchanges, lowering transaction and search costs (Hao, 2023). In a DGML (or similar) model, transaction costs are lowered, supply chains are shortened, and economic leaks are plugged. Importantly, rural

manufacturing sectors can gain a new foothold. This is a business model that can effectively function almost anywhere. Distributed hydroponics are an example of this inherently more resilient business model.

CCO: Employee Well-Being and Engagement

A common theme heard among Collaborative participants is the issue of poor mental and behavioral health among certain individuals and populations in the Redwood Region. An individual that suffers from mental and/or behavioral health concerns is far less likely to be gainfully employed and develop the educational background and skills needed to get into a job and to move into higher-paying positions as their career progresses. While the employee environment at a business should not be expected to solve these problems, the business environment can play a strong role in employee attraction, retention, and advancement (Fast Company, 2022).

Employee engagement refers to the level of enthusiasm, dedication, and commitment that employees feel towards their work and their organization. Highly engaged employees are more likely to work hard, take initiative, contribute innovative ideas, be satisfied with their jobs, *stay with their employers longer* (and presumably stay in the Redwood Region), and be more productive (Ibid.). In the Redwood Region, enhancing employee engagement can play a pivotal role in driving innovation and productivity—and importantly, in creating jobs. Benefits of employee engagement include (Ibid.):

- Increased innovation: engaged employees are more likely to think creatively, challenge the status quo, and generate new ideas. They are more willing to experiment and explore new approaches, which can lead to innovations that provide new customers and create the need for new hires.
- Enhanced productivity: worker engagement correlates with productivity. When employees feel valued, connected, and invested in their work, they are more likely to work hard and be more productive.
- Improved problem-solving: engaged employees are better at identifying problems and addressing challenges. Active employee participation in problem-solving contributes to a more effective, efficient, and productive workplace.
- Reduced turnover: high levels of engagement foster loyalty and satisfaction, leading to lower employee turnover rates. This also saves businesses money that would be spent recruiting and training new employees.

CCO: Place-Making

Communities in the Redwood Region face significant challenges, including population decline, economic stagnation, and a loss of identity. Many Collaborative participants discussed “changing the narrative” and rewriting the local and regional self-image, which is often a negative one (backward, isolated, lacking in

opportunity, etc.) A concern is that these narratives can become self-fulfilling, leading to a lack of community spirit and further disinvestment.

In contrast, "re-narrativization" strategies focus on reframing the story of rural communities, highlighting their unique strengths, assets, and potential (Kobersmith, 2021). Such strategies involve celebrating the rich history, culture, and natural beauty of a place while showcasing the residents' resilience, innovation, and entrepreneurial spirit—an often-mentioned characteristic of Redwood Region residents was resilience and "stick-to-itiveness." By re-narrativizing Redwood Region communities, more positive and empowering images can be created that could help attract new residents, businesses, and outside investment. Place-making strategies include (Cahill, 2023):

- highlighting the unique qualities and character of the community (and region),
- engaging local residents in the storytelling process to ensure their voices are heard,
- celebrating the achievements and contributions of community members,
- creating inviting public spaces and enhancing the attractiveness of the community (placemaking), and
- leveraging social media and digital platforms to amplify the community's story.

CCO: TEK, Regenerative Design, and Circular Economies

Applying circular economy and regenerative design principles was a common theme heard among the Collaborative discussions and represents an approach that, with creativity and innovation, can be applied to all economic sectors. One example that was identified of a similar region deploying a circular, regenerative approach is the North San Joaquin Valley (NSJV) "CBIO" (circular bio-economy) project. The NSJV region has high poverty rates, relatively low educational attainment, and environmental justice and public health challenges like the Redwood Region. And, like the Redwood Region, it is a diverse region with a long agricultural tradition (both Indigenous and "conventional"), with significant potential for innovation. Goals of the CBIO and similar projects that could be applied to the Redwood Region include:

- Accelerate the transition to a net-zero carbon economy through bio-enabled and other regenerative solutions.
- Advance racial equity and build community wealth through sector and workforce development strategies that center diversity, equity, inclusion, and access in the development of new regenerative economic principles.
- Improve environmental and public health outcomes among vulnerable communities that surround agricultural activities.
- Promote a more regenerative, resilient, and sustainable food and agriculture system that creates sustainable livelihoods (i.e., jobs).

- Reclaim tribal sovereignty by reintroducing centuries-old farming practices and working across generations to preserve language and cultural practices.
- Uplift Indigenous culture as an avenue for achieving community health and well-being.

CCO: Choices Made by Public and Private Decision Makers

The choices made about public-sector ED policies and private-sector opportunities to pursue (among other choices) are obvious but have important cross-cutting implications. Nobody can predict the future with certainty, but thoughtful trend analysis, predictive foresight, and entrepreneurial skill can suggest choices that lead to more beneficial and robust (i.e., widely applicable) outcomes. One straightforward but impactful policy choice, for example, noted by SWOT participants would be to focus ED resources on youth development (e.g., internships and mentorships, career pathway pipeline development), as opposed to strategies focused solely on support for select business sectors. As with many choices about the future, there is also the issue of short- versus long-term payoffs. As noted above, many economic transitions require long time horizons in planning. Project funding mandates often mandate short-term deliverables and documentable outcomes that are not well-suited to decades-long transitions. Many of these short-term project funding cycles do attempt to address this issue by requiring sustainability plans for how the project will be continued after the funding period closes.

Responsive Strategies for Developing and Exploiting EDOs

To develop sector-based EDOs and the CCOs, several strategies have been used or are being explored by the Collaborative, including (but not limited to):

1. Empowering local decision-making by providing smaller and more remote communities and tribes with a meaningful role in the decision-making processes vis-à-vis the broader Collaborative. This has involved encouraging broader representation on various Collaborative tables and/or councils, participation in project planning, and input on funding allocations.
2. Fostering regional collaboration among businesses, organizations, and communities across the region to develop joint projects and share resources with the goal of maximizing the impact of economic development investments and better ensuring that all Redwood Region communities benefit from the planning and implementation processes.
3. Addressing financial inclusion and asset-building through programs that provide greater access to financial services (e.g., affordable loans, credit counseling, and investment opportunities) and programs such as “capital absorption” that empower residents from disinvested communities to build wealth and stability.
4. Promoting community-driven development through initiatives rooted in the strengths and assets of disinvested communities, leveraging local knowledge, expertise, and cultural and physical assets to drive sustainable economic growth.

5. Collecting and analyzing data on equity, resilience, and other economic indicators, such as income levels, employment rates, and business ownership, disaggregated by race, gender, and other factors, to continually identify, track, and address regional disparities.
6. Establishing accountability mechanisms to ensure that economic development initiatives (both pre- and post-implementation) are achieving their equity and resilience goals, and that resources are being allocated fairly.
7. Promoting collaboration and partnerships among government agencies, businesses, non-profit organizations, and community leaders to address Collaborative equity and resilience issues collectively and effectively.
8. Exploring the use of a transparent, formula-driven CJF implementation fund allocation based on objective criteria (e.g., population density, economic need, and potential for economic growth) or other approaches agreed-upon by the broader regional collaborative (LHC, 2022).
9. Prioritizing projects with regional impact, not just benefits for individual counties, communities, or tribes. Regional projects could include areas such as infrastructure improvements, affordable housing programs, workforce development initiatives, and business development support.
10. Implementing a community-based grant program that specifically targets smaller and more remote communities and tribes. These grants would be easily accessible and designed to support local initiatives that align with and leverage the Collaborative's overall economic development goals and projects.
11. Enhancing communication and transparency and regularly communicating with all stakeholders about the Collaborative process, including the allocation of CJF implementation funds. The Collaborative process is designed to provide clear explanations of planning and implementation decisions and is working to ensure that all communities and tribes have access to information about the process, available resources, and potential funding opportunities.
12. Conducting regular equity and resilience audits to assess the impact of economic development strategies and investments on different communities, to identify any disparities inequity and resilience, and to adjust as needed. New metrics may be needed to achieve equitable and resilient outcomes.

ECONOMIC DEVELOPMENT DISPARITIES

Collaborative Input. From discussions, listening sessions, and meetings held by the Collaborative, it is evident that existing economic and community development programs and institutions in the Redwood Region leave many gaps—places, people, and needs that are not being well served either by existing economic conditions or by the ED programs in place to improve them (if there even are any). As such, Collaborative stakeholders are working to identify opportunities to effectively address wage disparities and stagnation, income and wealth inequalities, the shortage of affordable homes, and other dynamics that have led to economic disparities and inequitable burdens throughout the Redwood Region.

Wealth gaps add to the struggle for many residents. A lack of inherited wealth leaves many households unable to purchase homes, start businesses, and access stable rental housing. Further, many Redwood Region residents pay high percentages of their incomes for housing and other basic needs. The inability for many to "make a go of it" (or the perception that it will be difficult to do so) leads to displacement and out-migration to places that provide more opportunities, or, conversely (and unfortunately), to places that have fewer if any opportunities! Attention to the community investment models and processes in which people can accrue greater wealth, and with it the economic leverage they need to access opportunity and mobility (either where they live or elsewhere), is thus a paramount concern for the Collaborative.

It is often the case that economic disparities (e.g., income, wealth, etc.) are mirrored by ED disparities (e.g., lack of workforce training programs, poor infrastructure, etc.). That is, the very communities most in need of assistance are often the ones most poorly equipped to provide it—and they often do not.

Local Government Policies and Initiatives

Local government policies and initiatives will likely be influenced by Collaborative conversations among education and community and economic development organizations, government and workforce development organizations, grassroots organizations, and business organizations. In the Collaborative meetings, tribes and workforce development organizations have reported that community distrust can be a hurdle for broader participation (i.e., greater equity) in economic development planning. Community members participating in listening sessions and the Local Planning Table meetings also reported a lack of trust in government and economic development agency planning processes due to the history of extractive boom-and-bust cycles of development, and the failure of governments and business to deliver on previously planned projects or to include community feedback in planning processes.

Feedback on federal and state policies and grant programs suggested that they have traditionally been poorly designed to support the Redwood Region's ability to compete or develop projects that meet specific regional needs, and are often characterized by shifting and unrealistic timelines, vague or unrealistic performance criteria, and disbursement schedules that do not account for the time and resources required to form partnerships, ensure community participation, design responsive and complex regional projects, and deliver results. In reviewing existing local policies and initiatives and pointing toward their future development and evolution to address (perhaps) newly defined needs, these dynamics will be important to keep at the forefront.

As noted above, in response to information barriers, distrust, and high transaction costs of participation, community members see great value in the development of intermediary organizations to convene partners at the local and/or regional levels. These intermediaries can help: 1) build trust among participants and develop more community-based (meaning all community members) and -led solutions, 2) craft mutually-agreeable policies friendlier to businesses, developers, community organizations, and residents, 3) create funding terms and processes that are more easily navigated, enabling businesses and

agencies to implement projects more easily, and 4) develop targeted coaching and training for emerging leaders that can build capacity for long-term progress.

The Redwood Region is a new state-designated planning area. Historically, local and county economic development entities in the region have not worked together on plans or projects (CJF and is one of the first efforts to organize and collaborate on Redwood Region-wide plans and projects). Responding to requests from county residents and priority communities to form and/or fund intermediary organizations with the capacity to train, coach and build leadership skills in diverse communities, facilitate respectful dialogue, and build social networks focused on specific goals can help ensure local voices contribute to plans, project designs and formation of local and regional partnerships within and across industry sectors.

However, as noted by Collaborative participants, there is strong regional alignment across industry sectors, goals and strategies that presents opportunities for partners to design projects with regional relevance, with leverageable, complementary resources, and with the potential to be implemented and create positive impacts on a regional scale. Convening groups around shared interest in growing research and development, education, business entrepreneurship and communications/marketing strategies can help incubate partnerships and build support networks across industry sectors, leading to the incubation of business and attendant job creation.

County CEDS

All counties in the Redwood Region are updating (Del Norte, Mendocino) or preparing new (Humboldt, Lake) CEDS documents. Collaborative listening sessions revealed challenges experienced with respect to completing, updating, and implementing CEDS and other plans, some of which were impacted by the pandemic. All counties address the need to expand and grow business opportunities, jobs, development projects, support for small businesses and entrepreneurs, and building the capacity and resilience of rural and Tribal communities, through investments in broadband and transportation infrastructure. Additional strategies from the regional CEDS are provided below.

Industry diversification strategies and efforts to increase living wage jobs include:

- Develop culinary, cultural, eco-, experiential, and other niche brands of tourism.
- Develop new forest industry/biomass/timber products.
- Expand programs applying Traditional Ecological Knowledge, including those preserving aquatic resources, traditional diets, and wildfire management.
- Expand specialty foods cultivation, processing, distribution, and sales.
- Grow healthcare enterprises.
- Grow technology-based firms across industries.
- Increase light manufacturing.
- Invest in renewable energy.

- Invest in fire mitigation and safety practices.
- Support sustainable agricultural, forestry, and fishery products.

Infrastructure strategies to ensure that suppliers, residents, and visitors can easily access resources and opportunities throughout the region, including:

- Deliver broadband to rural communities.
- Develop and preserve water resources (storage, management, wastewater).
- Develop regional multi-modal and active-transit options.
- Enhance public transportation options.
- Establish Community Hubs for community benefits (e.g., education, work, recreation) and disaster preparedness.
- Expand and construct emergency routes.
- Expand highways/roads to accommodate supply chain routes, commuters, and visitors.
- Invest in airports and harbor/port infrastructure.
- Increase ADUs, workforce housing, affordable housing, and address permitting, zoning.

Skill development strategies to ensure that businesses and residents are prepared and resourced to participate in the local economy include:

- Develop quality messaging, outreach, and marketing.
- Develop research and lab space to grow emerging industries.
- Increase childcare affordability and availability.
- Invest in ocean education and other high-demand career paths.
- Support business entrepreneurship and a thriving small business environment.
- Train on cooperative development/ownership.
- Upskill workforce in skills needed in the Target and other sectors.

Specific sectors, strategies, and opportunities from the four counties' CEDS are presented in the tables below:

Table 1: County CEDS, Key Sectors

County	Key Sectors
Del Norte	• Education • Government services • Healthcare • Prisons • Retail/tourism

County	Key Sectors
Humboldt	• Alternative Agriculture • Building & Systems Construction • Diversified Health Care • Forestry Products • Investment Support Services • Management & Innovation Services • Niche Manufacturing • Specialty Food, Flowers & Beverages • Tourism/Arts and Culture
Lake	• Agriculture • Recreational opportunities • Wine industry
Mendocino	• Accommodation & food services • Agriculture/Forestry • Health care & social services • Manufacturing • Retail • Tourism

Table 2: County CEDS, Goals and Strategies

County	Goals/Strategies
Del Norte	• Diversify the regional economy (increase technology-based firms, light manufacturing, healthcare). • Promote tourism industry expansion. • Support expansion of sustainable agricultural, forestry, and fishery products. • Invest in improving and maintaining a comprehensive transportation network that meets the needs of industry, commuters, and visitors. • Enhance education, workforce training, housing, and healthy lifestyle opportunities. • Create a thriving small business environment that fosters entrepreneurship and innovation.
Humboldt	• Infrastructure (especially transportation and broadband). • Support efforts to improve workforce development programs for all industries. • Build, attract, retain, and grow industries. • Build, attract, retain, train, and grow workforce (4-year education and trade/skill paths). • Identify, fund, and empower alternative agriculture. • Develop a plan to promote tourism, arts, and culture.

County	Goals/Strategies
Lake	● Promote and participate in regional economic development initiatives. ● Promoting resilient rebuilding, based on current and future risk, through innovative ideas. ● Ensuring a regionally coordinated, resilient approach to infrastructure investment. ● Providing families safe, affordable housing options and protecting homeowners. ● Supporting small businesses and revitalizing local economies. ● Addressing insurance challenges, understanding, and accessibility. ● Building local governments' capacity to plan for long-term rebuilding and prepare for future disasters. ● Pursue resilience and economic development simultaneously.
Mendocino	● Develop innovative value-added economic sectors. ● Increase equitable community-wide prosperity. ● Support the development of workforce training and skills. ● Develop a resilience strategy.

Table 3: County CEDS, Opportunities

County	Opportunities
Del Norte	● Outdoor recreation. ● Sister City relationship with Rikuzentakata, Japan. ● Expand fishing boat access on rivers. ● Alternative energy (wind, wave, waste-to-energy, solar). ● Business mentoring resources. ● Redefine agriculture to include timber and fishing; diversify and create value-added products. ● Obtain state and federal grants. ● Develop the Del Norte EDC into a coordinating entity for all county jurisdictions.
Humboldt	● Business expansion. ● Refine branding/marketing. ● Niche Manufacturing. ● Tourism, Arts/Culture. ● Utilize untapped workforce (justice involved, youth, those with physical/developmental disabilities). ● Involve youth in identifying opportunities. ● Outdoor recreation. ● Develop port and harbor. ● Renewable energy (solar/microgrid, wind).

County	Opportunities
Lake	• Invest in infrastructure (broadband, roads, housing, airport, public transportation, water/wastewater) • Tourism (farm to fork, healthy food, recreation, arts) • Education in globally marketable skills (including in science–both laboratory and computer-based) • Harbor development (Konocti, Thompson, etc.) • Increase presence on social media with a positive tone. • Partner more with Colusa and Lake counties. • Mining (replace exports of cinder blocks and manufacture locally to create jobs and revenue). • Increase grant proposal development capacity.
Mendocino	• Tourism. • Adoption of technology and innovation. • Green jobs and infrastructure.

Tribal Planning Table

Output from the Tribal Planning Table indicates that tribal leaders are interested in collaborating on projects that help develop well-paying jobs and that support new business development. Many Tribes (and non-tribal communities) are moving away from timber operations and investigating enterprises in forestry, land management and restoration, and renewable energy. Strong support has been expressed for economic development initiatives tailored to tribal needs (e.g., focusing on Indigenous arts culture and experience, traditional ecological knowledge, etc.).

Tribal stakeholders expressed the need to establish secure funding (grants and loans) to support economic development initiatives. A particular funding focus was state government agencies, lending institutions, and Tribal-serving organizations who can help organize information about funding opportunities and collaborating with labor organizations and educational organizations on job training programs. Tribal stakeholders are looking for support on collaborations with other Tribes on developing programs that benefit both tribal members and the region.

Tribes experience economic barriers in accessing funds for the benefit of their Nations and communities due to the way funding opportunities are structured. Tribes often do not have resources to manage reimbursement grants and are unable to advance expenditures and wait for reimbursement. It can also be difficult for Tribes to qualify for larger grants (e.g., pilot projects) because they do not have adequate staff, time, or resources to put together a collaborative proposal and/or to meet project requirements.

ADDRESSING WAGE DISPARITIES

Wage disparities and poverty are issues that have perplexed policymakers for a very long time. In 1967, Lyndon Johnson's National Advisory Commission on Rural Poverty published the *People Left Behind* report, detailing the Commission's efforts to sort out how government could help create a "favorable economic environment" that included guaranteed employment, a mandatory minimum wage, and an end to racial and locational discrimination.[3] While there have been modest declines in rural poverty over the intervening years, these can be partly explained by a relatively older rural population receiving safety net transfers such as Medicare and Social Security (Romig, 2023). The overall persistence of wage disparities and poverty in rural (and urban) regions—including mobility out of poverty across generations—suggests that there is still a lot of work to be done.

Wage disparities in rural regions result from many factors, including place of residence, marital status, educational attainment, job skills possessed, work experience, policy levers in place, discrimination and differences in bargaining power, and occupational options available (e.g., the digital economy's tendency to locate in urban areas), among other factors. As one would expect, skilled labor typically earns higher wages than unskilled labor (even if most of the "skills premium" goes to people in urban areas).[4] But as Elise Gould (researcher at the Economic Policy Institute) bluntly argues, "expanding college enrollment and graduation is not an answer to escalating wage inequality" (Gould, 2019). Recent wage gains, in Gould's view, are more readily explained by tighter labor markets and mandatory minimum wage laws than by differences in educational attainment. (Gould notes, in fact, that the wages of the bottom 60 percent of college graduates went down over the period 2000 to 2017 (Ibid.)).

When labor markets are tight, employers must pay more to attract and retain workers; and as the unemployment rate falls, wage growth usually goes up for low-wage workers.[5] Without strong labor standards (such as mandatory minimum wage policies), it is often only in tight labor markets where low-

[3] In March 2018 researchers revisited the 50 years that had passed since the *People Left Behind* report, exploring: 1) how race affects poverty, underemployment, and income mobility, 2) child poverty and local strategies for addressing childhood disadvantage, 3) how economic restructuring and entrepreneurial activity are related to poverty and mortality, and 4) the social safety net and poverty dynamics.

[4] Real weekly earnings of college-educated men in rural areas have been stuck at about $1,000 for 50 years. Even among college-educated men in urban areas, earnings have not risen considerably in 20 years (RUPRI 2018).

[5] The results indicate that a 1-percentage-point drop in unemployment results in annual wage growth for workers at the 10th percentile of the wage distribution that is 0.5 percentage points faster. For example, if annual real wage growth is at 1.0 percent, then a 1-percentage-point fall in unemployment would result in annual real wage growth rising to 1.5 percent (Bivens and Zipperer, 2022).

wage workers see wage growth. Similarly, low- and moderate-wage workers may suffer during economic slowdowns but tend to do better during economic expansions (Bivens and Zipperer, 2018).

Other factors, including marital status and employment rates, play a role in wage disparities. Marriage is correlated with family income and poverty status, and marriage rates have dropped over the past 50 years, particularly for rural households headed by parents with low levels of educational attainment (Baily et al., 2016). In the Redwood Region, employment rates have declined over time for workers with fewer skills– unlike times when workers with less than a high school education could more easily find a job. Employment rate differences for this less educated labor pool could also be a result of the workforce's changing age composition, as older people are less likely than younger people to have a high school diploma (in the Redwood Region, the share of the population between ages 45 and 64 is larger than the share of workers between ages 25 and 44).

The issue of whether and how declines in employment might affect wages, however, can provide more questions than answers: is a decline in employment a result of declining wage levels and fewer opportunities for growth? are the least productive workers more likely to quit, leaving room for the wages for remaining workers to increase? There is a significant difference in the median annual wages between low-wage and high-wage occupations and sectors in the Redwood Region. The wage gap is often a reflection of different skill requirements and the levels of education and training needed for different types of work. The wage gap between low-wage and high-wage sectors is a complex issue, though, with many contributing factors including the cost of living, the demand for labor (e.g., if there is a "tight" labor market), and the labor supply, among others.

Implications of Wage Disparities for Workforce and Economic Growth

Wages are one of the key indicators of the ability to achieve a desired standard of living. The Collaborative goal of increasing access to high-quality jobs necessitates an attention to wages—and to efforts to collaboratively develop strategies to solve wage disparities. These efforts will require the design of strategies to contend with (among others) 1) broader macro-economic (driving) forces, 2) the advantages that urban areas have with generally higher levels of education and more skills-based, higher-paying industries, and 3) (absent direct transfers such as a Universal Basic Income) the generally long-term nature of creating a regional economic system that supports sustainable job and wage growth (as noted by the LHC).

While there are many workforce and economic factors impacted by wage disparities, housing is one of the more foundational issues for wage earners—and more broadly a foundational concern for a community's or region's ability to develop a thriving economy. The ability to afford a rental or to purchase a home (and build wealth) is a product of income, housing affordability, and (relatedly) housing availability. Clean, safe housing is important for people to fully function in society and in the workforce. Many communities in the Redwood Region lack an adequate supply of (all forms of) housing, leading to high rents and high

home costs. Often, housing shortages and high costs force low-wage workers into oveRedwood Regionowded living arrangements, and/or necessitates long commutes from an affordable residence to one's place of work.

In the Redwood Region, many people without access to housing are forced into living in their vehicles, some form of makeshift shelter, or even the streets, making it even harder to participate in the labor force. The lack of access to affordable housing became more critical during the pandemic, as businesses closed and workers were either laid off or forced to find other work. Some people were able to work from home, but many service-industry establishments (e.g., food, tourism, hospitality) had to close, making life even more difficult for workers struggling to afford housing.

Wage disparities have several other negative impacts on regional economies like the Redwood Region, including: 1) reduced productivity, as workers paid less are often less productive (low wages can lead to stress, anxiety, and discouragement/disengagement), 2) increased turnover, as low wages can lead to higher turnover as workers quit, find other employment, or move out of the area, 3) reduced economic growth, as workers earning less have less money to spend, so demand for goods and services is decreased along with economic growth (a downward spiral), 4) brain drain, as more educated or skilled workers migrate to regions with higher wages, depriving their home regions of valuable talent and further hindering economic growth in low-wage regions, and 5) worker unrest, as workers who feel they are not being paid fairly may strike or quit (Thiede et al., 2020).

ED Responses to Wage Disparities

ED practitioners have a range of tools to deploy to address wage disparities, including:

- Public Employment. Wage disparity is related to income, and public employment for low-skilled workers is one approach to provide income while meeting community development needs such as infrastructure, beautification, etc. These employment programs could be tied to training programs designed to help workers ultimately move to private sector employment.[6]
- Promote pay equity and address discrimination. This strategy would focus on workplace policies and incentives for employers to implement more equitable wage structures. This includes strengthening labor laws that protect workers' rights to fair wages, overtime pay, and safe working conditions.

[6] Ohio State University economist Mark Partridge (AEDE 2020) contends that the benefits of place-based policies to increase employment (e.g., wage subsidies) go mostly to the financial elite. He also believes that people-based policies (e.g., migration subsidies) suffer from low take-up, that education and training programs are slow and expensive to run, and that poverty-reducing policies affecting trade, low minimum wages, declining unionization, or technological change are ineffective. Partridge instead calls for public employment for low-skilled workers, and more research into basic income strategies.

- Strengthen labor unions and collective bargaining to shift the power balance between employees and employers by providing support for labor unions that give workers a voice in wage and benefit negotiations.
- Raise the minimum wage. While California has a mandatory $15.50 minimum wage, further increases would help reduce income inequality even more while stimulating consumer spending**.** Adjusting the minimum wage regularly is important to keep pace with the cost of living.
- Encourage occupational mobility through career counseling, apprenticeships, and retraining programs to help workers transition into higher-paying occupations (vertical career ladders, and horizontal career lattices).
- Offer workforce training. Provide affordable and accessible education and training opportunities so workers can develop the skills and qualifications needed for higher-paying jobs.
- Foster business startups and entrepreneurship. Business openings and closings (turnover) in higher-paying industries have been correlated with net job creation, higher-wage jobs, and poverty reduction in rural counties (the evidence is less clear for turnover in lower-paying, service type businesses) (Bunten, 2015).
- Improve financial sector services. This is an example of an indirect ED approach with a wide range of potential benefits, including addressing wage disparities. One key issue here is the idea of "banking deserts" (rural areas with fewer financial service institutions), which makes it more difficult for individuals and local businesses to get conventional startup or expansion loans. Research (Tolbert et al., 2014) suggests a relationship between the prevalence of independent local banks and increased business formation, higher wage and income levels, and lower poverty rates.

IMPACT OF ECONOMIC SHOCKS AND SHIFTS

Counties in the Redwood Region are vulnerable to economic shocks and shifts. The 2008 recession had a big impact on the region, as the collapse of the housing market led to widespread job losses. The COVID-19 pandemic has also had a significant impact on the region, as the closure of businesses and the decline in tourism (among other sectors) also led to job losses and economic hardship. Other forms of disruption, including natural disasters (wildfires, earthquakes, floods, landslides, etc.) climate change, social unrest, and abrupt policy changes (e.g., changes in tax and health policies) can pose a significant economic disruption as well. Most such disruptions are both unpredictable and of uncertain magnitude and duration. Resilience thus often requires a robust response toolkit and a fair degree of individual and group improvisational skills.

Extreme events present challenges for communities (in the Redwood Region and elsewhere) in terms of planning, response, and recovery. Such events require the attention of government and community leaders to several factors, including environmental, socio-economic, infrastructural, and societal (e.g., social capital, such as inclusion and trust) resilience. Rural communities in the Redwood Region have many

residents who are generally poorer in health and less individually resilient, for example, which may affect their personal ability to plan for, respond to, and recover from economic shocks and shifts (not to mention the community's or region's overall resilience capacities).

An example of an economic development response to disaster is the BLR Toma Resilience Campus project (discussed earlier). The Toma was designed as a response to repeated regional disruptions from natural and economic forces and reflects the economic and resilience goals articulated in BLR's tribal CEDS: "to preserve sovereignty, to spur job creation, to develop long-lasting economic enterprises" (among other goals). Economic development and regional partnerships have long been a goal of BLR, which has expanded and upgraded its infrastructure and worked with regional partners to upgrade shared infrastructure, and to promote business opportunities and long term, skilled job creation all aimed at increasing tribal and regional resilience.

BLR's CEDS details the tribe's economic development goal of expanding training services and facilities at BLR (to be facilitated in part by the Toma campus), including first responder/emergency response training, climate and community resilience training, and skills-based training facilities and programs in multiple economic sectors and community development areas. The Toma facility fulfills the tribe's goals of establishing a Native American business incubation, workforce development, and apprenticeship/internship center that provides startup assistance, skills training and certifications, job placement, and ongoing coordination with regional economic, education, workforce, and community-based organizations. The Toma training facilities, fabrication lab, and commercial teaching kitchen will offer workforce development programs to help workers develop skills that address the current and emerging hiring needs of the business community, including disaster preparedness and resilience-related products and services.

The incubation ecosystem concept of the Toma works with many regional and national partners to create a supportive culture around entrepreneurship in five main areas: 1) disaster preparedness and community response capacity-building, 2) smart technology, 3) clean and efficient energy, 4) light and advanced manufacturing, and 5) sustainable agriculture. The Toma facility's focus on "smart" technologies and the development of regional capacity for light and advanced manufacturing and relocalization of manufacturing and production aligns well with regional needs.

Turning Disruption into Opportunity

Forging an economic path forward for the Redwood Region that prioritizes equity, job growth, resilience, and resilience to disruption requires a comprehensive approach to turn disruptions into opportunities and "bounce forward." Examples of sector-based strategies to bounce forward (or at the very least, buffer the impact of disruptions) include:

- Developing distributed energy projects (e.g., solar plus storage, microgrids) to reduce reliance on fossil fuels and mitigate the impact of supply cutoffs.
- Providing workforce development programs in renewable energy installation and O&M to help with any needed infrastructure repairs.
- Expanding access to healthcare services to underserved rural and tribal areas, including community health clinics and telehealth services, to improve response and recovery capacity.
- Promoting climate-adaptive and sustainable farming and forest-management practices, creating economic opportunities by increasing crop and forest resilience, and shortening the post-disruption rebound period.
- Sourcing products locally to lessen the impact of long, fragile, and disruptable supply chains.
- Creating/strengthening worker (farmer, rancher, etc.) cooperatives to build social inclusion and trust shown and facilitate faster recovery (DHS, 2023).

Impacts on specific regions and populations.

Each community in the Redwood Region has assets that can both help and hinder resilient recovery after a shock or shift. For example, a remote community may have unique assets (historic architecture, access to nature, etc.) that can be leveraged to attract tourists and help the local economy during both business-as-usual times and after a shock or shift. However, a community's remote location can also hinder its ability to access services and resources, and to coordinate with neighboring communities and stakeholders (e.g., on service-sharing or mutual aid agreements for police and fire).

The more remote communities in the Redwood Region are also at a disadvantage in terms of economic recovery and resilience planning/implementation and resources, as communities in closer proximity often share responsibilities for workforce education/training, provision of infrastructure (including broadband) and affordable housing, among other areas. Identifying the strengths and vulnerabilities of more remote communities (as with communities anywhere) is important to better understand the potential impact of a disruption on the community, and on specific subpopulations. More vulnerability is associated with greater risk, so identifying and reducing vulnerabilities can increase resilience to risks and enhance recovery capacity.

Impacts on workers. Depending on its severity, an economic disruption can have substantial impacts on the Redwood Region workforce. More severe disasters can lead to mass migrations away from the region, depleting the workforce and making economic recovery even more difficult as the human capital needed for recovery no longer exists. It is thus important to identify ways to retain as much of the workforce as possible during and after a disaster, possibly through housing assistance and other forms of aid (food, medicine, short-term employment, etc.). Developing strategies to prepare for and minimize workforce losses during a disruption can offer a much-needed buffer for workers and businesses as they ride out the storm to calmer times (so to speak).

Reported impacts to workers included (among others): 1) job losses from business closures in tourism and hospitality, among others, with workers in service industries (already with lower wages and fewer benefits) disproportionately affected, 2) wage stagnation or decline, 3) less stable and secure employment (e.g., more gig and part-time jobs), 4) shifts toward automation and remote work, resulting in displacement or the need to acquire new skills, and 5) stress from job insecurity, financial hardship, and social isolation (increased rates of reported depression).

Impacts on business and industry. The Redwood Region is no different from other regions across the globe when it comes to the effects of a comprehensive economic disruption. During the pandemic, for example, many businesses in the Redwood Region suffered from: 1) closures owing to reduced or no demand, 2) declining revenue from closures, restrictions, and changing customer behavior, 3) supply chain disruptions that brought shortages, delays, and price increases, 4) shifting customer behavior toward more online shopping (and also a preference for outdoor activities), 5) inability to adapt quickly to online operations and to compete in the digital marketplace, and 6) increased reliance on government grants and loans to stay afloat.

Impacts on public sector entities. Economic shocks also impact local government budgets and public goods and services provided, which in turn impact local businesses and families. impacts to the public sector included 1) increased strain on healthcare, social assistance, and education, requiring budget adjustments and resource reallocation, 2) budget impacts from declining tax revenues as a result of economic contraction (with impacts to service delivery and infrastructure investments), 3) staffing shortages due to burnout and health concerns (among other reasons), 4) increased pre-existing disparities in access to public services, and 5) a shift in priorities that pulled resources from other community needs.

Of course, economic disruptions can also present opportunities to reimagine community priorities and public sector activities that may have been previously ignored, including 1) the creation of new partnerships and encouraging relationships of trust with disinvested populations that historically have been left out of policy and planning processes (a feature, in fact, of the Collaborative process), and 2) the development of new priorities and ideas to improve equitable access to public resources.

Impacts of Shocks on Sub-regions and Populations. The Redwood Region's disinvested communities and priority communities often experience "compounding vulnerabilities" in times of disruption, with challenges like poverty, food insecurity, and inadequate healthcare being amplified, widening the opportunity gap. A number of factors increase vulnerability, including (among others): 1) a lack of access to critical resources like emergency aid, healthcare, and educational support, 2) a lack of broadband access to essential information, services, and economic opportunities, 3) increased risk of displacement from eviction and foreclosure, 4) exacerbation of existing inequalities (e.g., poverty, lack of access to healthcare, and limited job opportunities), 5) increased food insecurity from disruptions to food supply chains and increased job losses, 6) limited access to technology and crucial information, services, and

remote work opportunities, and 7) increased isolation and mental health challenges from disruption to social networks and support systems.

New Economic Development Opportunities

Economic development opportunities also arise in response to economic shocks or longer-term shifts. Several of the EDOs identified above are appropriate in both business-as-usual and disruptive times (admitting that business as usual typically requires ongoing adjustments). All EDOs have challenges and risks associated with their pursuit, many of which can be deal-breakers, but many of which can be overcome through careful foresight and planning, agility during response, and thoughtfully-developed recovery strategies. Even so, a fair degree of improvisational skill and agility may be required to adapt EDOs to emergent and continually changing conditions (Mafimisebi et al., 2023). Types of EDOs and related strategies that may be more suited for emergent conditions include early (pre-disruption) identification of:

1) key investment areas and workforce development needs to prepare for post-disruption transitions and the emergence of resilient industries,
2) underutilized synergies within the Redwood Region and with outside markets, with identification of opportunities for intra- and inter-sectoral and public-private cooperation to maximize benefits,
3) ways to effectively utilize the Collaborative regional roadmap, including high-quality job creation targets (pre- and post-disruption) in resilient industries, informed by the needs of disinvested, priority communities in the Redwood Region, and
4) EDOs and related investments that have multipliers and benefits across the Redwood Region, including investments that leverage local, regional, state, federal, and philanthropic dollars to maximize economic benefits and that reflect the inclusive vision and plan for Redwood Region economic vitality established in the Collaborative regional roadmap.

A key purpose of the Collaborative to date has been to establish a functional, inclusive regional economic planning process and network to continue advancing, implementing, and realizing EDOs. This process has involved rigorous research and collaborative information gathering to identify key potential project investments (for the implementation stage) and related workforce training needs that support economic vitality and that meet near term and strategic industry and public sector workforce demands. The Collaborative project team has helped establish broader regional awareness of public, private, and philanthropic funders and programs in addition to CJF (that can serve as leverage) and has been developing a structure for strategic pursuit of project funding across the Redwood Region during and beyond the CJF project period.

Entrepreneurs and networks to build resilience.

As noted, the uncertain nature of disruption in any system (temporally, spatially, etc.) calls for a high degree of preparedness and response capability, but there will always be the need for improvisation in how a person, community, tribe, business, government, or other entity responds to dynamic and unpredictable change. Entrepreneurial skills (whether among business owners or among the workforce) can be a critical component to ensure that such skills are present in the Redwood Region. To this end, it is important to understand both the impact of entrepreneurship in total and by industry (on employment and other measures of growth), and the impact of entrepreneurship on economic growth within different communities in the Redwood Region (e.g., defined by census tracts, townships, or other geographically-defined areas). Assessment of changes in employment or changes in the total numbers of firms in a particular area can include measures such as educational attainment, which might affect the relative supply of entrepreneurs.

Building more resilient economic systems in the Redwood Region can be furthered by enhancing regional social capital–a resource noted by many in the Collaborative as currently in short supply. Social capital is a product of networks, norms, inclusion, and trust (Halstead and Deller, 2015). In social capital theory, social influences shape human interaction, including economic choices. Networks are shaped by the social connections among economic actors in the Redwood Region. Following the theory, creating productive networks requires frequent interaction among actors, which can produce norms and, ultimately, trust. In this framework, entrepreneurial opportunities can arise from these networks through information sharing and knowledge spillover on such things as availability of resources, market demand, feasible financing, and so on (Conroy et al., 2017). Entrepreneurs can use information gained from such networks to find new opportunities, assess risk, and develop business models and strategies for increasing productivity and profitability.

Challenges and Risks of Pursuing Opportunities

There are always challenges, risks, and opportunity costs in pursuing EDOs. In the Redwood Region (as in most places) there is a diversity of EDOs to choose from and myriad driving forces that impact their potential. With an influx of new resources, the Redwood Region needs to consider what is better: 1) to spread resources out widely and risk diluting the effectiveness of individual projects, 2) to concentrate resources on a few, centralized projects, and risk drawing labor from smaller communities, or, perhaps, 3) to figure out a way to spread the resources widely *and* effectively? Even with the clear mandate to identify 3-5 regional implementation projects, answering this question is not easy.

In determining what EDOs are appropriate, one can consider (among other things) individual and firm behavior, market forces, and how the policy framework (including economic development programs) in place will influence behavior and respond to and/or shape market forces as a given project is implemented. A decision to shape policies in support of or provide government assistance to selected EDOs should be influenced by informed expectations about the combined effects of these policies and market forces, as well as by a realistic assessment of existing community capacities; it is reasonable to be

leery of overly-prescribed development pathways that may be more risky to the extent they fail to consider local capacity constraints. As noted above, one of the more important broad-based EDOs for the Collaborative may simply be the strengthening and systematizing of local-to-regional capacity to act on more targeted, if somewhat widely distributed, EDOs.

Power imbalances. To better identify pathways toward greater and more equitable investment and community wealth in the Redwood Region, and to create new economic opportunities and new jobs, it will be important to understand and to counteract the forces that have led to communities and populations becoming disinvested in the first place. Such disinvestment is in part a product of long-standing wealth and power imbalances, but structural economic and geographic forces are also significant factors leading to disinvestment. Identifying and unlocking the potential of EDOs in the Redwood Region thus requires an understanding of 1) power relationships impacting equitable service provision, 2) the synergies among and multiplier effects of various forms of economic assistance (policies and incentives), and 3) the leadership capacity of local and regional economic developers (broadly construed) to craft and implement effective programs (Schuetz and Pagano, 2023). The creation of accessible and transparent social and policy networks within the Redwood Region—like those hopefully emerging from the Collaborative process—may be the critical factor in terms of surfacing and redressing power imbalances, and promulgating more effective, equitable economic development in the years ahead.

Enabling greater economic opportunity for individuals and market access for businesses, and creating jobs that are accessible to all, is both an inter- and intra-regional concern; the coordination and integration of participatory efforts fostered by the Collaborative may lead to new institutional arrangements within the region as well as between the Redwood Region and other regions. Such new arrangements can help foster broader and more equitable participation, help "level out" wealth and power imbalances, and help identify place-specific EDOs that are well-suited to the unique cultures and visions of different communities.

Uniform or varied approaches. The development of new, more equitable and resilient forms of economic activity in the Redwood Region—and the equitable distribution and selection of EDOs (given these relative power systems)—must temper the appeal of "efficient" one-size-fits-all approaches with the understanding that the interplay of individual, market, and policy forces in unique contexts and particular places will impact economic activity (producer-consumer dynamics) in unique, unpredictable, and context-specific ways. Region-wide implementation projects, for example, will likely fare better if more attention is paid to how their application in specific communities will *differ*: the policy task may be to develop robust mechanisms for implementation that allow for significant flexibility at the ground (community) level.

The regional approach taken by the Collaborative is designed to enhance cooperation between stakeholders, highlight and address specific regional and community qualities and needs, mobilize local/regional expert knowledge, and foster new intra- and inter-regional partnerships. Adoption of regional or sub-regional approaches to planning—and building the capacity to do such planning—will

enhance the likelihood that regional and local governments and economic development agencies can effectively coordinate the networks and approaches needed to apply the right amount of resources to (hopefully) well-defined problems, and to create beneficial synergies among projects across the varied terrain of the Redwood Region.

Synergies. Synergies—the connection between two or more activities where the combination of effort produces effects that are both qualitatively and quantitatively greater than if the activities were conducted in isolation—can be a significant boost to the effectiveness of ED programs. For example, strengthening a positive link between tourism and regional agricultural products (agri-tourism) can lead to greater economic outcomes than might occur with a focus on just one or the other sector. Importantly, identification of these synergies can both spring from (and support) new networks and forms of conversation and cooperation across the region, as well as from other integrated planning efforts that may arise. The task becomes one of achieving coordination, efficiency, and effectiveness in EDO selection and to make good use of the multiple potential synergies that may exist.

Institutional effectiveness. Achieving coherence and coordination (and synergy) among implementation approaches requires substantial institutional effectiveness in planning, implementation, management, evaluation, and extension of such offerings. Establishing this institutional effectiveness throughout the Redwood Region is in fact a critical foundation for the Collaborative. Identifying complementary EDOs will require that all economic development stakeholders pay close attention to the "development mixes" across the region, including the mix of factors including capital and labor availability, market structures, research capacity (including participatory and collaborative research or discovery), and other inputs. New institutional arrangements will likely arise as needed. Many have in fact been forming in the Redwood Region to attend to the Collaborative process.

Animation and capacity-building. Perhaps the most important of these arrangements is broad-based, equitable participation as evidenced by the Collaborative meetings. The notions of local ownership and subsidiarity are closely linked with the concept of equitable regional planning: that is, dealing with *social and political issues at the most immediate or local level that is workable*. As noted earlier but worth repeating, the bottom-up strategies to identify EDOs require the identification of the assets and opportunities (asset-based approaches) for new economic activities available within specific communities or sub-regions; creating conditions conducive for rural enterprise growth and job creation (EDOs) necessitates close attention to context that only local actors have access to. Effective animation[7] and capacity building strategies (such as the Collaborative meetings) are helping to mobilize local interests and resources in place-based economic development in the Redwood Region, but there is work to be

[7] "Sociocultural animation is a method of empowering people to participate in the development of their own groups or communities, looking at their own needs, capabilities, knowledge and skills to identify problems and the adequate strategies to solve them" (Montez, 2020).

done. Participatory approaches can be critical for the integration of different interests, but they must be well facilitated.

Knowledge of the rural context. And while participatory approaches at the ground level may be necessary for effective rural economic development, they are often not sufficient. There is also a need for effective program and policy information, associated decision-support systems, and leadership capacity at higher institutional levels. A lack of knowledge about rural development processes (including the complexity and diversity of rural areas and systems, their links with broader economic and policy systems, and the unpredictable dynamics of overall system changes) means that most policies impacting rural development are generally developed with only partial knowledge. While this is a common feature of policymaking in general, it does suggest the need for some nuance and policy robustness, at the very least.

Resilience, and bouncing forward equitably. A key goal of the Collaborative is to make the region more prepared to respond to economic disruptions, to plan for recovery, and to bounce forward from the effects of the pandemic (among other disruptions) and make the region more resilient to future change. To do this, the Collaborative process has worked to identify prior weaknesses to help make clearer the challenges and risks of projects selected for implementation. An ongoing challenge is to ensure equity and inclusion in the planning and implementation process, and to help create more access to opportunity for disinvested, priority populations–to ensure that selected projects provide access to opportunity for underserved and disinvested populations and increase their chances of more fully participating in economic, social, and civic life as they help define the roadmap for a more equitable and resilient regional economy.

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Note: additional material included above is from source material gathered from the RRRise Collaborative meetings (Meetings, Listening Sessions, Tables, etc.) and from regional source documents (County and Tribal CEDS, regional planning documents, etc.).

APPENDIX 1: DISCUSSION OF RELEVANT ISSUES

As shown above, poverty and unemployment are both spatially distributed and concentrated in the Redwood Region. Typically, in the Redwood Region and elsewhere, disinvested communities are characterized by lower incomes, higher social-service demands, deteriorating housing stock, and higher unemployment rates. Such "lagging" places often have inadequate infrastructure and public services, failing schools, and few jobs matching the skills of residents. These are economic disadvantages, but they also present economic opportunities, as will be described below.

As noted elsewhere, a concern for any region like the Redwood Region is the out-migration of young people. Population stagnation or decline, or aging population pyramids (see demographic discussion above), create difficulties for the economies of smaller communities. Rural de-population in some communities is, in fact, a dynamic that ED can foster if programs create better opportunities in other areas. Because of out-migration and brain drain, regional efforts must be cognizant of the interplay between strategies and how regional efforts or efforts in larger municipalities with stronger economies can impact community-level efforts in more depressed areas. The distribution of economic development programming and funding as part of the CJF implementation phase (and the associated provision of community goods) will have strong potential impacts on equity that must be looked out for.

In the Redwood Region, another important issue is a relative lack of individual wealth and resources. Whether it is because of low income or no income or low or no inherited wealth, a lack of individual resources impacts one's ability to buy food, acquire job skills, access transportation, afford a house or a rental, access healthcare, or to secure childcare needed to be able to work. As with all problems, though, the other side of economic problems is that they can (and must) be re-envisioned as economic development opportunities. And in a rural and distressed region such as the Redwood Region, there are many such opportunities.

From an equity perspective, then, in exploring such problems-as-opportunities, it is important to ask: to whom might the benefits of a particular strategy accrue? If the benefits of place-specific investments accrue primarily to landowners (as can be the case with certain strategies), the program likely misses the equity goal. If an approach discourages out-migration, for example, it could negatively affect an individual who might be better served by moving to a different place. Of course, all potential outcomes and impacts, positive or negative, cannot be foreseen or controlled for, but educated guesses can be made, and ongoing evaluation of outcomes is advised.

As described in regional CEDS documents, many communities in the Redwood Region have neglected infrastructure, underperforming schools, and inadequate public safety provision—that is, specific places in the Redwood Region are experiencing underinvestment and inadequate provision of public goods (safety, education, transit, community identity, political networks, housing and labor markets, etc.). Out-

migration in this context is very harmful for communities, even as it improves an individual's prospects, as it further erodes an already flimsy tax base. Because many lower-income households are in areas characterized by low property wealth and high numbers of renters, public goods needed to support economic activity are often underprovided. This dynamic often contributes to a downward spiral.

Targeting, Coverage, and Mobility

Targeting ED efforts (i.e., identifying and helping the intended beneficiaries of a given strategy) can be more difficult if the benefits of resources invested into distressed places are not specifically targeted to the intended population (i.e., if new jobs created go to non-target residents or new in-migrants). Similarly, the *coverage* of an intervention—the share of the intended beneficiary population affected (presumably positively)—is important to consider. If assistance is targeted to disinvested communities or places with concentrated poverty, who is getting left out? *Mobility* is a third concern. For example, if a community lacks jobs, good schools, and affordable housing, then the conditioning of assistance on whether an individual lives or works in a particular area might discourage a move that would better serve their needs.

A final concern: if economic development increases economic activity in a community, there could be a commensurate increase in housing costs and general prices, an increase that must be matched or exceeded by hoped-for wage gains. If cost of living increases but wages do not, the result is greater inequity. But if the increased values can be recaptured and redistributed (e.g., through Community Benefit Agreements), then agreements to increase raise wages, create affordable housing, and provide other social services can be made to be more equitable.

More on Networks. A big difference between leading and lagging regions is the degree to which local economic actors {define} are both mobilized and organized. Leading regions are characterized by development processes that are more democratic and bottom-up, and that involve a wide range of well-organized economic actors. And such bottom-up processes are more likely to emerge and succeed when economic development entities understand their local/regional contexts vis-à-vis the broader state, national, and international contexts {ref}; this ability depends on the capacity (skills, knowledge, and attitude) of economic actors and the internal and external networks in which they are involved (Ejdemo et al. 2021).

Policymaker Capacity. The capacity of policy makers is an important factor in turning a lagging region or community around. Capacity includes the ability to implement strategies and policies that match the priorities and needs of the community or region, the ability to attract public funds and private investments, the ability to establish good working contacts with other governments at all levels, and generally to establish favorable conditions for firms to start up and operate (Aspen 2019).

On Growth and Development

Growth and development. In defining terms, it can be helpful at the outset to distinguish between *growth* and *development*. Growth is a quantitative measure, while development is more qualitative—aimed at a stated goal. In other words, GDP can measure output growth (or decline), but establishing a desired GDP growth rate (and related measures such as median household GDP) is more of a *development* goal.

Economic and community development. A second distinction is between community development and economic development. In community development, the focus is more on the activities and functions of a particular place (a "community" can be a municipality, or the Redwood Region could be considered a regional community). Aspects of a community that can be developed include (among others) 1) economic goods and services, infrastructure, 2) social norms and culture, 3) participatory opportunities (social, economic, etc.), 4) mutual support, and so on (MSSU n.d.). These community-level development functions are facilitated by a host of institutions (government, economic, education, religious, associations, family, etc.) linked horizontally within a community and vertically with the county, region, state, or federal governments.

As Christenson and Robinson (1989) noted over 30 years ago, too much reliance on vertical, external organizations can negatively impact community *autonomy*, and a balanced approach is often useful that can use both horizontal links to identify community priorities and vertical links for access to outside resources and expertise. Relatedly, *economic* development (ED) can be defined as "a process that influences growth and restructuring of an economy to enhance the economic well-being of a community" (IEDC n.d.). ED often has two primary and related objectives: 1) creation of jobs and wealth, and 2) improvement of quality of life. Typically, the focus in ED is on jobs, wealth creation, and the businesses that can support the growth of each.

It's all combined in the end. Of course, growth, community development, and economic development have significant overlap. For example, fostering business diversification, a key goal of the CJF, is both a resilience strategy and a way to grow the tax base[8] to fund other community and economic development programs.

[8] Business tax revenue helps support public employees, parks and amenities, roads and infrastructure, public facilities (community centers, libraries, government buildings, etc.), public safety, housing, workforce development and education, and overall quality of life.

APPENDIX 2: TARGET SECTOR OPPORTUNITIES EXAMPLES

Sector	Example Opportunity from Collaborative	Viability
HC	Expand access to mental health and substance abuse treatment services	Steady growth due to the aging population and increasing prevalence of mental health and substance abuse issues.
	Prioritize developing specialized healthcare services for the aging population	Steady growth due to the aging population and increasing demand for specialized care.
	Emphasize attracting and retaining healthcare professionals through incentives and training programs	Challenges in attracting and retaining healthcare professionals due to competition from urban areas.
	Leverage telemedicine technologies to provide remote healthcare services to underserved areas	Telemedicine can improve access to healthcare in underserved areas without the need for additional physical infrastructure.
WLBE	Focus on sustainable forestry practices and value-added wood products	Challenges due to fluctuations in timber prices and competition from imported wood products.
	Emphasize developing sustainable fisheries and aquaculture operations	Challenges due to overfishing and environmental regulations.
	Prioritize organic agriculture, value-added agricultural products, and ecotourism	Growth from increasing demand for organic and locally sourced food, as well as ecotourism.
	Leverage opportunities in sustainable ranching, ecosystem services markets, and wildlife-based tourism	Challenges from land use changes and competition from other land uses.
ACT	Focus on promoting outdoor recreation, indigenous cultural experiences, and art festivals	Growth due to increasing interest in outdoor recreation and cultural experiences.
	Emphasize developing ecotourism opportunities, such as whale watching and kayaking tours	Ecotourism is a growing niche within the tourism industry and can attract visitors seeking sustainable travel experiences.
	Prioritize promoting wine tourism, culinary experiences, and arts-based events	Wine tourism, culinary experiences, and arts-based events can attract visitors seeking unique and engaging experiences.
	Leverage opportunities in nature-based tourism, recreational fishing, and cultural heritage	Nature-based tourism, recreational fishing, and cultural heritage preservation can attract visitors seeking outdoor

Sector	Example Opportunity from Collaborative	Viability
	preservation	recreation and cultural experiences.
RE	Focus on developing geothermal resources	Geothermal power is relatively stable with predictable energy production.
	Emphasize solar and wind energy development	Solar and wind energy are renewable energy sources with declining costs and increasing efficiency.
	Prioritize energy efficiency retrofits and programs for households and businesses	Energy efficiency retrofits and programs can reduce energy costs and create jobs in the construction and energy services industries.
	Leverage opportunities in biomass energy and industrial energy efficiency	Biomass energy may face challenges due to environmental regulations and competition from other renewable energy sources. Industrial energy efficiency can reduce energy costs and create jobs in the energy services industry.

APPENDIX 3: ED STRATEGIES—BROADLY DEFINED

There are multiple ways to classify the ED strategies that will be a part of the Collaborative's regional roadmap. Here, to clarify, we categorize strategies into five primary types: 1) broad-based, 2) sector-based, 3) business-focused, 4) workforce, and 5) community-based:

1) Broad-based strategies take a regional focus, looking at regional specializations and opportunities for broad collaborations on projects (e.g., capital absorption, affordable housing, healthcare, broadband, inclusive and equitable economic growth, etc.), and on regional labor market dynamics (in- and out-migration, intra-regional labor market shifts), and other areas. Broad-based regional strategies can be developed to respond more effectively to economic shocks—particularly regarding impacts on disinvested communities (e.g., through mutual aid agreements). Increasing regional economic equity, including closing gaps, attaining universal levels of service, and disaggregating impacts by race, ethnicity, income, etc., are highly prioritized in this broad-based approach.
2) Sector-based strategies often focus on "traded sectors" and targeted approaches such as efforts to a) woo a large employer, b) develop, attract, retain, and expand SMEs, and c) develop equitable and resilient business strategies for firms across all sectors. Also, sector-based strategies for increasing economic diversification, particularly in those areas at particular risk from disruptions (e.g.., pandemic, climate-related, etc.), and removing barriers to attraction and retention of businesses and quality job access for disinvested communities, will be needed.
3) Business-focused strategies include programs such as those offered by SBDCs for direct-to-business assistance and other industry demand-driven programming.
4) Workforce strategies are talent-based, designed to assess and improve worker skillsets, job placement potential, employee well-being, and employee engagement. These strategies include preparing workers for remote work, and developing entrepreneurship skills, among other areas.
5) Community-based: focused on community services and amenities and workforce support (affordable housing, broadband, transportation, healthcare, childcare, arts/culture, etc.); "placemaking" and developing safe, interesting, attractive communities (for residents, businesses, tourists); this includes development focused on individuals and social inclusion.

Redwood Coast Region, California

Indicators Report

by
The National Economic Education Delegation (NEED)

December 12, 2023

Exploring the economics, demographics, and well-being of Redwood Coast and its residents through indicators.

Regional Definition: The Redwood Coast region consists of: Del Norte, Humboldt, Lake, and Mendocino counties in Northern California.

This report was produced by the:

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Executive Summary

Assessing the Region with Indicators

About this Report

This report provides background or summary information for the city of Redwood Coast (the City) in the form of indicators.

Using this Report

Indicators are measures of various aspects of a regional economy. They help to provide an indication of the quality of life in a region and progress toward improving conditions in the local economy. This report focuses on indicators for changing demographics, incomes, housing markets, commute patterns, and employment in Redwood Coast. These indicators are compared to a broader region where one is well defined, California, and the United Sates.

This report is vital for understanding trends in the underlying economy. It does not provide forecasts, but Rob Eyler and Jon Haveman at Economic Forensics and Analytics can provide that if you are interested.

Topics Covered:

- **Demographics:** A detailed snopshot of Redwood Coast demographics is presented. This provides evidence on the size, age and sex, income and poverty status, race and ethnicity, housing status, living arrangements, education, health, and transportation choices of the population. Beyond the current population level, data on trends in local population growth, in comparison with other broader regions is presented, in both tabular and graphical form.
- **Employment Report:** Here, we provide a brief snapshot or employment and unemployment in Redwood Coast and how the City's experience differs from broader regions.
- **Income and Earnings:** Vital to understanding the prosperity of a city relative to its surrounding area is information on income and earnings. We provide a ranking of the City's income relative to all cities in California as well as growth relative to local regions. Inequality and poverty status are also important indicators for the level of equity in the community. We provide evidence of trends in both, not only for all residents, but also for children specifically.
- **Housing:** This section provides evidence on the cost and availability of housing. Both median home values and rental costs are included, along with detailed information on home ownership, by age and income, in particular. Further, evidence is provided on the housing burden in the City, again, in comparison with other broader regions. We also provide evidence on the rate at which new buildings and units are permitted along with a broader housing picture. Finally, we provide evidence on the age of the housing stock in Redwood Coast, along with information on how long the City's residents have been in place.
- **Transportation:** Increasingly important, in the wake of the pandemic is an indication of the transportation patterns and choices of local residents. We provide detailed evidence on the proprotion of residents who work from home and on the various transportation choices of those who head to the office. This information is also provided for those who work in Redwood Coast, but do not live in Redwood Coast.
- **Migration:** In most cities, the population grows, but the pattern of this growth can vary over time. Accordingly, we provide information on migration flows between Redwood Coast, surrounding regions and internationally.

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Contents

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Demographics

Definition:

Data on the demographics of a city indicate the nature of the population, with a focus on age, gender, race and ethnicity, as well as household compositon.

Why is it important?

The characteristics and growth of Redwood Coast's population are fundamental indicators of the city's growth potential.

A Demographic Snapshot

Statistic	2022	2019
POPULATION		
Population Estimate (#, 5yr)	322,763.0	314,854.0
Veterans (#, 5yr)	18,303.0	21,428.0
Foreign born persons (%, 5yr)	8.5	8.2
Population age 25+ (#, 5yr)	227,392.0	220,538.0
AGE AND SEX		
Persons under 5 years (%, 5yr)	5.2	5.6
Persons under 18 years (%, 5yr)	20.2	20.4
Persons 65 years and over (%, 5yr)	21.1	19.4
Female persons (%, 5yr)	49.9	50.0
INCOME AND POVERTY		
Median household income ($, 5yr)	236,624.0	191,780.0
Per capita income in past 12 months ($, 5yr)	131,381.0	108,840.0
Persons in poverty (%, 5yr)	17.7	19.1
Children age less than 18 in poverty (#, 5yr)	12,881.0	14,547.0
Children age less than 18 in poverty (%, 5yr)	20.3	23.2
RACE AND ETHNICITY		
White alone (%, 5yr)	73.2	79.9
African American alone (%, 5yr)	1.5	1.4
American Indian or Alaska Native alone (%, 5yr)	4.0	4.8
Asian alone (%, 5yr)	2.5	2.4
Native Hawaiian and Other Pacific Islander alone (%, 5yr)	0.2	0.2
Two or More Races (%, 5yr)	10.7	5.4
Hispanic or Latino (%, 5yr)	19.5	17.9
White alone, not Hispanic or Latino (%, 5yr)	67.1	69.9
HOUSING		
Housing units (#, 5yr)	149,102.0	150,273.0
Owner-occupied housing units (%, 5yr)	61.5	60.1
Median value of owner-occupied housing units ($, 5yr)	1,423,500.0	1,128,900.0
Median selected monthly owner costs-with a mortgage ($, 5yr)	7,554.0	6,609.0
Median selected monthly owner costs-without a mortgage ($, 5yr)	2,374.0	1,905.0
Median gross rent ($, 5yr)	4,783.0	3,983.0
FAMILIES AND LIVING ARRANGEMENTS		
Households (#, 5yr)	125,069.0	124,692.0
Persons per household (#, 5yr)	10.2	9.8
Living in same house 1 year ago, % of persons age 1+ (5yr)	84.8	82.0
EDUCATION		
High school graduate or higher, % of persons age 25+ (5yr)	88.3	87.4
Bachelor's degree or higher, % of persons age 25+ (5yr)	25.1	24.2
HEALTH		
With a disability, under age 65 years (#, 5yr)	34,667.0	31,591.0
Persons without health insurance, under age 65 years (%, 5yr)	6.8	7.7
LABOR FORCE		
In civilian labor force, persons age 16+ (%, 5yr)	55.8	56.3
In civilian labor force, women age 16+ (%, 5yr)	52.5	53.9
Employed, persons age 16+ (%, 5yr)	48.4	49.4
Self employed (%, 5yr)	15.0	16.3
TRANSPORTATION		
Mean travel time to work, workers age 16+ (Mins., 5yr)	19.5	19.3
Using public transportation (%, 5yr)	1.4	1.6
Drive alone in private vehicle (%, 5yr)	70.9	71.9

Source: American Community Survey, Summary Files
Note: Data are from the 1-year files unless indicated by the notation 5yr.

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Current Population

The data in these two tables and the following two graphs are from the CA Department of Finance (DOF). The DOF produces population estimates for geographies around California twice a year: January and July. These two tables will often provide estimates from different years. The estimates for cities are only available from the January estimates. In order to provide the most up to date data, the first table will be based on which every dataset was most recently released and the second will always be based on the January estimates.

Table 1. Population Change by Region

Region	Jan. 1, 2023 Population	% Change 1 Year	% Change 3 Year	% Change 5 Year
County and Broader Regions				
Redwood Coast	316,610	−0.60	1.55	−0.27
California	77,880,462	−0.35	−1.79	−2.01

Source: CA DOF; Calculations by Marin Economic Consulting

Table 2. County Population Change by City
(January 1 of Each Year, Thousands of People)

City	2022	2023	% Change Local	% Change California
Redwood Coast	318.5	316.6	−0.60	−0.35
Del Norte County	27	26.6	−1.32	
Humboldt County	134.5	134	−.36	
Lake County	67.4	66.8	−.92	
Mendocino County	89.6	89.2	−.52	

Source: CA DOF; Calculations by Marin Economic Consulting

Figure 1: Population Growth (1)

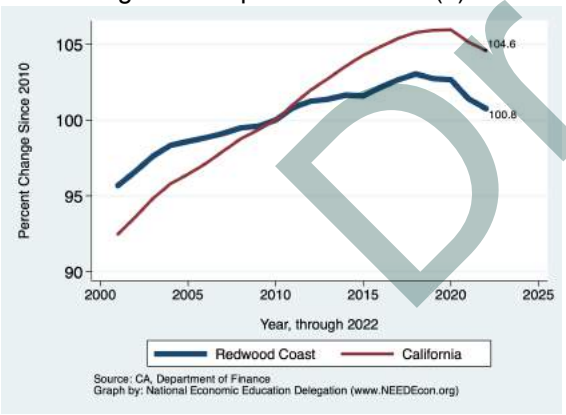

Figure 2: Population Growth (2)

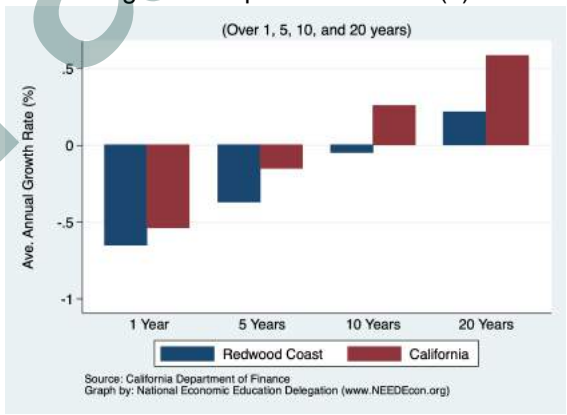

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Figure 3: Population by Age

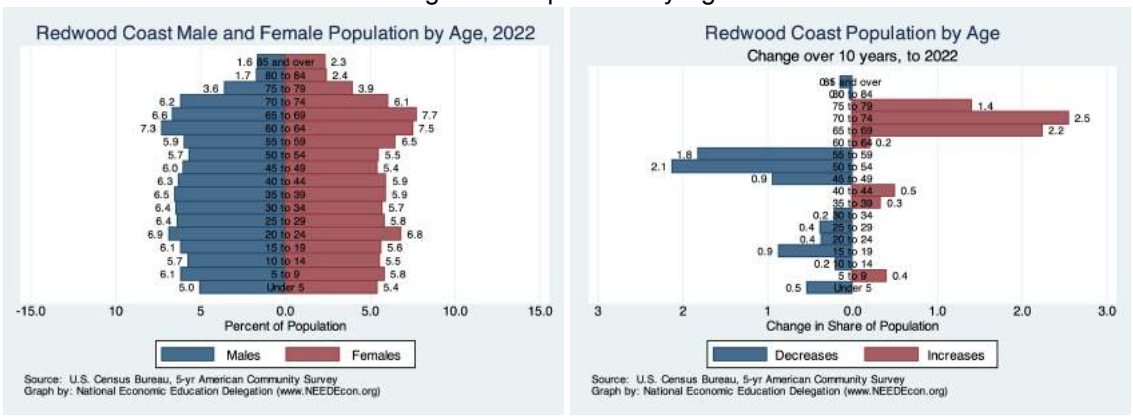

Figure 4: Population by Age - California

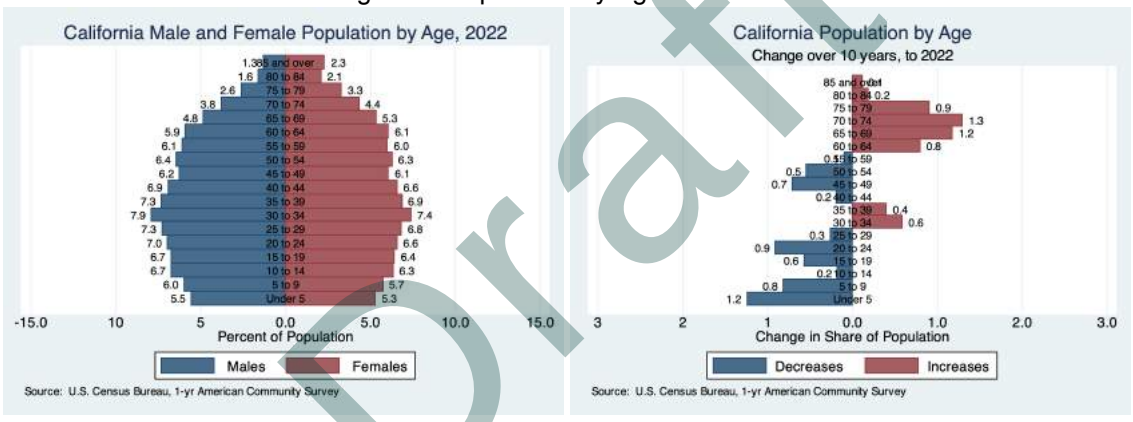

Figure 5: Population by Age - Forecast, 2030

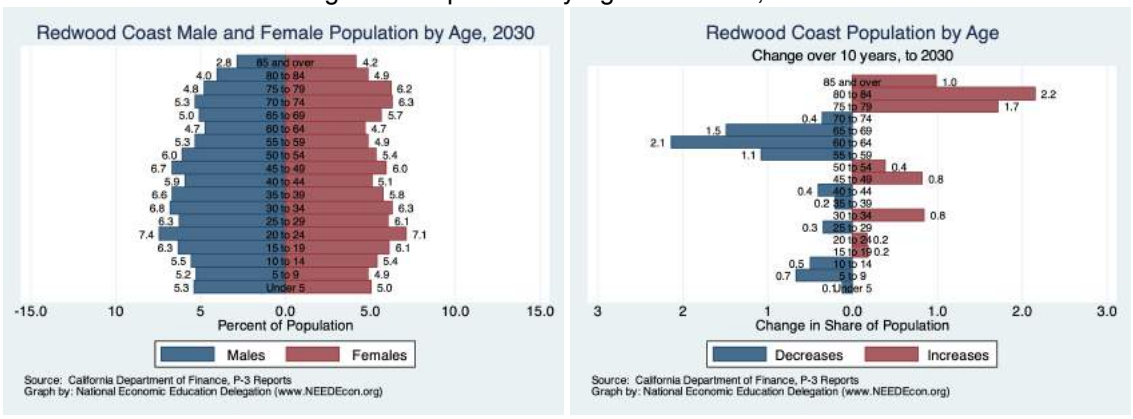

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Figure 6: Population by Age - Forecast, 2030 - California

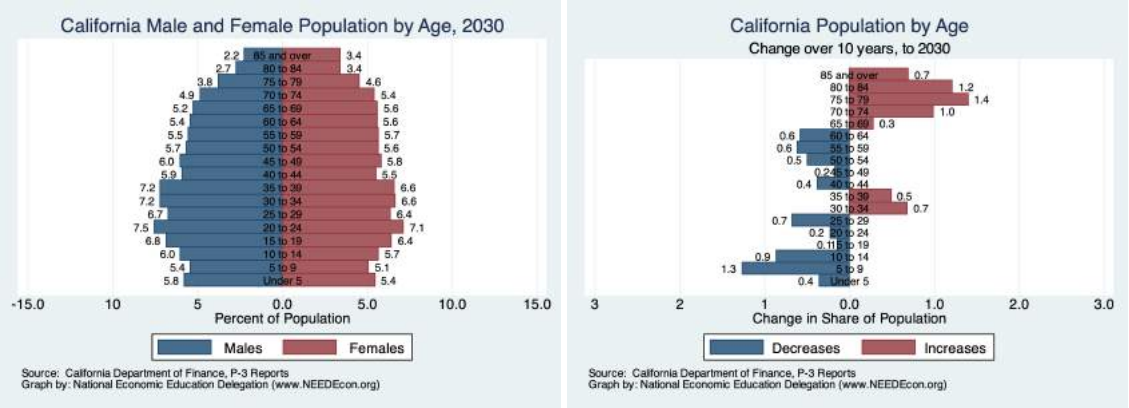

Figure 7: Population by Race/Ethnicity

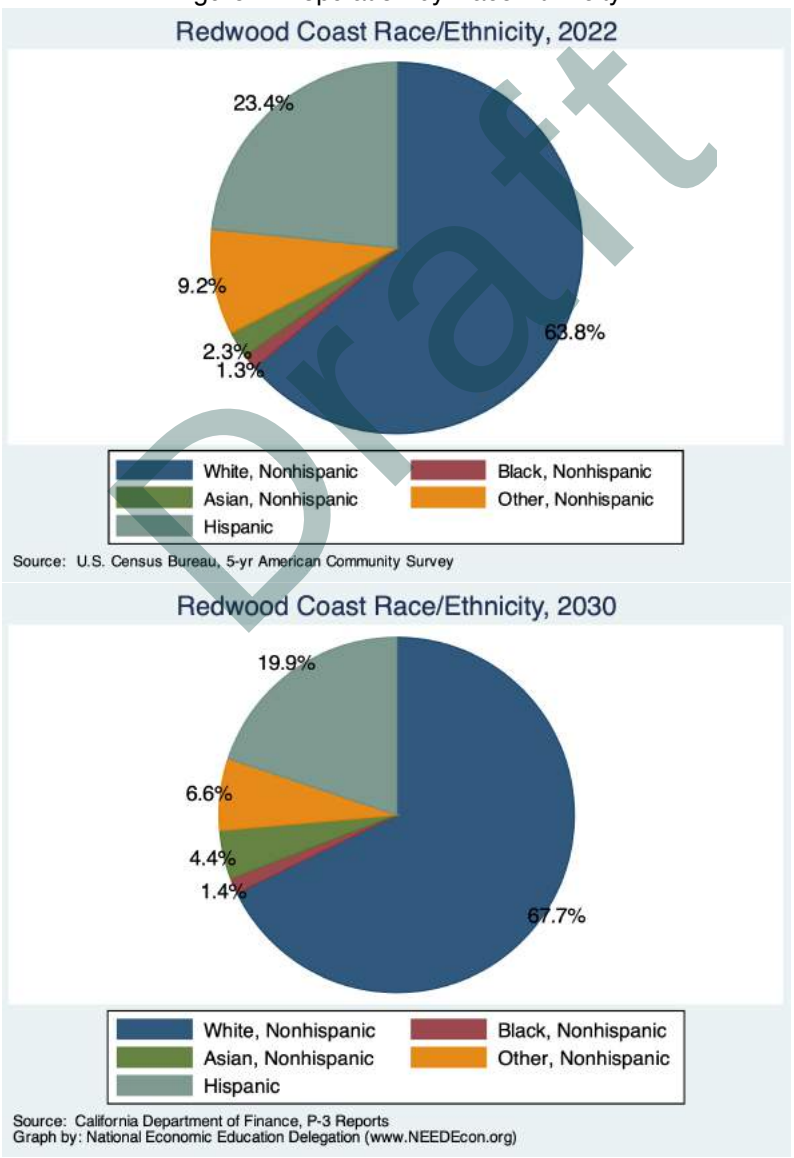

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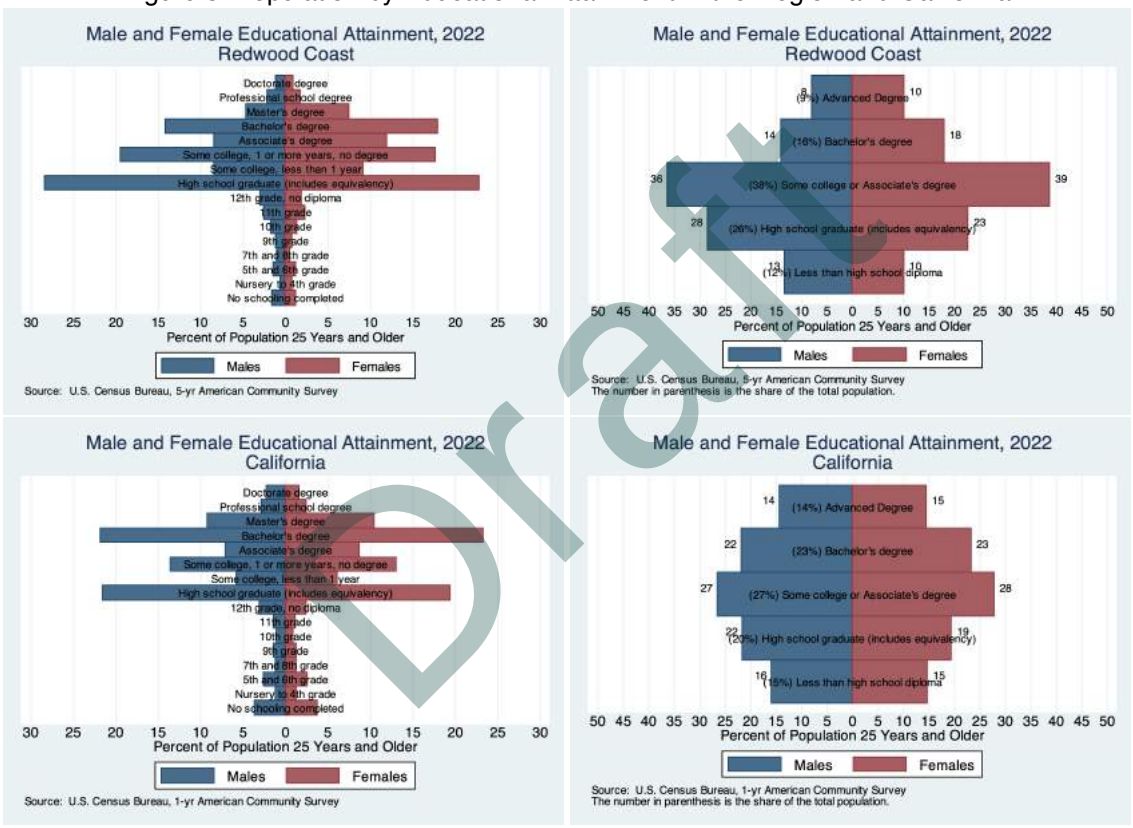
Figure 8: Population by Educational Attainment in the Region and California



School Enrollment

Figure 9: Total K-12 Public School Enrollment

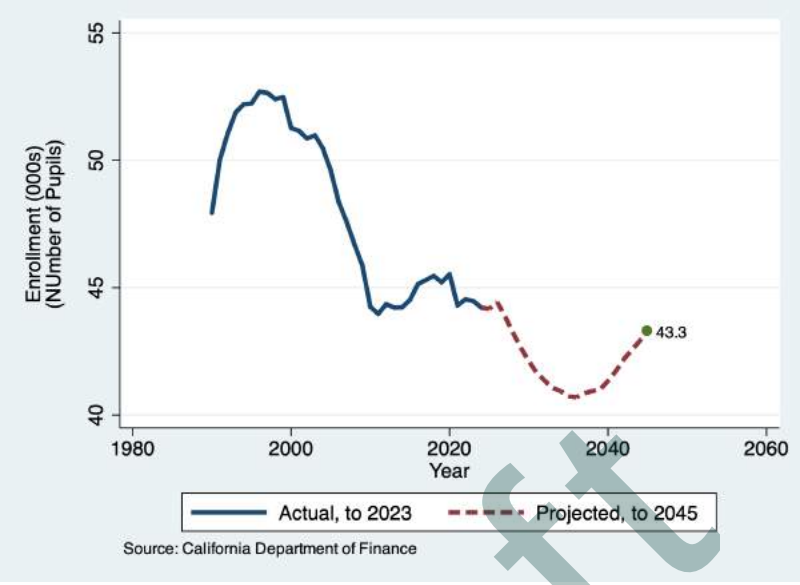


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Figure 10: Total Kindergarten Public School Enrollment

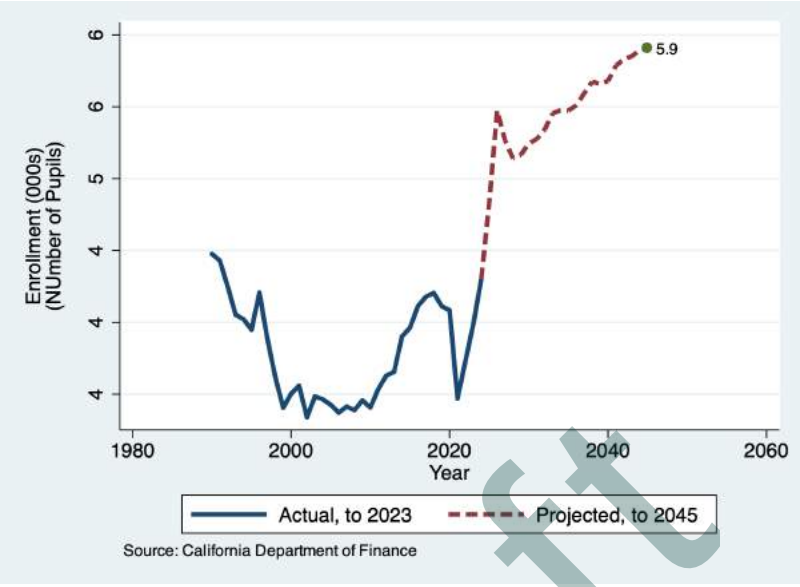

Figure 11: Total Elementary Public School Enrollment (Includes Kindergarten)

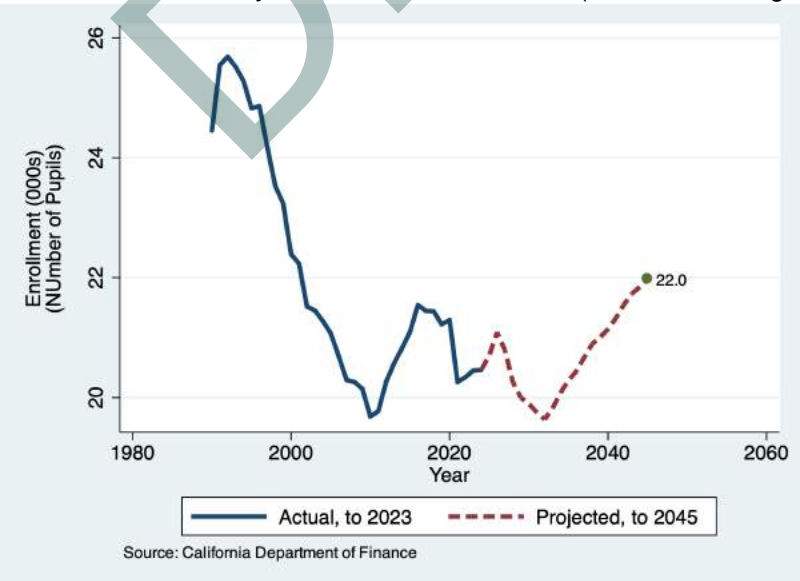

Figure 12: Total Public Middle (6-8) School Enrollment

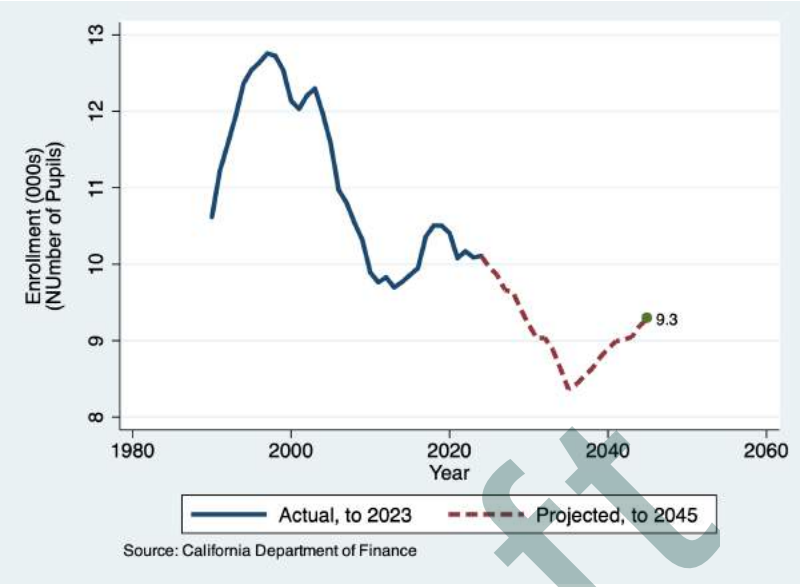

Figure 13: Total Public High School Enrollment

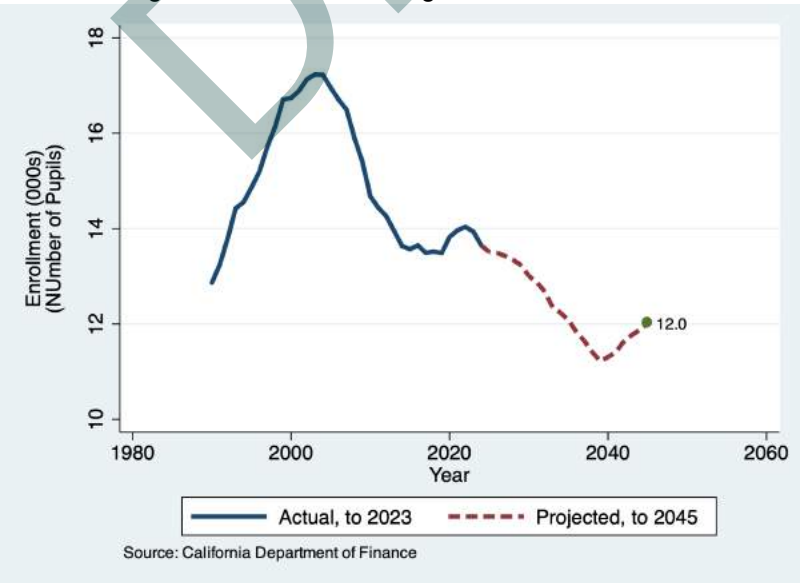

Table 2. School Enrollment Actuals and Projections

Year	Kindergarten	Elementary	Middle	High School	K-12
2000	3,504	22,389	12,138	16,739	51,266
2001	3,560	22,235	12,031	16,889	51,155
2002	3,341	21,519	12,205	17,131	50,855
2003	3,484	21,452	12,298	17,230	50,980
2004	3,465	21,279	11,970	17,226	50,475
2005	3,427	21,071	11,574	16,954	49,599
2006	3,372	20,691	10,971	16,701	48,363
2007	3,414	20,293	10,804	16,495	47,592
2008	3,390	20,259	10,541	15,894	46,694
2009	3,457	20,147	10,316	15,400	45,863
2010	3,408	19,683	9,891	14,676	44,250
2011	3,537	19,773	9,763	14,438	43,974
2012	3,629	20,264	9,828	14,263	44,355
2013	3,657	20,573	9,697	13,951	44,221
2014	3,902	20,824	9,767	13,637	44,228
2015	3,963	21,096	9,859	13,567	44,522
2016	4,113	21,546	9,947	13,650	45,143
2017	4,178	21,446	10,361	13,491	45,298
2018	4,205	21,437	10,507	13,518	45,462
2019	4,113	21,219	10,505	13,486	45,210
2020	4,084	21,295	10,407	13,826	45,528
2021	3,470	20,259	10,079	13,966	44,304
2022	3,730	20,340	10,170	14,037	44,547
2023	3,990	20,453	10,088	13,936	44,477
			Projected		
2024	4,301	20,462	10,108	13,648	44,218
2025	4,830	20,700	9,962	13,510	44,172
2026	5,474	21,093	9,860	13,490	44,443
2027	5,266	20,784	9,663	13,429	43,876
2028	5,141	20,251	9,634	13,346	43,231
2029	5,166	19,997	9,406	13,236	42,639
2030	5,244	19,898	9,209	13,009	42,116
2031	5,275	19,754	9,032	12,873	41,659
2032	5,341	19,636	9,037	12,684	41,357
2033	5,454	19,824	8,887	12,354	41,065
2034	5,476	20,080	8,633	12,236	40,949
2035	5,473	20,287	8,365	12,082	40,734
2036	5,511	20,441	8,430	11,831	40,702
2037	5,594	20,671	8,536	11,648	40,855
2038	5,675	20,896	8,636	11,411	40,943
2039	5,659	21,007	8,781	11,224	41,012
2040	5,679	21,142	8,896	11,306	41,344
2041	5,787	21,330	8,992	11,414	41,736
2042	5,830	21,550	9,013	11,638	42,201
2043	5,851	21,733	9,048	11,771	42,552
2044	5,894	21,843	9,197	11,875	42,915
2045	5,906	21,974	9,285	12,018	43,277

Source: CA DOF, National Economic Education Delegation

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Employment Report

Definition:

Each month, California's Employment Development Division (EDD) publishes an update on employment in California and in MSAs and counties all across the state. The report focuses primarily on non-farm employment, providing estimates of changes in employment by industry as well as unemployment in each region.

Why is it important?

Employment growth is a fundamental indicator of the health of an economy.

Table 3. Redwood Coast Summary for October, 2023

Category	Current Value	Change From: Last Year	2019	2010
Employment	127,135	-1,542	-6,618	-2,748
Labor Force	134,199	-405	-5,416	-13,472
Number Unemployed	6,942	1,151	1,339	-11,056
Unemployment Rate	5.2	0.9	1.2	-7.0

Source: EDD, National Economic Education Delegation
THe data are from October, 2023 in each year.

Figure 14: Historical Employment and Unemployment

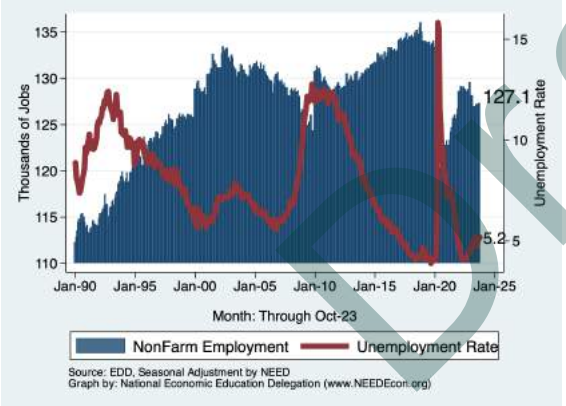

Figure 15: Employment and Unemployment - Last 12 Months

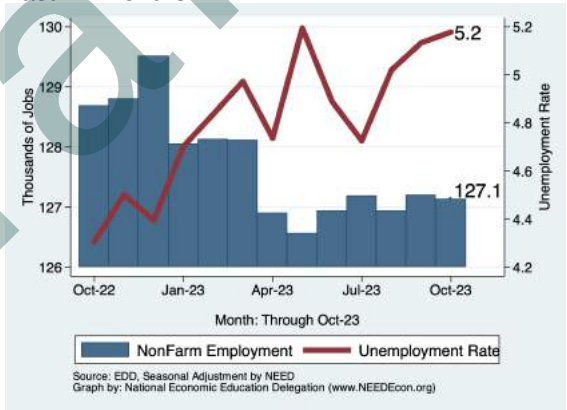

Figure 16: Relative Employment Growth Across Regions

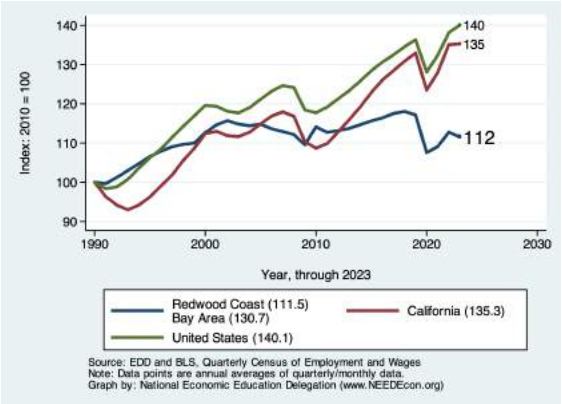

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Table 4. Total Nonfarm Employment Growth
(Q2 of each year, to 2023)

Region	Current Employment	Year over Year Change (#)	Annual Rate of Growth (%) Over last: Year	2 Years	3 Years	5 Years	Since: 2010	2000	1990
Redwood Coast	108,058	1,254	1.2	2.5	4.7	−0.1	0.7	0.1	0.5
California	18,074,436	148,474	0.8	3.6	5.7	0.8	1.9	0.9	1.1

Source: BLS, QCEW; Calculations by NEED

Table 5. Nonfarm Employment Growth by 2-Digit NAICS Category
(Q2 of each year, to 2023)

Region	Current Employment	Year over Year Change (#)	Annual Rate of Growth (%) Over last: Year	2 Years	3 Years	5 Years	Since: 2010	2000	1990
Ag, For, Fish, & Hunting	1,609	−2,293	−58.8	−15.3	−6.8	−9.7	−3.6		
Mining	0	−38	−100.0	−50.0	−33.3	−20.0	−7.7	−4.3	−3.0
Utilities	972	35	3.8	5.7	7.7	3.0	1.9	9.3	8.5
Construction	5,154	141	2.8	5.8	8.5	4.3	5.4	1.5	0.7
Manufacturing	5,489	−13	−0.2	1.6	7.4	2.4	1.4	−2.0	−1.6
Wholesale Trade	1,826	−192	−9.5	−1.8	0.0	−0.9	0.4	6.1	3.6
Retail Trade	13,916	−530	−3.7	−1.6	1.6	−1.5	−0.1	−0.1	0.2
Trans. & Ware.	1,549	−69	−4.3	−7.4	4.1	1.0	1.4	−1.8	−1.3
Information	787	−38	−4.6	14.6	9.7	−0.1	−2.5	−1.9	−1.3
Fin & Ins.	1,816	−85	−4.5	−0.2	−1.1	−1.8	−0.9	−0.7	−0.7
RE, Rental, Leasing	1,341	−79	−5.6	1.5	4.4	−1.0	0.0	−0.1	0.5
Prof., Sci, & Tech.	2,184	−108	−4.7	−4.7	−0.8	−1.8	−1.5	0.2	1.0
Mgmt of Companies	717	99	16.0	8.3	9.1	12.0	1.9	−1.9	
Admin, Support, & Waste	2,704	−20	−0.7	−2.7	−1.2	−0.9	1.5	−0.6	1.9
Educ. Services	12,191	736	6.4	67.2	41.7	20.0	1.4	5.9	4.5
Health Care & Soc. Asst.	20,313	1,020	5.3	5.8	3.8	0.4	3.7	3.8	4.0
Arts, Ent., & Rec	2,695	215	8.7	23.8	83.0	10.6	2.8	0.2	5.6
Accom. & Food Srvcs	11,171	−225	−2.0	5.0	25.9	−0.0	1.7	0.2	0.9
Other Srvcs	3,371	88	2.7	6.1	9.4	1.3	−3.4	−1.5	−0.3
Public Admin	12,145	156	1.3	8.2	5.8	3.3	0.2	1.4	2.4
Other	78	76	3,783.3		2,555.6	−15.5	−4.4	−4.3	−3.0

Source: BLS, QCEW; Calculations by NEED

Table 6: Employment in the Region's Counties
(Q2 of 2023)

NAICS	*Region*	*Del Norte*	*Humboldt*	*Lake*	*Mendocino*
Accom. and Food Srvcs	11,171	784	3,812	1,115	5,460
Admin, Support, and Waste	2,704	99	1,058	392	1,156
Ag, For, Fish, and Hunting	1,609	299	0	0	1,310
Arts, Ent., and Rec	2,695	457	583	776	878
Construction	5,154	248	1,532	809	2,564
Educ. Services	12,191	916	3,310	1,655	6,311
Fin and Ins.	1,816	67	466	173	1,111
Health Care and Soc. Asst.	20,313	12	5,896	4,901	9,504
Information	787	72	247	104	364
Manufacturing	5,489	163	2,577	333	2,416
Mgmt of Companies	717	0	247	77	392
Other	78	4	24	14	36
Other Srvcs	3,371	81	677	427	2,185
Prof., Sci, and Tech.	2,184	0	634	281	1,269
Public Admin	12,145	2,154	2,819	1,456	5,717
RE, Rental, Leasing	1,341	107	490	149	594
Retail Trade	13,916	1,063	4,434	2,199	6,220
Trans. and Ware.	1,549	107	738	337	366
Utilities	972	15	269	488	200
Wholesale Trade	1,826	1	734	73	1,018
Mining	0		0	0	
Total	102,028	6,649	30,547	15,759	49,071

Source: BLS, QCEW; Calculations by NEED

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Figure 17: Industry Shares and Growth

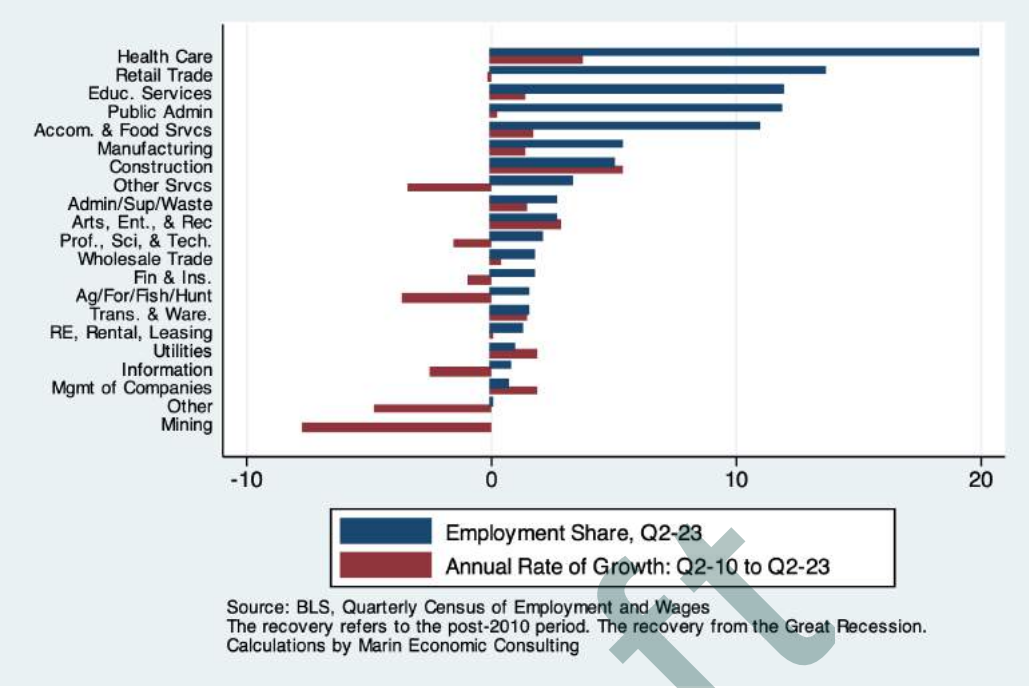

Figure 18: Average Weekly Wages

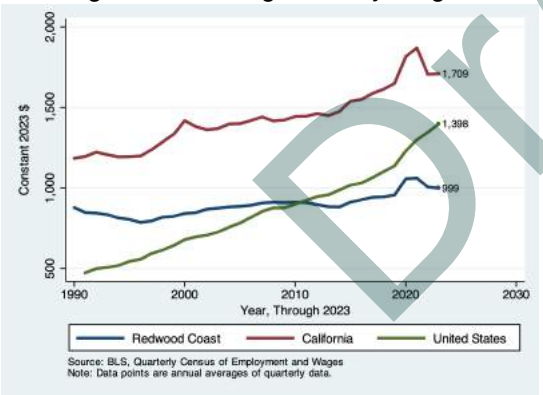

Figure 19: Wage Growth Since the Recession

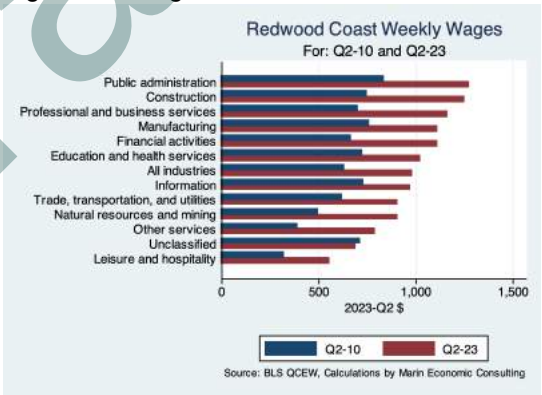

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Table 7. Quarterly Summary for Q 2 – 2023

	Levels in Q 2 – 2023				Change vs Q2 of 2010			
			Relative to:				Relative to:	
Sector	Employment	Wages	Bay	U.S.	Employment	Wages	Bay	U.S.
Public administration	12,145	1,275.2	0.7	0.8	368	442.14	0.02	0.03
Construction	5,154	1,247.5	0.8	0.9	2,125	501.51	0.04	0.06
Professional and business services	5,683	1,159.2	0.5	0.7	78	456.75	−0.04	0.01
Manufacturing	5,489	1,110.3	0.5	0.7	839	351.17	−0.09	0.02
Financial activities	3,157	1,108.1	0.5	0.6	−230	441.27	−0.03	0.03
Education and health services	34,061	1,023.7	0.8	0.8	8,396	298.66	0.02	−0.01
Information	787	970.0	0.2	0.4	−374	242.79	−0.20	−0.21
Trade, transportation, and utilities	19,416	906.3	0.7	0.8	120	287.51	−0.04	−0.02
Natural resources and mining	4,852	902.4	1.0	0.7	256	405.74	0.10	0.15
Other services	3,371	789.1	0.8	0.8	−2,639	400.04	0.02	0.13
Unclassified	78	688.1	0.5	0.5	−123	−24.69	−0.20	−0.31
Leisure and hospitality	13,866	554.8	0.8	0.9	386	236.92	0.04	0.05
Total	108,058	982.1	0.6	0.7	8,575	351.86	−0.04	0.01

Source: BLS, QCEW; Calculations by NEED

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Location Quotients: Top 15 NAICS Industries

Table 8: Location Quotients for 3-Digit NAICS Industries
(15 Industries with the largest Location Quotients relative to California in Q2 of 2023)

NAICS Industry	Current Employment Level (#)	LQ vs California			LQ vs United States		
		Current	5 Years Ago	2010	Current	5 Years Ago	2010
Forestry and Logging	664	50.87	45.49	35.68	18.11	15.87	12.96
Fishing, Hunting and Trapping	104	38.77	10.71	49.63	18.26	5.00	26.69
Wood Product Manufacturing	1,314	8.26	6.91	8.90	4.44	3.58	4.78
Administration of Environmental Quality Programs	1,628	4.21	3.39	1.79	6.44	4.83	2.65
Beverage and Tobacco Product Manufacturing	1,320	3.24	3.18	3.33	5.56	6.11	6.63
Scenic and Sightseeing Transportation	86	3.13	0.00	0.00	3.64	0.00	0.00
Executive, Legislative, and Other General Government Support	4,016	2.87	2.50	2.24	1.82	1.55	1.40
Administration of Human Resource Programs	2,391	2.61	0.06	0.17	3.98	0.08	0.24
Building Material and Garden Equipment and Supplies Dealers	1,853	2.37	2.56	2.46	1.81	2.04	2.01
Animal Production	397	2.35	2.73	2.33	2.09	2.51	2.61
Administration of Economic Programs	1,055	2.31	1.75	1.50	2.41	1.76	1.56
Accommodation	2,947	2.08	1.40	1.45	2.11	1.40	1.45
Food and Beverage Stores	4,271	1.88	1.90	1.78	1.88	1.86	1.84
Justice, Public Order, and Safety Activities	3,012	1.84	1.80	1.46	2.28	2.22	2.01
Social Assistance	10,364	1.83	1.97	1.77	3.16	3.25	1.33

Source: BLS, QCEW; Calculations by Marin Economic Consulting

Table 9: Location Quotients for 3-Digit NAICS Industries
(15 Industries with the largest employment in Q2 of 2023)

NAICS Industry	Current Employment Level (#)	LQ vs California			LQ vs United States		
		Current	5 Years Ago	2010	Current	5 Years Ago	2010
Educational Services	12,191	1.34	0.65	1.08	1.32	0.64	1.06
Social Assistance	10,364	1.83	1.97	1.77	3.16	3.25	1.33
Food Services and Drinking Places	8,224	0.93	0.98	1.05	0.96	1.00	1.05
Ambulatory Health Care Services	5,086	0.86	0.92	1.07	0.84	0.87	1.00
Food and Beverage Stores	4,271	1.88	1.90	1.78	1.88	1.86	1.84
Executive, Legislative, and Other General Government Support	4,016	2.87	2.50	2.24	1.82	1.55	1.40
Justice, Public Order, and Safety Activities	3,012	1.84	1.80	1.46	2.28	2.22	2.01
Accommodation	2,947	2.08	1.40	1.45	2.11	1.40	1.45
Specialty Trade Contractors	2,555	0.71	0.62	0.67	0.72	0.65	0.61
Administration of Human Resource Programs	2,391	2.61	0.06	0.17	3.98	0.08	0.24
Professional, Scientific, and Technical Services	2,184	0.26	0.30	0.38	0.29	0.35	0.46
Administrative and Support Services	2,118	0.33	0.34	0.33	0.34	0.35	0.33
Amusement, Gambling, and Recreation Industries	2,076	1.26	1.19	1.48	1.39	1.31	1.71
Building Material and Garden Equipment and Supplies Dealers	1,853	2.37	2.56	2.46	1.81	2.04	2.01
Support Activities for Agriculture and Forestry	1,841	1.27	1.01	0.86	6.56	5.17	4.53

Source: BLS, QCEW; Calculations by Marin Economic Consulting

Income and Earnings

Per Capita Income Growth

Definition:

Per capita income is the average income per person in Redwood Coast. Personal income is the income received by, or on behalf of, all persons from all sources: from participation as laborers in production, from owning a home or unincorporated business, from the ownership of financial assets, and from government and business in the form of transfer receipts. Non-cash government benefits are not included.

Why is it important?

Income is the money that is available to persons for consumption expenditures, taxes, interest payments, transfer payments to governments and the rest of the world, or for saving. As such, it is an important indicator of economic well-being in a community.

The data in this report have been adjusted for inflation into 2022 $ using the: Consumer Price Index for All Urban Consumers: All Items.

Region - Among Comparables

Figure 20: Per Capita Personal Income - Comparables (Rank)

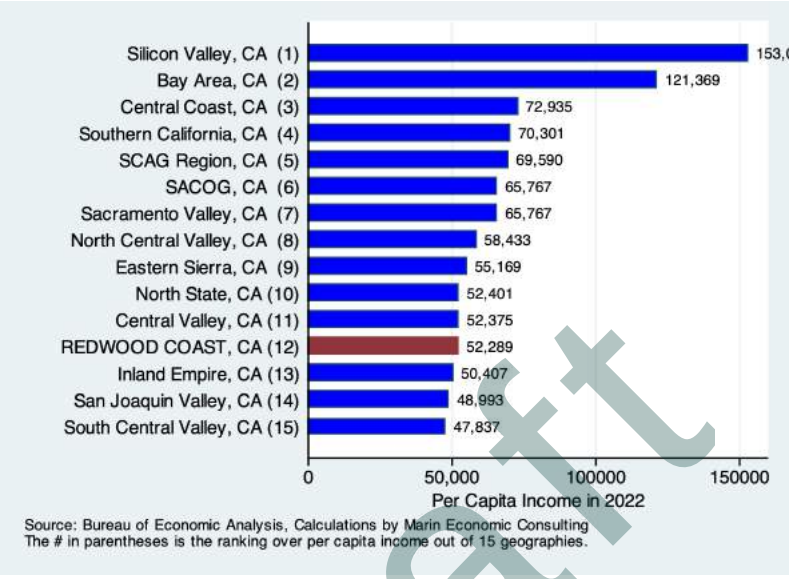
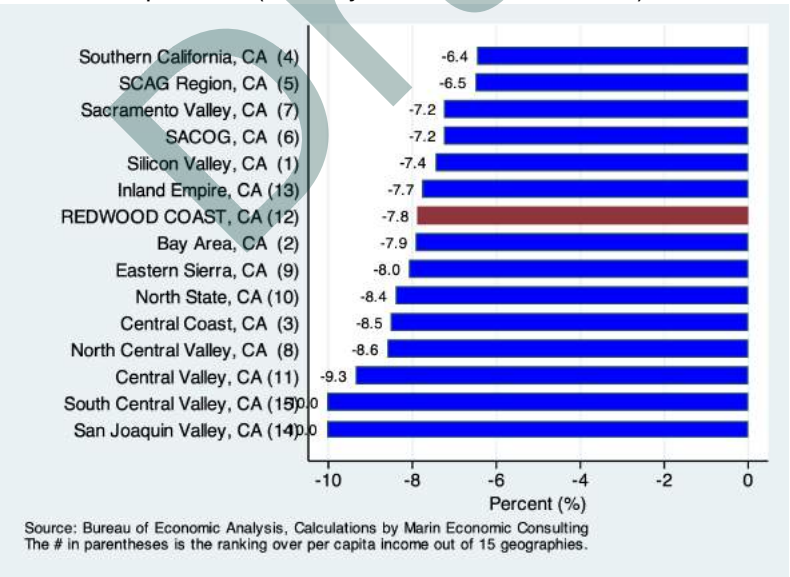


Figure 21: Year over Year Growth in Real Per Capita Personal Income - Comparables (Rank by Absolute Income Level)



Real Per Capita Personal Income

Figure 22: Real Per Capita Personal Income

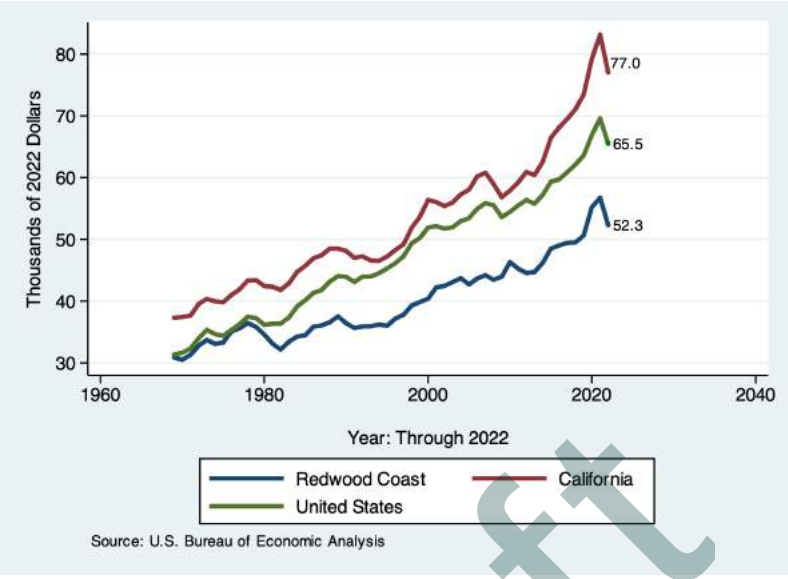
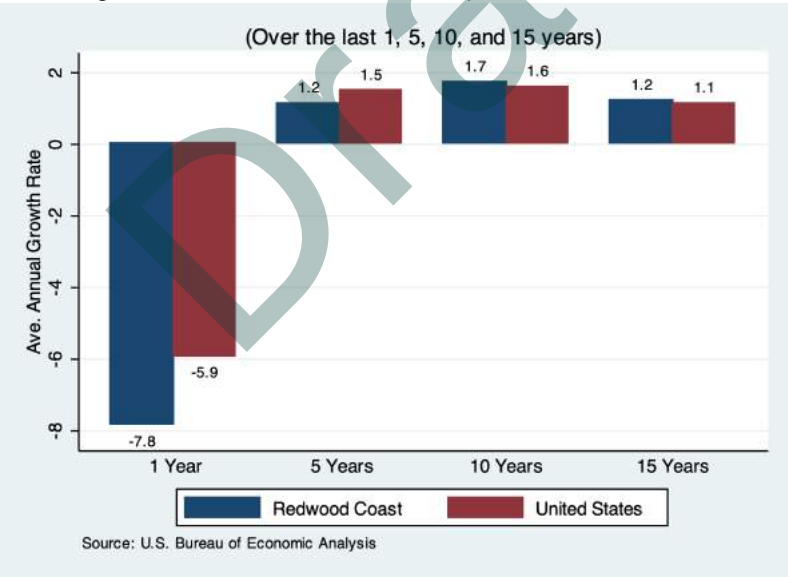


Figure 23: Growth in Real Per Capita Personal Income



The folllowing table provides an indication of the county's standing nationwide. In each year, the nation's counties are ranked according to their absolute level of per capita income and the year over year growth in per capita income. They are assigned a number from 1-99 that indicates where they are in the ranking. Low numbers reflect a low ranking and high number represent a high ranking. A county ranked in the 90s is in the top 10% nationwide. More specifically, if the value is 85, then 15% of counties nationwide rank higher than county in question.

Table 10. Percentile Ranking Among Counties

Ranking by Levels					
	2022	2010	2007	2000	1990
Redwood Coast	20	30	25	25	15
Ranking by Growth Rate Since:					
	Last Year	2010	2007	2000	1990
Redwood Coast	20	10	45	40	30

Source: Bureau of Economic Analysis
Note: Higher # indicates a higher ranking (1-100).

Table 11. Real Per Capita Personal Income (2022 $)

	2022	2010	2007	2000	1990
Redwood Coast	52,289	46,317	44,206	40,389	36,422
Del Norte County	43,677	36,713	34,884	32,195	31,223
Humboldt County	54,043	47,632	45,514	40,538	36,610
Lake County	45,623	41,714	41,268	40,416	37,567
Mendocino County	57,310	50,810	47,429	42,754	36,962
California	77,036	57,896	60,791	56,381	48,119
United States	65,470	54,432	55,877	51,922	43,944

Source: Bureau of Economic Analysis

Table 12. Growth in Real Per Capita Personal Income
(CAGR: Cumulative Annual Growth Rate (%))

	$Last\ Year$	2010	2007	2000	1990
Redwood Coast	−7.84	1.02	1.13	1.18	1.14
Del Norte County	−9.55	1.46	1.51	1.40	1.05
Humboldt County	−7.70	1.06	1.15	1.32	1.22
Lake County	−9.84	0.75	0.67	0.55	0.61
Mendocino County	−6.42	1.01	1.27	1.34	1.38
California	−7.36	2.41	1.59	1.43	1.48
United States	−5.92	1.55	1.06	1.06	1.25

Source: Bureau of Economic Analysis

Real Total Personal Income

Figure 24: Total Real Personal Income

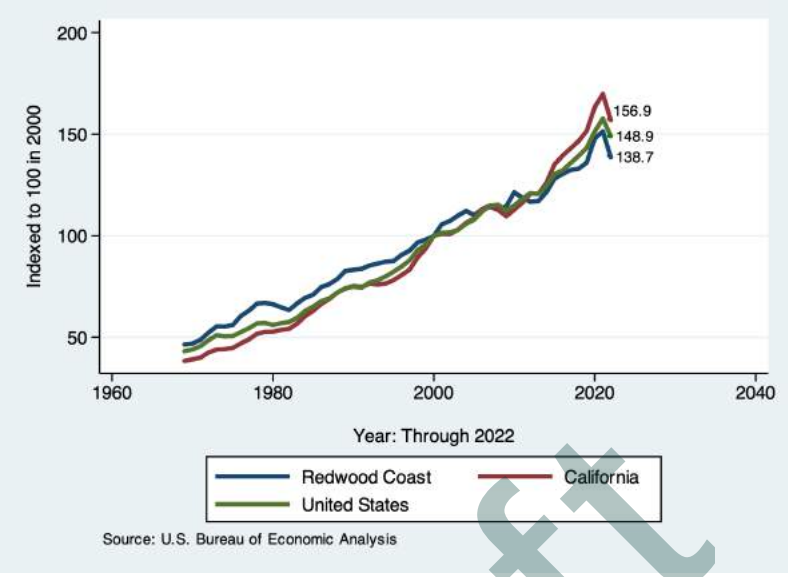
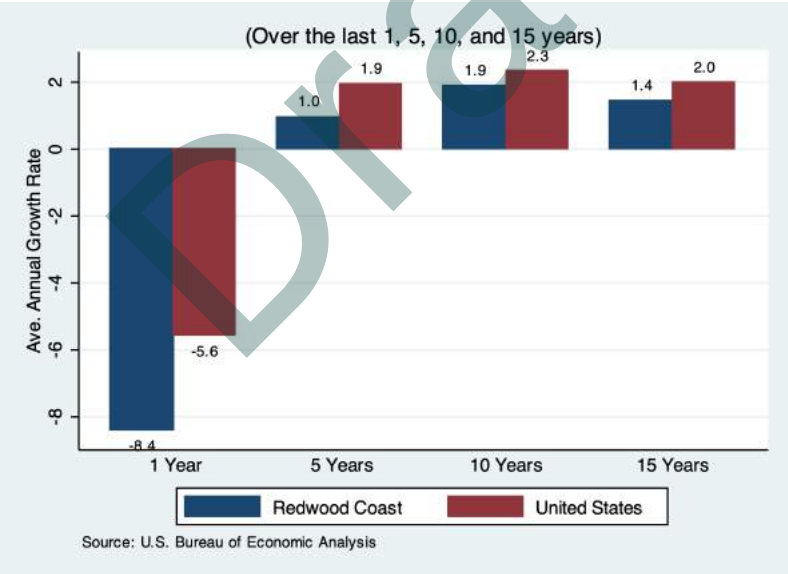


Figure 25: Growth in Total Real Personal Income



This table is similar in spirit and construction to the previous earlier tabble, but the underlying statistic is total per capita income in the county.

Table 13. Percentile Ranking Among Counties

	Ranking by Levels				
	2022	2010	2007	2000	1990
Redwood Coast	10	10	10	10	10
Ranking by Growth Rate Since:					
	Last Year	2010	2007	2000	1990
Redwood Coast	10	10	15	5	5

Source: Bureau of Economic Analysis
Note: Higher # indicates a higher ranking (1-100).

Table 14. Total Real Personal Income (Thousands of 2022 $)

	2022	2010	2007	2000	1990
Redwood Coast	16,735,787	14,652,323	13,773,138	12,070,102	10,043,068
Del Norte County	1,182,855	1,048,627	991,215	883,427	748,932
Humboldt County	7,296,395	6,432,324	6,007,872	5,126,568	4,383,960
Lake County	3,111,067	2,704,062	2,644,355	2,365,886	1,921,472
Mendocino County	5,145,470	4,467,310	4,129,696	3,694,221	2,988,704
California	3,006,647,281	2,160,797,026	2,203,717,863	1,916,278,011	1,441,619,939
United States	21,820,248,000	16,840,152,456	16,831,686,436	14,650,138,546	10,969,283,159

Source: Bureau of Economic Analysis

Table 15. Growth in Total Real Personal Income
(CAGR: Cumulative Annual Growth Rate (%))

	$Last\ Year$	2010	2007	2000	1990
Redwood Coast	−8.39	1.11	1.31	1.50	1.61
Del Norte County	−11.09	1.01	1.19	1.34	1.44
Humboldt County	−7.58	1.06	1.30	1.62	1.60
Lake County	−10.36	1.18	1.09	1.25	1.52
Mendocino County	−7.67	1.18	1.48	1.52	1.71
California	−7.63	2.79	2.09	2.07	2.32
United States	−5.56	2.18	1.75	1.83	2.17

Source: Bureau of Economic Analysis

Poverty and Inequality

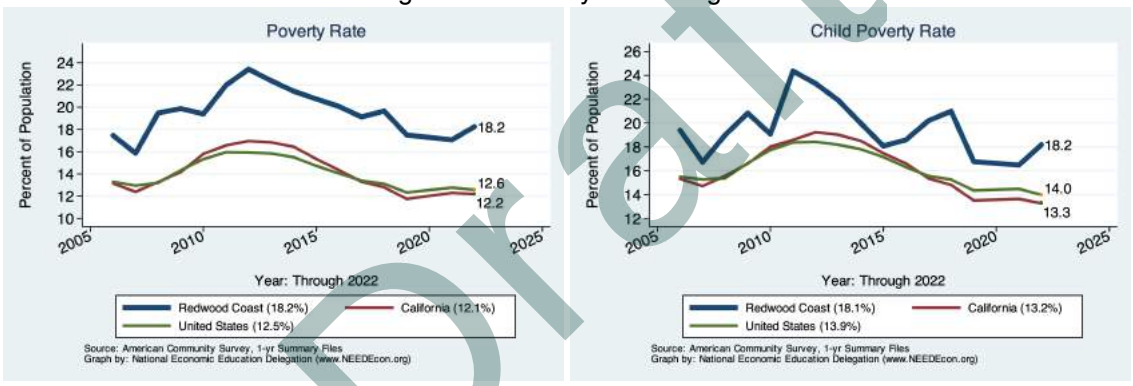
Definition:

The local poverty rate provides an indication of the well-being of those at the bottom of the income distribution. The federal poverty rate measures the proportion of households in the region that are classified as living in poverty. Also included are measures of the extent to which the City's children are impoverished. Measures of the income distribution provide further evidence on disparities in income in the region.

Why is it important?

It is important to track measures of poverty and inequality to assess the extent of income disparities in the region, with an eye toward understanding how well the local economy is performing for all of its citizens.

Figure 26: Poverty in the Region



Housing

Housing Costs and Affordability

Definition:

Housing costs are measured in several different ways. First, we provide evidence on the evolution of median home prices, median rental price, and finally through evidence on the housing burden in the city and comparison regions. Housing burden is defined as a household needing to commit more than 30% of their household income to ward housing costs. The median value is the amount in the middle. Fifty percent of units are above the median and 50 percent are below.

Why is it important?

Housing is one of three fundamental necessities, along with food and clothing. A measure of the cost of housing is an integral part of the measurement of the cost of living in a specific community. This is particularly true in cities and regions throughout the Bay Area, where housing costs are high relative to income.

Housing Ownership in Redwood Coast and Broader Regions

Figure 27: Home Ownership Rates

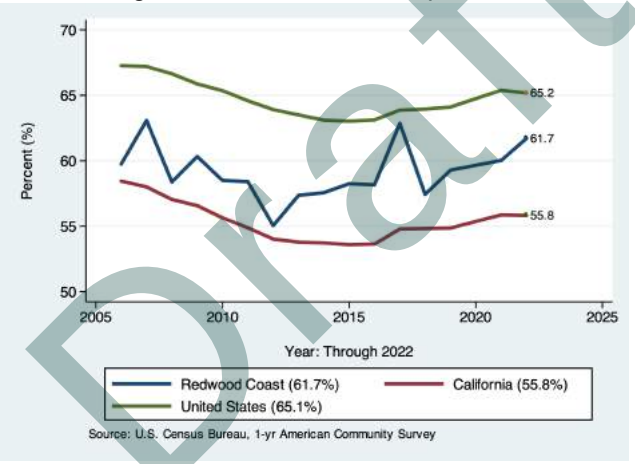


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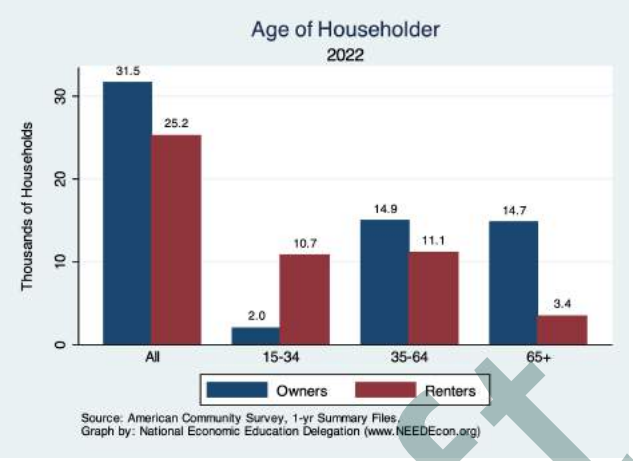
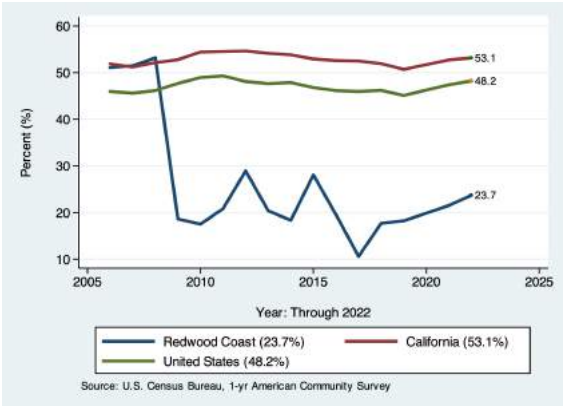
Figure 28: Home Ownership by Age



Housing Burden in Redwood Coast and Broader Regions

Figure 29: Home Owners w/ A Mortgage

Figure 30: Renters



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Residential Permitting

Definition:

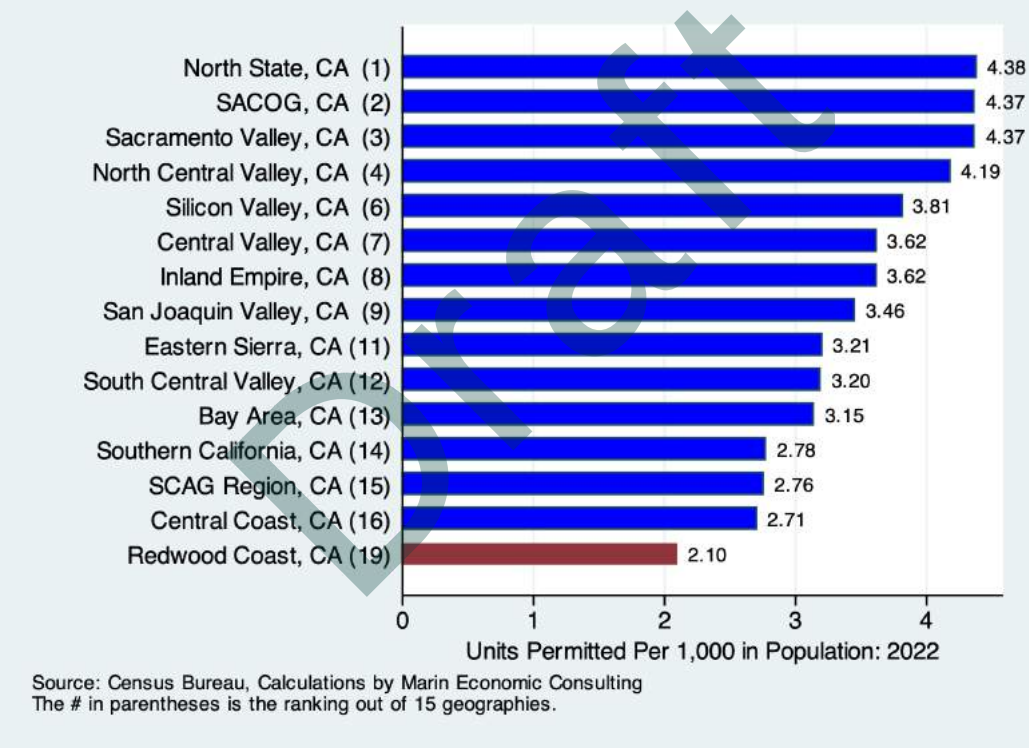
This indicator provides evidence on the number of residential buildings that are permitted for construction each year. Permit data for Redwood Coast is compared with data from broader regions. The statistic provided scales the number of permits by population. This is done to facilitate comparisons across regions.

Why is it important?

Building permits are the best indicator available of new units coming on the market. In order for a region's population to grow and flourish, new residential properties must be added to the existing stock. Building, both in the City and in the County more generally, is an indication of the extent to which new residences are affecting prices through increased supply.

Redwood Coast - Ranking Among Comparables

Figure 31: Number of Units Permitted - Nationwide Comparables (Rank)



Housing Picture

Definition:

Housing costs are measured in several different ways. First, we provide evidence on the evolution of median home prices, median rental price, and finally through evidence on the housing burden in the city and comparison regions. The median value is the amount in the middle. Fifty percent of units are above the median and 50 percent are below.

Why is it important?

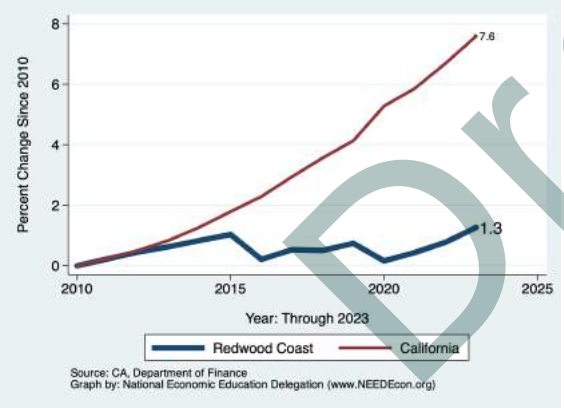
In areas where the rate of population growth exceeds the rate of housing growth, this is likely to reflect a tightening housing market. A tightening housing market will also likely be reflected in lower vacancy rates and higher occupancy rates. It may also be reflected in higher numbers of people per household.

Table 16. Housing Market Indicators

Indicator	2023	2019	2010	% Change from 2019	% Change from 2010
Total Population	316,610.0	313,779.0	315,739.0	0.9	0.3
Total # of Homes	150,441.0	149,659.0	148,560.0	0.5	1.3
# Occupied Units	131,128.0	128,667.0	127,431.0	1.9	2.9
Persons per Household	2.3	2.3	2.4	-0.1	-1.6
Vacancy Rate (%)	12.8	14.0	14.2	-8.5	-9.7

Source: CA DOF; Calculations by Marin Economic Consulting

Figure 32: Housing Growth



Trends in the Growth of Housing by Housing Type

Figure 33: Single Detached Homes

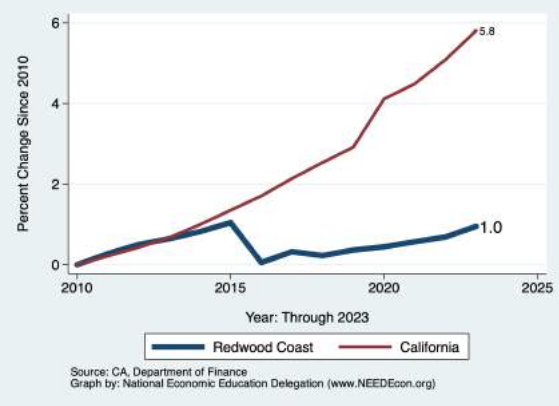


Figure 34: Single Attached Homes

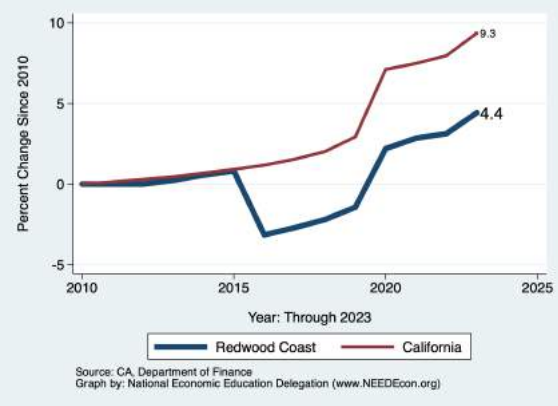


Figure 35: Housing in Buildings with Two to Four Units

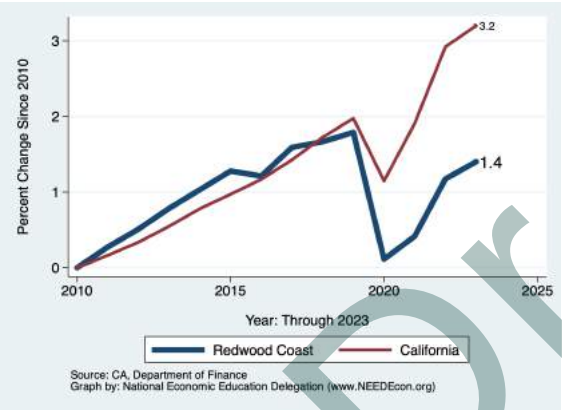
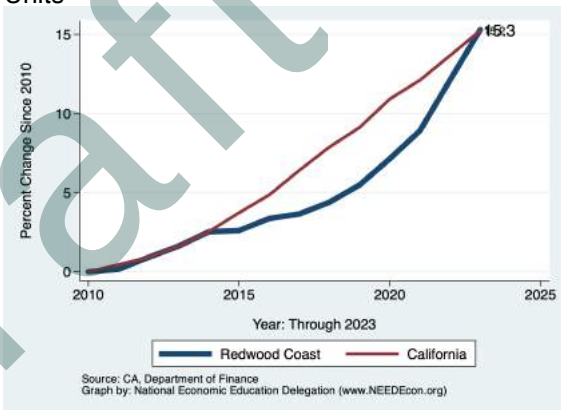


Figure 36: Housing in Buildings with Five or More Units



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Vintage of Residential Housing

Why is it important?

This section provides evidence on the year in which residential housing in Redwood Coast was built. We break it down into onwed versus rented residences and provide a comparison across broader regions. A sense of the age of housing in a region provides an indication of the urgency with with a region might pursue additional housing. As the housing stock ages, an urgency with which renovations and rebuilds are permitted might result. All things equal, more recently constructed housing will be more likely to meet current codes and standards. Remodeling of existing units will be more desirable when existing units are, on average, older.

Figure 37: Distribution of Housing Construction

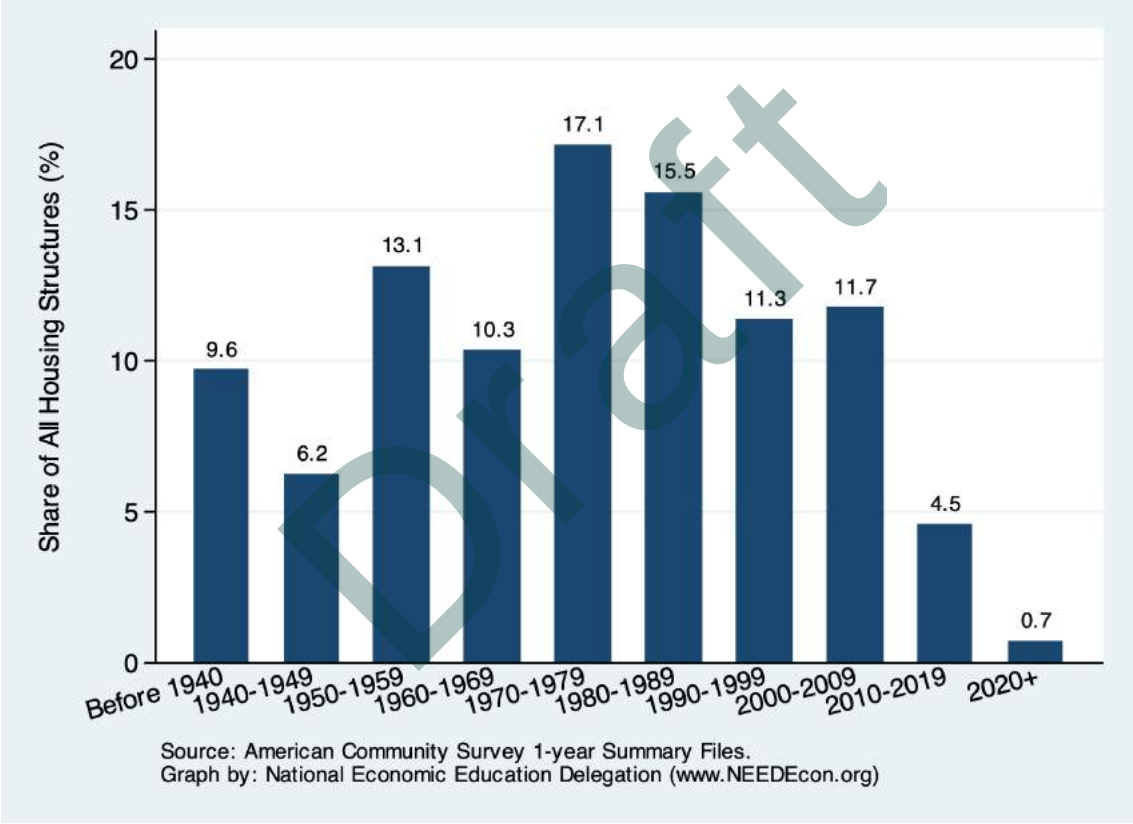
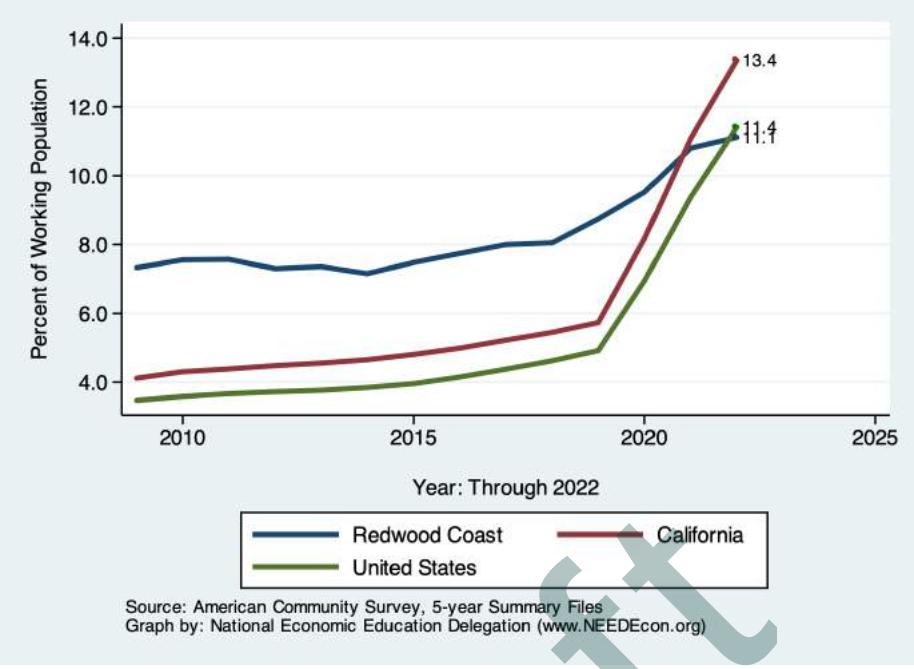


Figure 38: Percent of Workers Who Work From Home



Working From Home

During the recovery from the Great Recession, the period from 2010 to 2019, the Bay Area economy, and Silicon Valley in particular, has been growing at a pace roughly double that of the state as a whole and triple that of the nation. This growth has precipitated a tight housing market and also brought about some significant changes in commute patterns, many of which have been reversed by the pandemic. Recent years have seen significant changes in both the mode of transportation and commute times.

Table 17. Redwood Coast Migration and Telecommuting
(Share of the Working Population that Works From Home (%).)

Year	All Workers	Migrated Into Region	Intra-State Migrants	Inter-State Migrants
2015	6.2	4.2	3.1	1.1
2016	6.7	6.6	15.1	10.3
2017	6.7	5.4	10.0	4.4
2018	8.8	7.1	12.5	6.8
2019	7.8	3.9	5.9	1.8
2020	14.1	15.7	17.5	24.4
2021	14.6	17.5	31.3	12.9
2022	12.9	10.9	13.9	18.6

Source: ACS Public Use Microdata Sample (PUMS), various years.
The data pertain to the following PUMA codes:
0601500, 0602300, 0603300

Migration

Overall Migration Flows

Definition:

The United States is a country with an increasingly mobile population. People move, migrate, from one place to another with increasing frequency.

Why is it important?

Having a handle on whether or not Redwood Coast is a net recipient (migration inflows) or donor (migration outflows) of population is very important for understanding trends in the region's development. This section outlines migration patterns by age, education, income, marital status, and housing tenure. Understanding recent trends is very important for making policy, investment, and other decisions about the future. Also, understanding the extent to which the population is stable, or experiences significant turnover each year is helpful for planning purposes.

Figure 39: Overall Movements of Residents

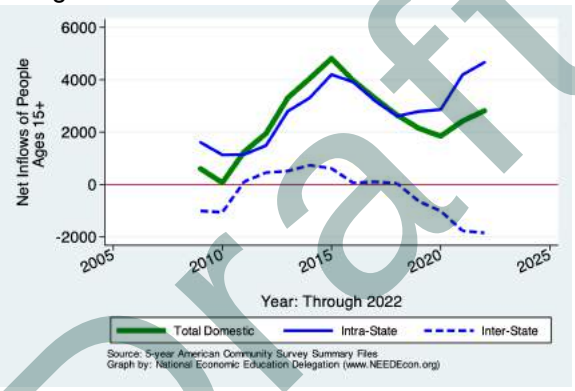


Table 18: Migration by Income

		Net Inflows				
			Same State			
Category	Population	All Migration	W/in County	Intra-State	Inter-State	From Abroad
No income	11,778	710	0	678	32	0
With income	103,601	3,195	0	3,774	−726	147
$1 to $9,999 or loss	18,827	1,027	0	1,077	−106	56
$10,000 to $14,999	9,458	341	0	478	−137	0
$15,000 to $24,999	15,004	581	0	294	196	91
$25,000 to $34,999	12,247	346	0	483	−137	0
$35,000 to $49,999	16,388	641	0	604	37	0
$50,000 to $64,999	9,342	728	0	683	45	0
$65,000 to $74,999	3,117	0	0	0	0	0
$75,000 or more	19,218	−469	0	155	−624	0
All:	115,379	3,905	0	4,452	−694	147

Source: 2022 1-year American Community Survey, Summary File
Note: The data in this and other tables in this section are limited in that there is no information on the regions's population that has moved abroad.
The "From Abroad" column is gross movements into the region from abroad.
Universe: Population 15 years and over in the United States

Figure 40: Overall Movements of Low Income Residents in the Region

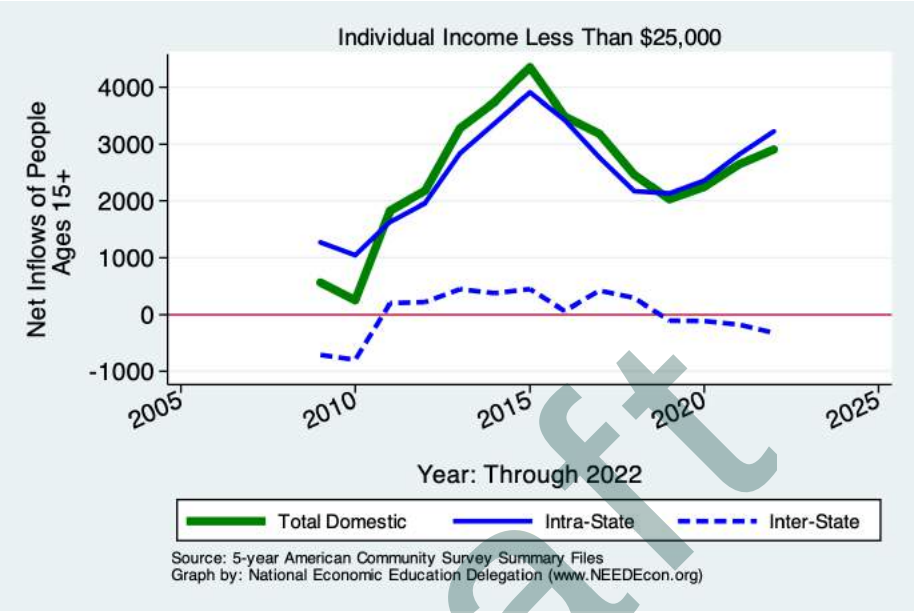


Figure 41: Overall Movements of Low Income Residents in California

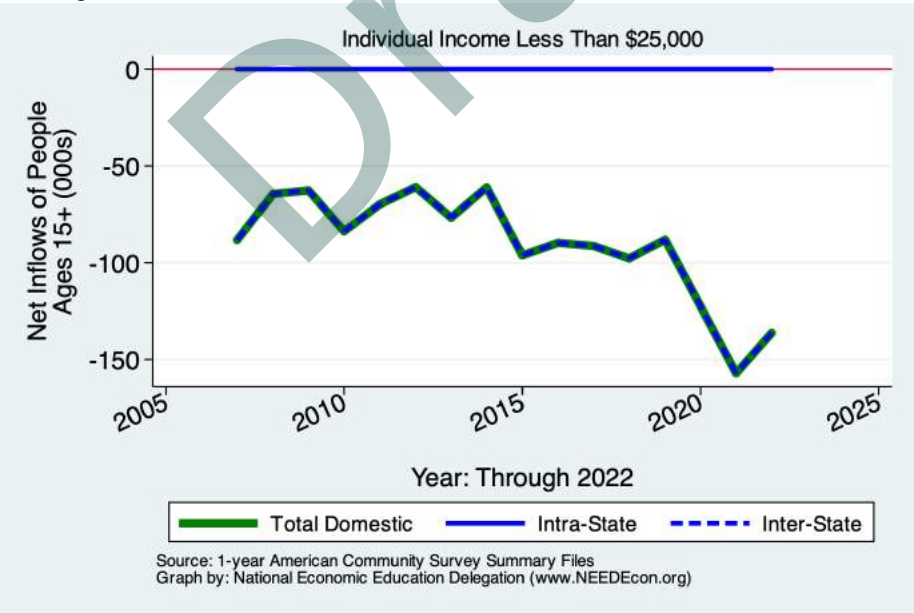


Figure 42: Overall Movements of Middle Income Residents in the Region

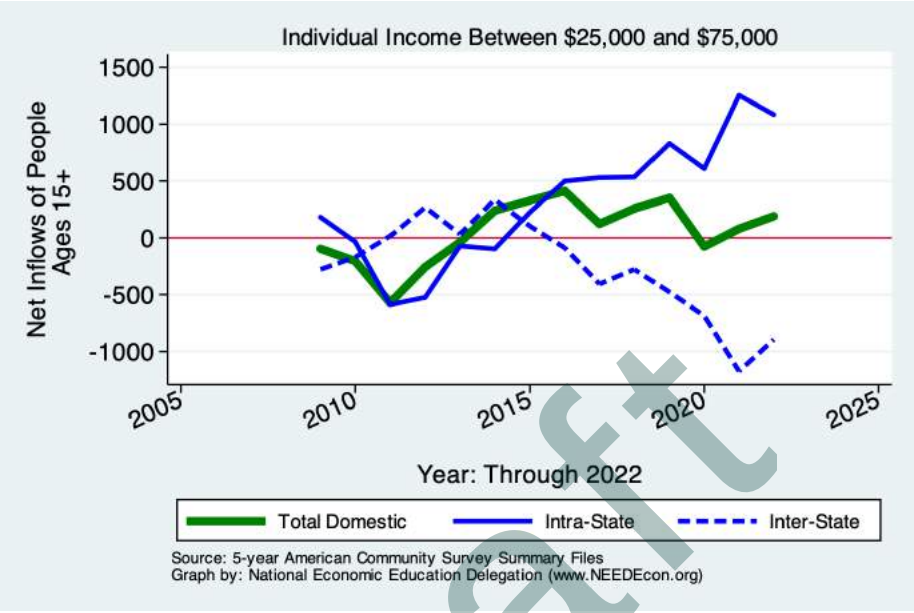


Figure 43: Overall Movements of Middle Income Residents in California

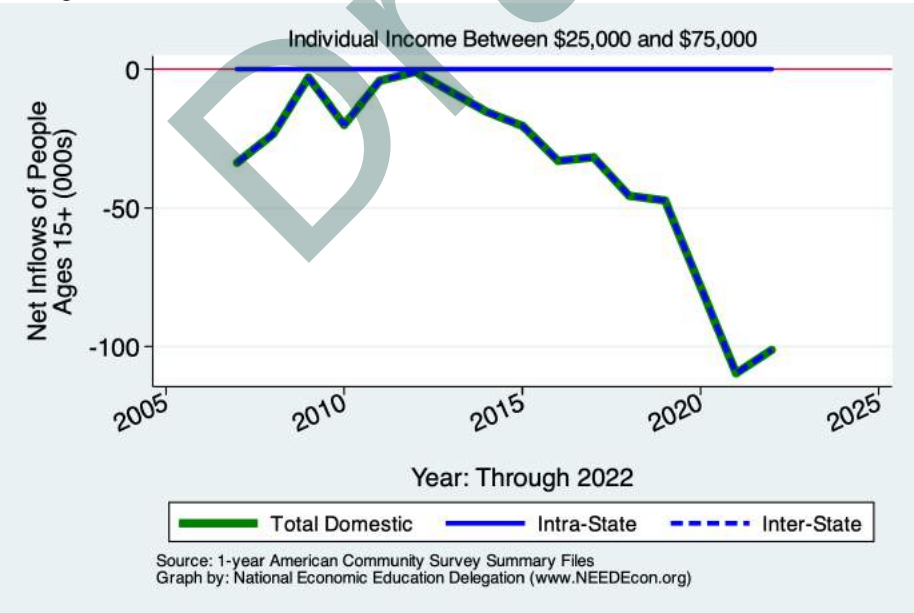


Figure 44: Overall Movements of High Income Residents in the Region

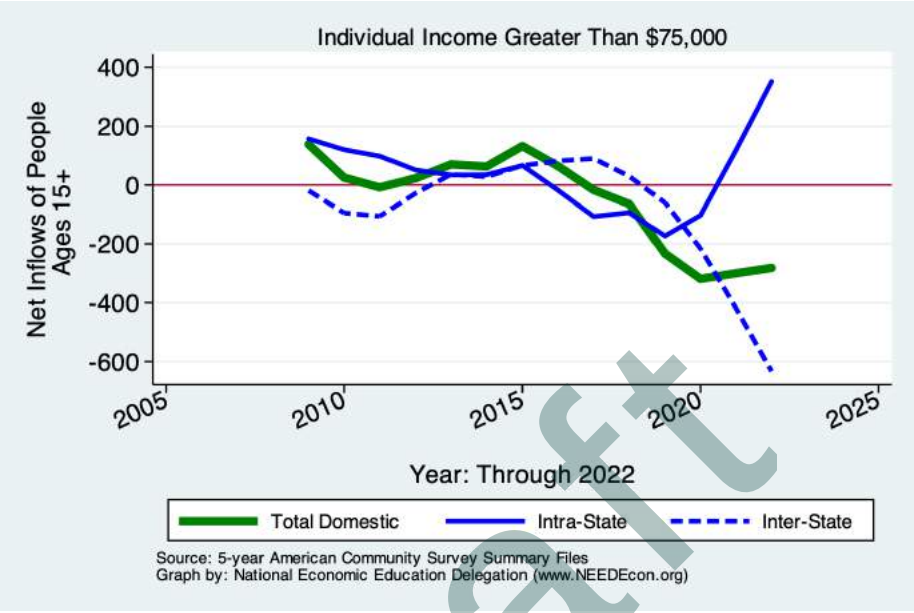
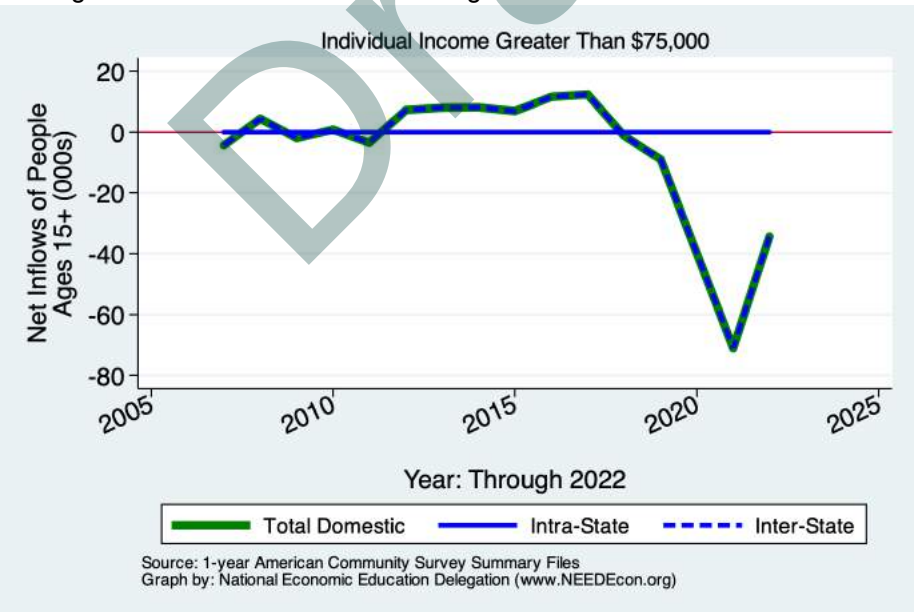


Figure 45: Overall Movements of High Income Residents in California



Demographics of Migration Flows

Table 19: Migration by Marital Status

Category	Population	Net Inflows				
		All Migration	Same State		Across States	From Abroad
			W/in County	Between Counties		
Never married	47,779	2,343	0	2,742	−513	114
Now married, except separated	46,561	1,291	0	1,211	80	0
Divorced	14,755	146	0	253	−140	33
Separated	1,238	246	0	246	0	0
Widowed	5,046	−121	0	0	−121	0
Total:	115,379	3,905	0	4,452	−694	147

Source: 2022 1-year American Community Survey, Summary File
Universe: Population 15 years and over in the United States.

Table 20: Migration by Tenure

Category	Population	Net Inflows				
		All Migration	Same State		Across States	From Abroad
			W/in County	Between Counties		
Householder lived in owner-occupied housing units	180,471	1,176	0	2,404	−1,570	342
Householder lived in renter-occupied housing units	102,719	2,387	0	2,783	−707	311
Total:	283,190	3,563	0	5,187	−2,277	653

Source: 2022 1-year American Community Survey, Summary File
Universe: Population 1 year and over in households in the United States.

Table 21: Migration by Age

Category	Population	Net Inflows				
			Same State			
		All Migration	W/in County	Between Counties	Across States	From Abroad
1 to 4 years	13,555	66	0	50	6	10
5 to 17 years	48,317	1,097	0	719	314	64
18 and 19 years	8,114	712	0	565	130	17
20 to 24 years	22,090	1,018	0	848	75	95
25 to 29 years	19,690	138	0	628	−554	64
30 to 34 years	19,600	150	0	−33	158	25
35 to 39 years	20,029	737	0	845	−118	10
40 to 44 years	19,732	202	0	317	−116	1
45 to 49 years	18,423	224	0	166	41	17
50 to 54 years	18,050	−29	0	313	−347	5
55 to 59 years	20,073	316	0	252	32	32
60 to 64 years	23,848	125	0	287	−197	35
65 to 69 years	23,075	−268	0	210	−487	9
70 to 74 years	19,727	136	0	229	−212	119
75 years and over	25,145	−370	0	−187	−287	104
Total Population:	319,468	4,254	0	5,209	−1,562	607

Source: 2022 5-year American Community Survey, Summary File
Universe: Population 1 year and over in the United States

Table 22: Migration by Educational Attainment

Category	Population	Net Inflows				
			Same State			
		All Migration	W/in County	Between Counties	Across States	From Abroad
Less than high school graduate	16,921	1,555	0	1,362	59	134
High school graduate (includes equiv)	36,376	−124	0	433	−557	0
Some college or assoc. degree	60,210	2,859	0	2,337	337	185
Bachelor's degree	29,287	3	0	205	−313	111
Graduate or professional degree	17,921	−521	0	−55	−466	0
Total:	160,715	3,772	0	4,282	−940	430

Source: 2022 1-year American Community Survey, Summary File
Universe: Population 25 years and over in the United States

Gross Regional Product (GDP for Regions)

Definition:

Each year, the Bureau of Economic Analysis provides updated data on gross regional proguct (GRP). GRP is a concept analogous to GDP for the nation. It is a measure of the value added in the local economy. Value added is a measure of economic activity.

Why is it important?

GRP growth is a fundamental indicator of the health of an economy.

County's Ranking by Size and Growth

Figure 46: County's Rank Among World Economies

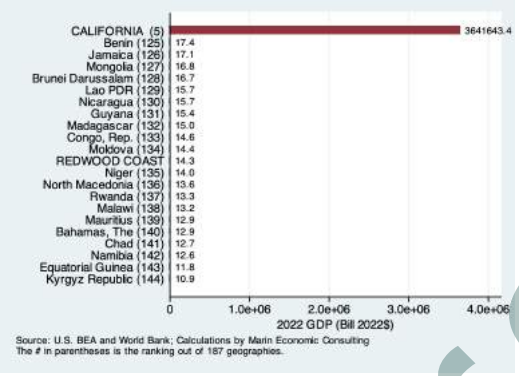


Figure 47: County's Rank Among All U.S. Counties

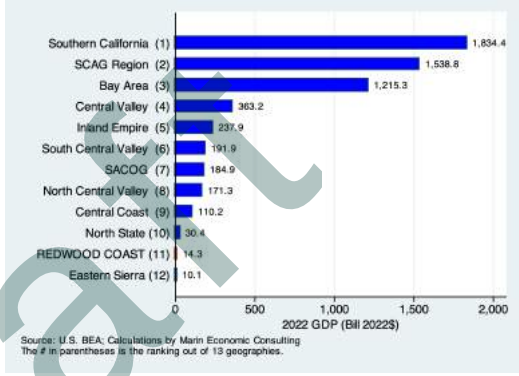


Figure 48: County's Rank Among California Counties

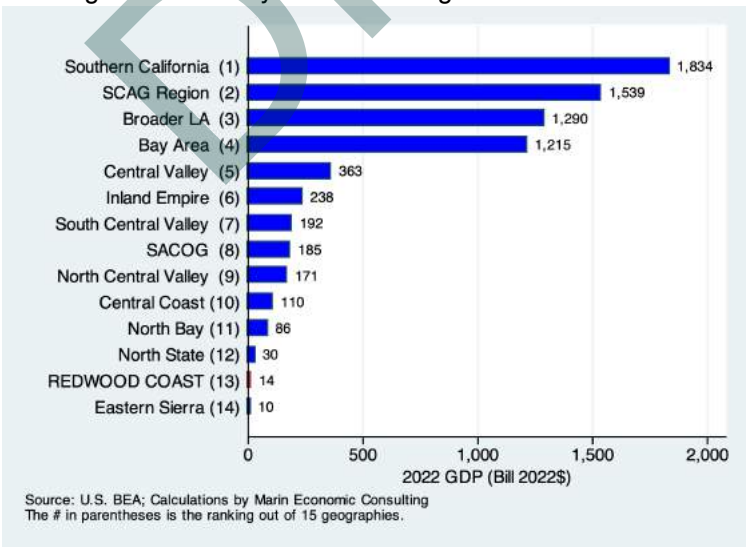
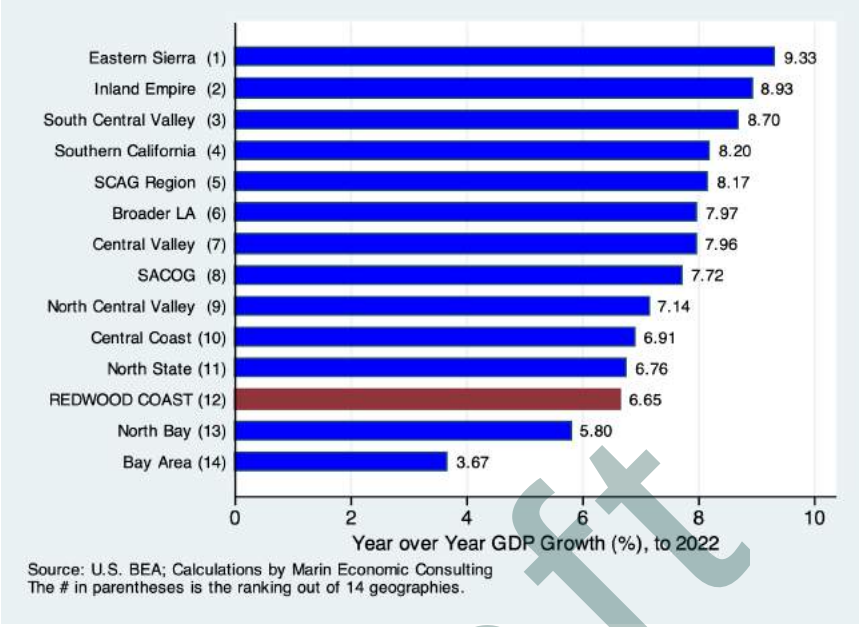
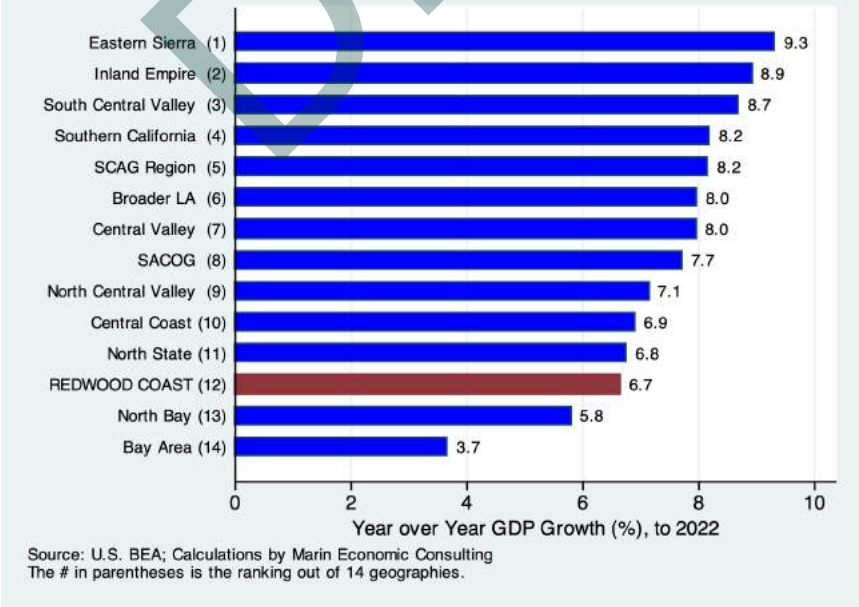


Figure 49: County's Rank Among All U.S. Counties - Growth



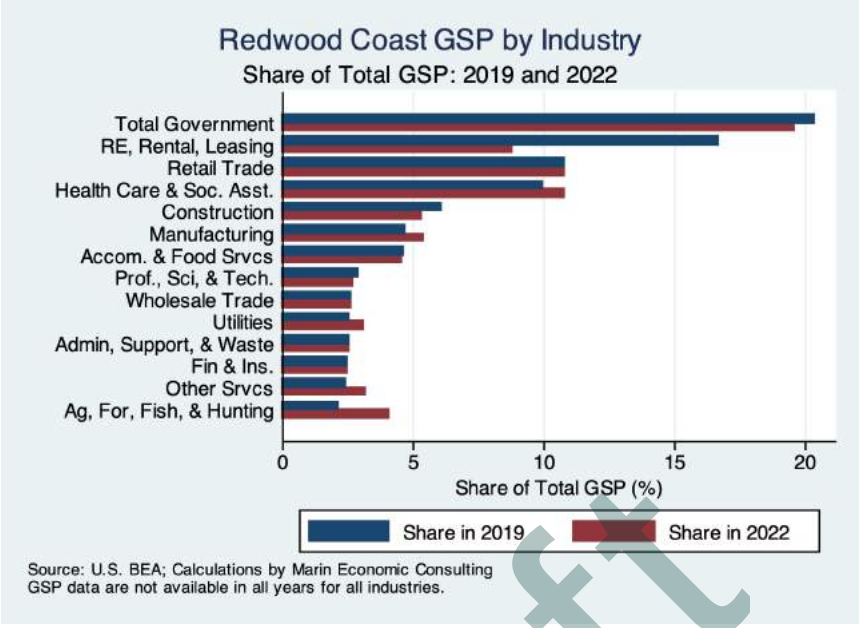
Source: U.S. BEA; Calculations by Marin Economic Consulting
The # in parentheses is the ranking out of 14 geographies.

Figure 50: County's Rank Among California Counties - Growth



Source: U.S. BEA; Calculations by Marin Economic Consulting
The # in parentheses is the ranking out of 14 geographies.

Overview of GSP Changes Since Onset of Pandemic



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References and Sources

The majority of the data presented in this report are from the American Community Survey (ACS). For larger geographies, the 1-year Summary Files provide the data. For smaller communities, roughly those with less than 65,000 in population in 2021, the 5-year Summary Files provide the data.

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Appendix: Region Definitions

Eastern Sierra: Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, and Tuolumne counties in Northern California.

North State: Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity counties in Northern California.

Redwood Coast: Del Norte, Humboldt, Lake, and Mendocino counties in Northern California.

Bay Area: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties in Northern California.

North Bay: Marin, Napa, and Sonoma Counties in Northern California.

Central Coast: Monterey, San Luis Obispo, Santa Barbara, Santa Cruz, and Ventura counties along Coastal California.

North Central Valley: Butte, Colusa, El Dorado, Placer, Sacramento, San Joaquin, Shasta, Sutter, Tehama, Yolo, and Yuba counties in Central California.

Central Valley: 18 California counties from Shasta in Northern California to Kern in Southern California.

South Central Valley: Fresno, Kern, Kings, Madera, Merced, Stanislaus, and Tulare counties in Central California.

SCAG: Los Angeles, Imperial, Orange, Riverside, San Bernardino, and Ventura counties in Southern California.

Southern California: Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties.

Broader LA: Los Angeles, Orange, and Ventura counties in Southern California.

Inland Empire: Riverside and San Bernardino counties in Southern California.

SACOG: El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties in North Central California.

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