

City of Fort Bragg
Former Georgia-Pacific Mill Site
Economic Diversification Feasibility Study

Public Review Draft

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Produced in partnership with City of Fort Bragg

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Executive Summary

The City of Fort Bragg, California, selected Regional Government Services Authority (RGS) to complete an Economic Diversification Feasibility Study focused on reuse of the former Georgia Pacific mill site, which occupies about a third of the total land area of the City, as well as nearly its entire coast line. Goals of the feasibility analysis are to: a) leverage extensive prior community engaged planning outcomes since the mill closure in 2002 to reflect community supported alternatives; b) evaluate feasibility of potential future development alternatives in terms of their contribution towards economic diversification, quality jobs creation, and sustainability; and c) position the city for subsequent public and private-partnership funding to support project implementation.

Drawing from prior public planning processes, updated with actions in the current effort, community supported project priorities include:

- Low water use (and/or recycled water users);
- Central Business District (CBD) connections;
- Healthy marine ecosystems, Noyo Harbor and fishing industry connections;
- Connection to entry-level and skilled trades quality jobs for residents; and
- Opportunities to increase workforce housing inventory.

Several externalities that affected near, mid and longer-term strategic recommendations were identified during the initial discovery phase of this effort including:

- **Coastal Ecosystems and Fisheries Impacts:** Over-abundance of purple-urchin populations, brought on by climate driven ocean temperatures extremes, and subsequent trophic cascade impacts resulting in diminished kelp forest, abalone and fin-fish populations and habitat health;
- **Drought:** Extreme drought conditions throughout the greater western United States, with particular severity in northern California ultimately requiring water use restrictions effecting several coastal communities, tourism business and other industries;
- **Workforce Housing:** Continued quantity and quality declines in workforce housing stocks, with coincident increases in mean housing costs throughout the State of California including the remote north coast.

These externalities combined with the community supported economic development priorities suggests a collection of inter-related project investments that collectively would meet community goals, build on existing regional initiatives, and position the city for long term fiscal and environmental resiliency.

- **Blue Economy Innovation Hub.** New infrastructure and facilities to support a blue economy innovation hub east of the City's Waste Water Treatment Facility and near the

11.5-acre parcel owned by Noyo Center for Marine Science. Priority target industries/businesses include regenerative aqua-culture activities such as harvesting and farming wild purple-urchin populations, cultivating marine seaweed and kelp, and other small scale, land-based aquaculture activities. Key investments needed to make this possible include establishing new ocean water intake and routing potential outflow through existing water treatment plant infrastructure;

- **Noyo Center for Marine Science.** Implementation of an ocean fronting, bluff top facility focused on regional ocean conservation focused research, education and events center on 11-acres of the former mill site. This facility would become the new home of the Noyo Center for Marine Science, provide a venue for conducting on-going ocean conservation research and education, regenerative blue economy innovation, and a regional tourism draw.
- **Redwood Avenue Extension.** Extension of roads, sewer, water and power infrastructure from Redwood Avenue at Highway 1 west onto the former mill site. Such an extension would enhance mill-site connectivity with the Central Business District, and provide catalytic infrastructure to support increased coastal access, lodging and visitors serving, education, marketplace and light-industrial spaces, workforce and market-rate housing opportunities.

These three projects are the focus for our mill site economic diversification feasibility analysis and the subject of the following report. Our assessment suggests the most direct path to realizing new jobs growth and near-term city tax revenue increases would be the extension of the CBD along Redwood Avenue onto the mill site. Over the longer term, establishing critical ocean water intake and outflow infrastructure onto the site would enable the realization of both the vision for a Blue Economy Innovation Hub, and the Noyo Center for Marine Science. Both of these visions are compelling, and deserve further inquiry.

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Introduction

The City of Fort Bragg is located on the north coast of Mendocino County, California (Figure 1). With close proximity to coastal forests and the Pacific Ocean, the town and regional economy has historically been largely resource dependent (forestry and fisheries) until the early 1990s. Since then, the economy has become increasingly tourism and hospitality dependent. The 2002 closure of the former Georgia-Pacific lumber mill, located on coastal bluffs between the city and the Pacific Ocean, has created new economic development opportunities and challenges. This report builds from extensive community engaged planning since the mill closed. It updates and refines this community input with more recent council and stakeholder engagements. The report assesses feasibility of alternative catalytic projects to drive long-dreamed of appropriate economic diversification, new venture formation, quality jobs growth, and community resiliency.

City Demographics, Employment Trends and Opportunities

The City of Fort Bragg population was 7,302 per American Community Survey data for 2015-2019. The region has a civilian labor force of 3,313 with a participation rate of 59.6%. Of individuals 25 to 64 in the City of Fort Bragg, CA, 15.3% have a bachelor's degree or higher which compares with 33.5% in the nation. The median household income in the City of Fort Bragg, is \$44,276 and the median house value is \$342,200 (JobsEQ 2021).

Employment & Wage Trends

As of 2021-Q2, total employment for the City of Fort Bragg was 3,967 (based on a four-quarter moving average). Over the year ending 2021-Q2, employment increased 9.1% in the region. The average worker in the City of Fort Bragg earned annual wages of \$46,495 as of 2021-Q2. Average annual wages per worker increased 10.3% in the region over the preceding four quarters. For comparison purposes, annual average wages were \$64,141 in the nation as of 2021-Q2, and employment increased 8.3% nationally (JobsEQ 2021).



Figure 1. City of Fort Bragg vicinity map.

Industry Sectors

The largest industry sector in the City of Fort Bragg, is Health Care and Social Assistance, employing 940 workers. The next-largest sectors in the region are Retail Trade (667 workers) and Accommodation and Food Services (606). High location quotients (LQs) indicate sectors in which a region has high concentrations of employment compared to the national average. The sectors with the largest LQs in the region are Agriculture, Forestry, Fishing and Hunting (LQ = 2.78), Accommodation and Food Services (2.01), and Retail Trade (1.61) (Figure 2).

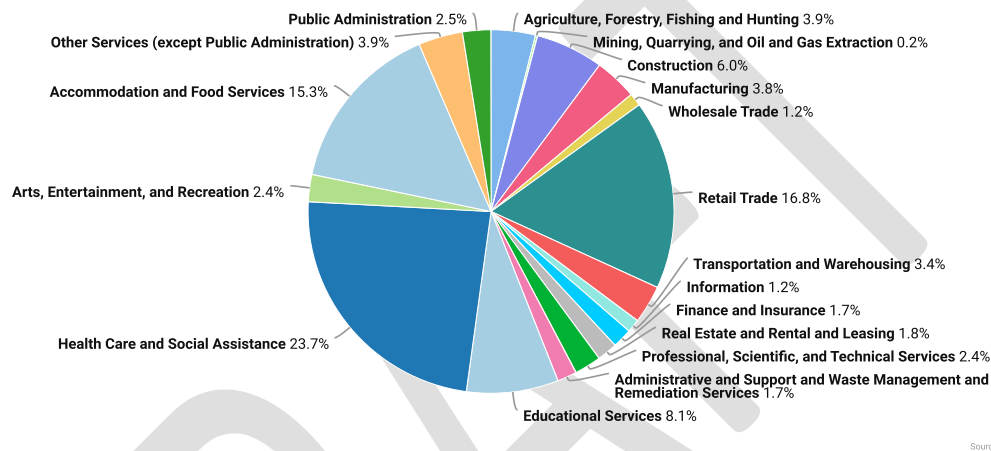


Figure 2. Total workers by industry for City of Fort Bragg, California.

Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2021-Q1 with preliminary estimates updated to 2021-Q2 (Appendix A).

Sectors in the City of Fort Bragg, with the highest average wages per worker are Mining, Quarrying, and Oil and Gas Extraction (\$68,372), Public Administration (\$61,499), and Finance and Insurance (\$59,715). Regional sectors with the best job growth (or most moderate job losses) over the last 5 years are Construction (+18 jobs), Real Estate and Rental and Leasing (+18), and Wholesale Trade (+18).

Over the next 5 years, employment in the City of Fort Bragg, CA is projected to contract by 39 jobs. The fastest growing sector in the region is expected to be Health Care and Social Assistance with a +1.3% year-over-year rate of growth. The strongest forecast by number of jobs over this period is expected for Health Care and Social Assistance (+64 jobs).

Occupation Groups

Occupation groups in the City of Fort Bragg, with the highest average wages per worker are Legal Occupations (\$97,400), Healthcare Practitioners and Technical Occupations (\$93,800), and Management Occupations (\$91,100). The unemployment rate in the region varied among the major groups from 1.1% among Community and Social Service Occupations to 9.4% among Food Preparation and Serving Related Occupations.

Over the next 5 years, the fastest growing occupation group in the City of Fort Bragg, is expected to be Healthcare Support Occupations with a +2.2% year-over-year rate of growth. The strongest forecast by number of jobs over this period is expected for Healthcare Support Occupations (+35 jobs) and Community and Social Service Occupations (+13). Over the same period, the highest separation demand (occupation demand due to retirements and workers moving from one occupation to another) is expected in Food Preparation and Serving Related Occupations (399 jobs) and Sales and Related Occupations (309).

Occupation employment data are estimated via industry employment data and the estimated industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2021Q1, imputed where necessary with preliminary estimates updated to 2021Q2. Wages by occupation are as of 2020 provided by the BLS and imputed where necessary. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

Opportunities

These data trends and projections reflect the critical importance of hospitality and tourism to the Mendocino Coast/City of Fort Bragg economy. Sound economic development principles include *building on existing hospitality and tourism-related strengths for nearest term jobs gain, and proactively engaging in diversification efforts to increase resiliency over the longer term*. These data also point to the unique qualities of the region, as reflected in the Location Quotients in fisheries, agriculture and forestry. As such, another sound economic development principle

would be to *identify and emphasize unique regional characteristics and opportunities* to leverage those for community economic benefit.

Location and Land Use Context

The entire 430-acre former Georgia Pacific mill site is wholly within the city limits, comprising one third of the total land area of the city. The site functioned as a lumber mill since 1885, and separates the town proper from the Pacific Ocean. It can accommodate a range of potential uses and is adjacent to several opportunity areas, such as Noyo Harbor and CA Hwy 1. As described in the 2018 Mill Site Local Coastal Plan – Utility Master Plan (Jones 2018), current community supported uses of the site include a mix of residential, commercial, coastal industrial, recreation and conservation.

Currently, the zoning designation for the site is Timber Resources Industrial Zoning. Rezoning lands designated Timber Resources Industrial are required to undergo a comprehensive community-based planning process and an amendment to the City’s Local Coastal Program, certified by the California Coastal Commission¹. The most recent comprehensive community-based planning process effort took place in 2017-2020. Following the acquisition of 77-acres by the Mendocino Railway in August 2019, the City convened a Mill Site Ad Hoc Committee to focus on completing the planning process for the northern portion of the site (Plan Area A), in order to help facilitate Mendocino Railway’s development plans, which resulted in the land use concept shown in Figure 3.

¹ Policy LU-7.2: Comprehensive Planning Process Required. LCP amendments that propose to rezone lands designated Timber Resources Industrial must be developed through a comprehensive community-based planning process. Community participation shall be solicited throughout the planning process in accordance with established City practices and CLUDC requirements. The LCP amendment shall:

1. Establish new land use classifications, development policies and standards;
2. Identify potential connections for existing and future infrastructure connections such as roads, utilities, and coastal access to surrounding developed and undeveloped areas;
3. Establish orderly phasing for development and future rezoning activities;
4. Include other measures as needed to protect the health, safety, and well-being of the community;
5. Map new zoning and transportation facilities, including coastal access; and
6. Be consistent with the all policies of the Coastal Act and Fort Bragg’s LCP.

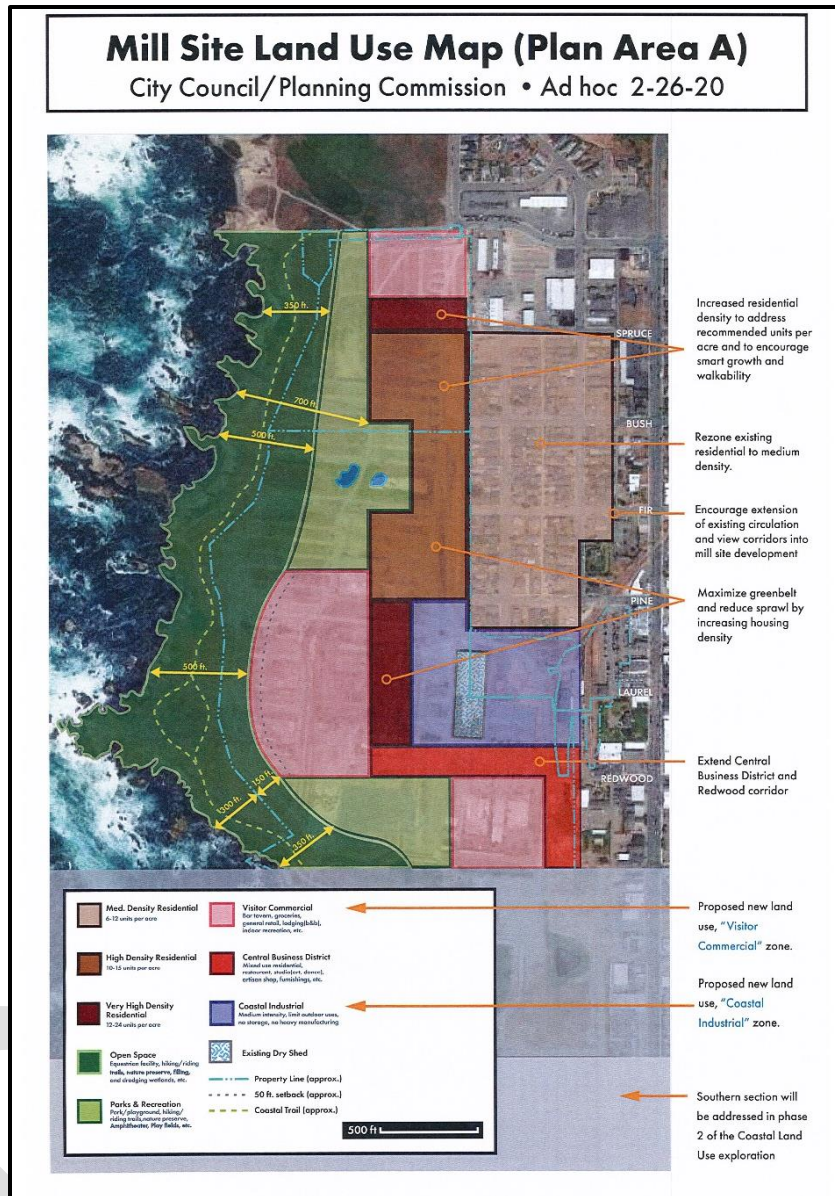


Figure 3. Mill Site Local Coastal Plan Land Use Concept (AdHoc Committee 2020).

The Utility Master Plan leveraged the City’s Mill Site Buildout Analysis (2018) to characterize utility requirements under maximum and realistic buildout scenarios. As shown in Table 1, current mill site zoning *could* accommodate approximately 5M square-foot (SF) of development (4.6M industrial, 250k SF commercial) and just over 9k jobs. The scaled-back “realistic” build-out scenario in the 2018 Mill Site Utility Master Plan, contemplated average development density as currently found throughout the city, which would result in: 250 acres of parks, open space & urban reserve; 315 units of housing, and 1,895 new jobs. Total development would include 293

hotel rooms, 775,000 SF of commercial & institutional development, and 460,000 SF of industrial development (Table 2). Our development analysis uses this 2018 Realistic Development scenario to assess development alternatives feasibility.

Table 1. Existing Mill Site Zoning – Maximum Buildout Analysis (2018).

Zoning	Land Area (acres)	Existing Development (SF)	Existing Uses	Streets (acres) ¹	Developable Land (acres)	Developable Land (SF)	FAR	Maximum Buildout (SF)
GP Owned Commercial Property								
Highway Commercial	2.8	1,236	One SFR	1.0	1.82	79,279	0.40	31,712
Central Business District	4.4	16,804	Office Building & Corp Yard	1.5	2.86	124,582	2.00	249,163
Subtotal	7.2	18,040						280,875
Jobs²		15						234
GP Owned Industrial Property								
Heavy Industrial	8.7	6,645	Office Buildings	1.3	7.40	322,126	0.40	128,850
Timber Resources Industrial	308.0	79,216	4 SFR & Dry Shed 4	46.2	261.84	11,405,696	0.40	4,562,278
Subtotal	316.7	85,861						4,691,129
Jobs		160						8,768
City Owned Property								
Public Facilities	4.0	77,000	WWTF	0.1	3.9		NA	77,000
Timber Resources Industrial	110.0	2,000	Noyo Headlands Park & Noyo Center	5.5	104.5		NA	2,000
Subtotal	114.0	79,000						79,000
Jobs		12						12
Total Area	437.9							
Total Development (SF)		182,901						5,051,004
Total Jobs		188						9,015

1. This analysis assumes the following percentages for streets 35% for commercial zones; 15% for Industrial zones; and 2% to 5% for open space and parks. This reflects the existing allocation of land use to streets in the city of Fort Bragg.

2. Jobs/SF data from USGBC Building Are Per Employee by Business Type and US Energy Informtaion Administration Commercial Buildings Emnergy Consumption Survey. Jobs multipliers include the following: Assumes 1 job/1200 SF for CH and CBD, 1 job/535 SF for IH and IT

Table 2. Realistic Buildout Scenario Land Use and Job Creation Estimates (Jones 2018).

Land Use	Value	Units
Parks & Open Space	250	acres
Housing	315	units
Housing	361,236	square feet
Industrial	460,313	square feet
Commercial & Institutional	775,763	square feet
Total Development Area	821,549	Square feet
Hotel Rooms	293	rooms
Job Creation	1,895	jobs

City staff transitions and the Covid-19 pandemic stalled the planning process before consensus had been reached regarding rezoning the southern portion of the site (Plan Area B). That said,

the community did identify a need for jobs, housing and open space – specifically, a desire for light coastal industrial uses, housing, remediating mill ponds by removing the dam, restoring estuary tidal flows and wetlands, daylighting creeks, and establishing a wildlife corridor.

Beginning in 2021, the City initiated conversations with Sherwood Valley Band of Pomo Indians in partnering on reuse of the site, and began working with the US Environmental Protection Agency (EPA) to develop a clean-up strategy. This led to a verbal agreement with Georgia Pacific for the City to acquire the remaining 210-acres on the southern portion of site. The City actively engaged in due diligence activities to take over legal and financial obligations including conducting a Phase I environmental report, securing insurance and necessary financing, and participating in on-going meetings with partners committed to assist with remediation and development.

However, Mendocino Railway filed an eminent domain complaint against Georgia Pacific, who dropped the verbal agreement with the City and ceded all remaining holdings to Mendocino Railway. The City is seeking a court judgement stating that Mendocino Railway’s tourist excursion operations do not qualify as a public utility with eminent domain powers, and do not qualify as a federally regulated common carrier providing transportation. A court ruling in the City’s favor would ensure that future development plans of the site would require a comprehensive community-based planning process, as well as local, state and federal oversight where necessary.

As previously noted, the first lumber mill was established on the site in 1885, and remained a mill site for 115 years, until the Georgia Pacific Timber Mill closed in 2002. Mill operations left behind hazardous substance, pollutants and contaminants, and the City invoked the Polanco Act, which brought the site under the oversight of California’s Department of Toxic Substance Control (DTSC) in 2006. To help organize the investigation and cleanup, DTSC divided the site into five operable units (Figure 4).

Today, about 97% of the site has been remediated by Georgia Pacific, under DTSC oversight. The final area needing remediation is located in Operable Unit E, which involves contaminants found within in the mill ponds located near the center of site and a weak dam. Any proposed remedy will require a Coastal Development Permit and an Environmental Impact Report, pursuant to the

California Environmental Quality Act prior to implementation. To date, public input suggests there is community support to remove the dam, beach berm, and rip-rap that could be vulnerable to sea level rise and tsunamis, in order to restore tidal flow and wetlands; including the daylighting Maple and Alder creeks.

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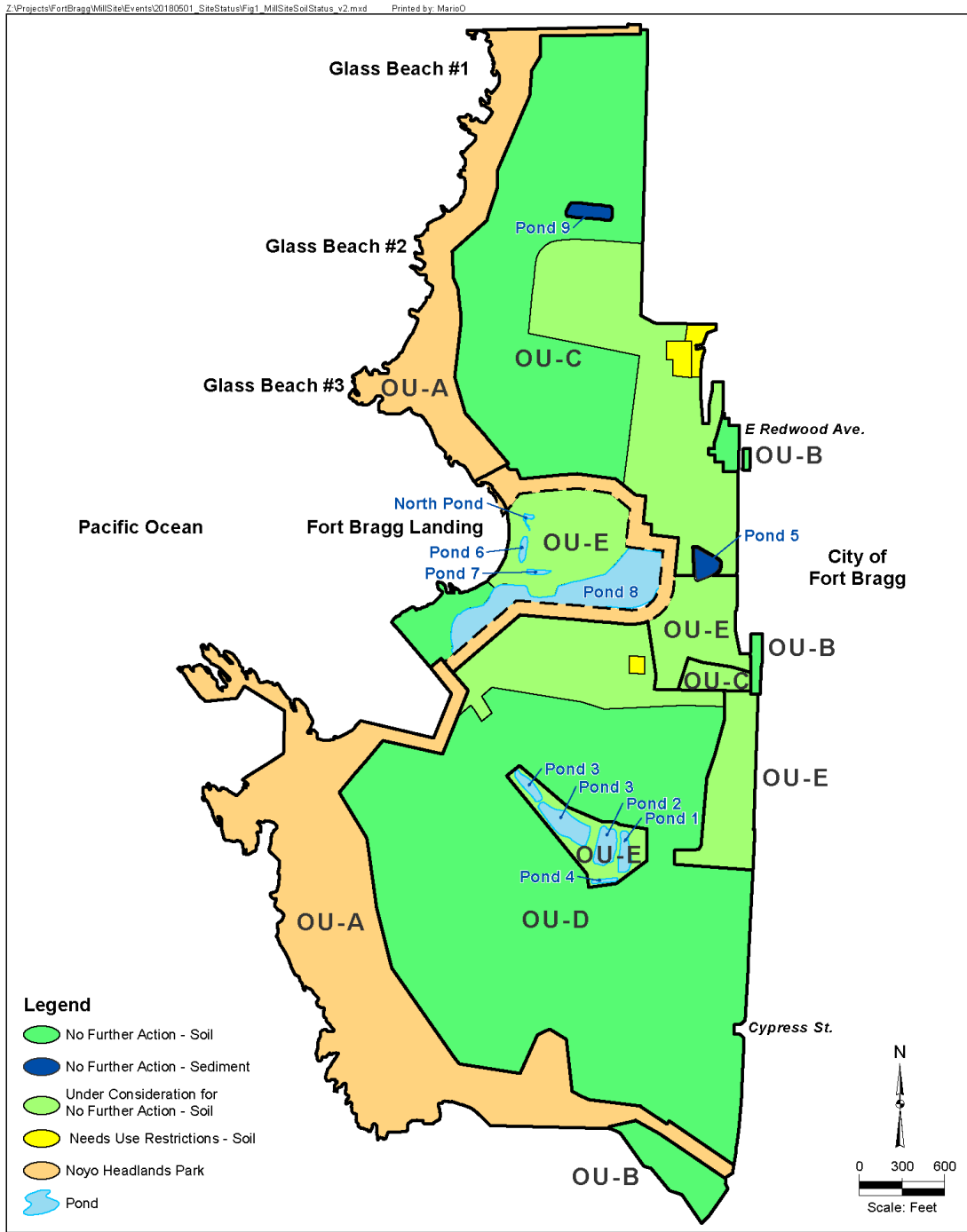


Figure 4. Department of Toxic Substance Control (DTSC) Operable Unit Boundaries and Soil and Sediment status (2018) Former Georgia Pacific Mill Site, Fort Bragg, California.

Ownership

Since the timber mill closure in 2002, a number of parcels have been sold or transferred to new ownership. The majority of the site is owned by Mendocino Railway. Other ownership includes:

City of Fort Bragg, Mill Site Economic Diversification Feasibility Study, 2022.

City of Fort Bragg’s Noyo Headlands Park; Noyo Center for Marine Science parcel for future ocean science facility; Sherwood Valley Band of Pomo Indian housing on Noyo Point Road, and a couple of parcels with commercial zoning near CA Hwy 1 with existing buildings purchased by local businesses (Figure 5).



Figure 5. Former Georgia-Pacific Mill Site Ownership, June 2020.

Sherwood Band of Pomo Indians Property

Indigenous people have inhabited the Mendocino coast for over 2,000 years. In 1856, the Mendocino Indian Reservation was established, which encompassed the former mill site along

with 25,000-acres stretching from Hare Creek to the south, just north of Abalobadiah Creek, and about 3 miles inland. The Fort Bragg military outpost was established in 1886 to oversee the reservation. The outpost was vacated in 1864 and the reservation was discontinued in 1866 (Figure 6).

The Sherwood Valley Band of Pomo Indians have maintained residences on the site for generations. During conversations between the City of Fort Bragg, Sherwood Valley Band of Pomo Indians, and Georgia Pacific related to acquiring 210-acres on the southern portion of site, Georgia Pacific stated their willingness to transfer the parcels on Noyo Point with tribal housing to the tribe. The land transfer occurred in 2020.

Given the long history of indigenous people in the region, the former mill site holds extensive cultural significance and resources. Any future development plans related to the site shall include government to government consultations between the City of Fort Bragg and Sherwood Valley Band of Pomo, as well as utilize archeological surveys, and tribal monitoring.

Coastal Trail and Parkland: Noyo Headlands Park

The City's initial community planning process for reuse of the mill site kicked-off in 2004 and immediately identified the desire for a continuous coastal bluff trail to provide public access along the coast, which had been closed off for generations. In 2010, the City was awarded \$4.2 million in grant funds from the State of California Coastal Conservancy and Georgia Pacific donated a 100-foot-wide corridor along the bluff tops. In 2013, the California Coastal Conservancy granted funding to acquire an additional 4-acres.

The Noyo Headlands Park was constructed between 2014-2018 covering 107-acres along 3.5 miles of coastal bluff top overlooking the Pacific Ocean (Figure 7). The trail is handicap accessible and multi-use, connecting the Noyo River to Pudding Creek; with artists' benches, picnic tables, restrooms, parking, interpretive signage, and spectacular views. A true asset for locals and visitors alike.

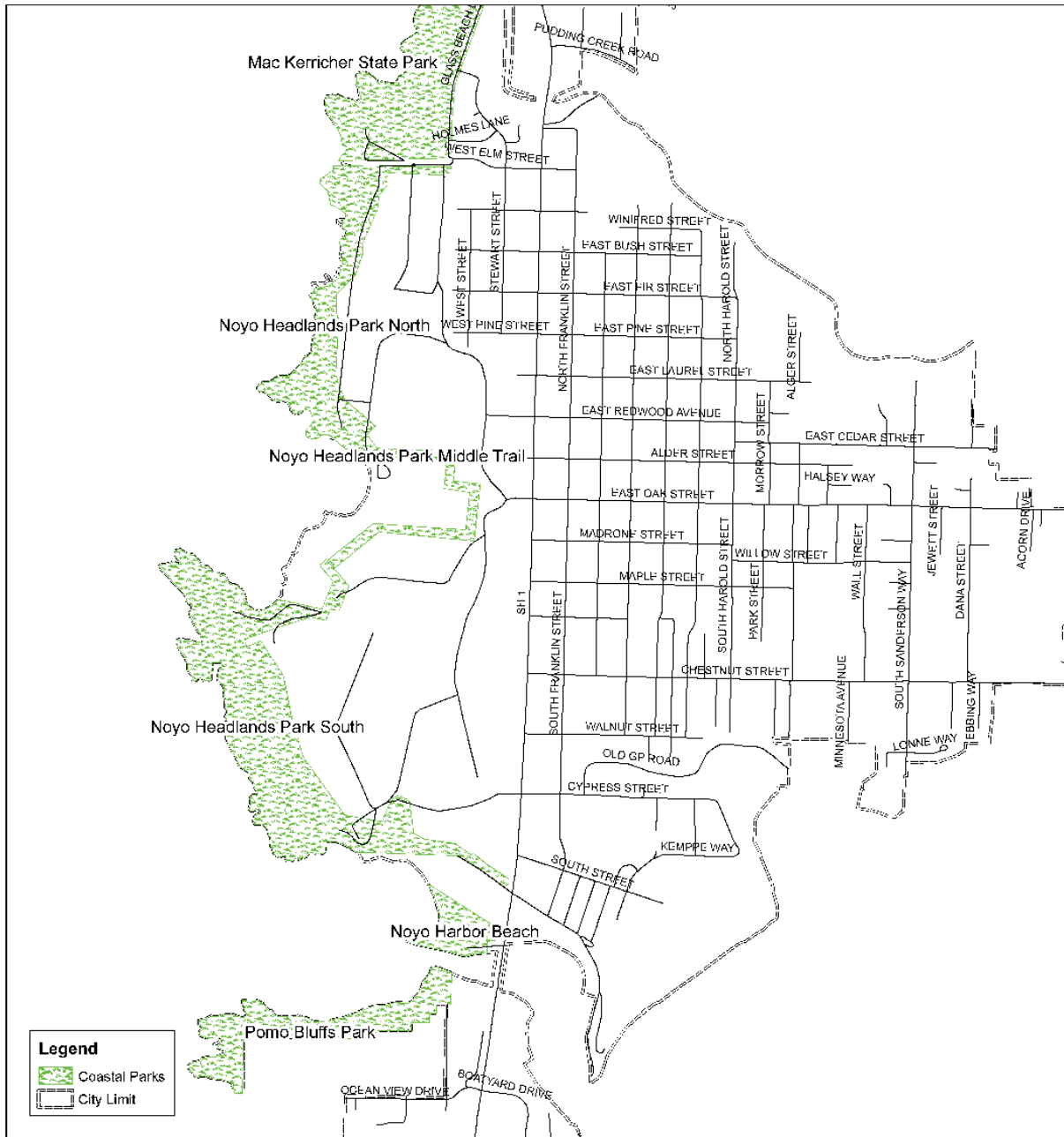


Figure 6. Coastal parklands along former Georgia-Pacific Mill Site (2018), City of Fort Bragg, California.

Noyo Center for Marine Science: Noyo Headlands Ocean Science Facility

The history and current context for the Noyo Center for Marine Science is treated in depth later in this report. For the purposes of the Mill Site ownership summary, it is appropriate to note here that the City of Fort Bragg acquired 11.64-acre parcel from Georgia Pacific in March 2011 with grant funding from California State Coastal Conservancy for the development and operations of

a marine science center and/or recreation. The City transferred the parcel to Noyo Center for Marine Science in January 2020 for future facility. (Figure 10).

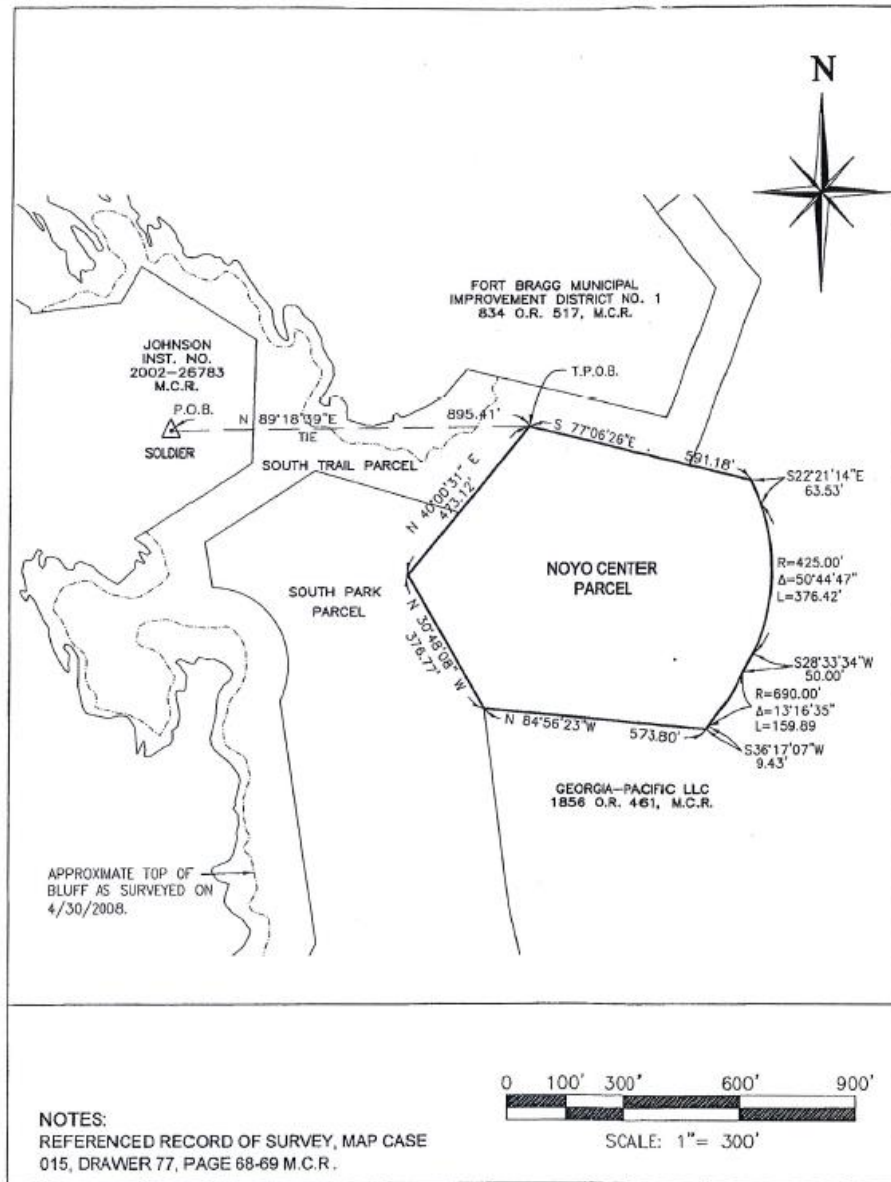


Figure 7. Noyo Ocean Science Center parcel map, grant deed from City to Noyo, June 10, 2020.

Mendocino Railway

In 2019 Mendocino Railway, acquired 77-acres of the northern portion of site and presented a concept master plan for residential, commercial and recreational uses of the land, based on zoning designations represented in the Mill Site Ad Hoc Committee map shown herein Figure 9.

In 2021, Georgia Pacific ceded an additional 210-acres on the southern portion of the site to Mendocino Railway.

Mill Site North - Planning Commission 6-2019 Land Use Map
 MASTER PLAN CONCEPT STUDY

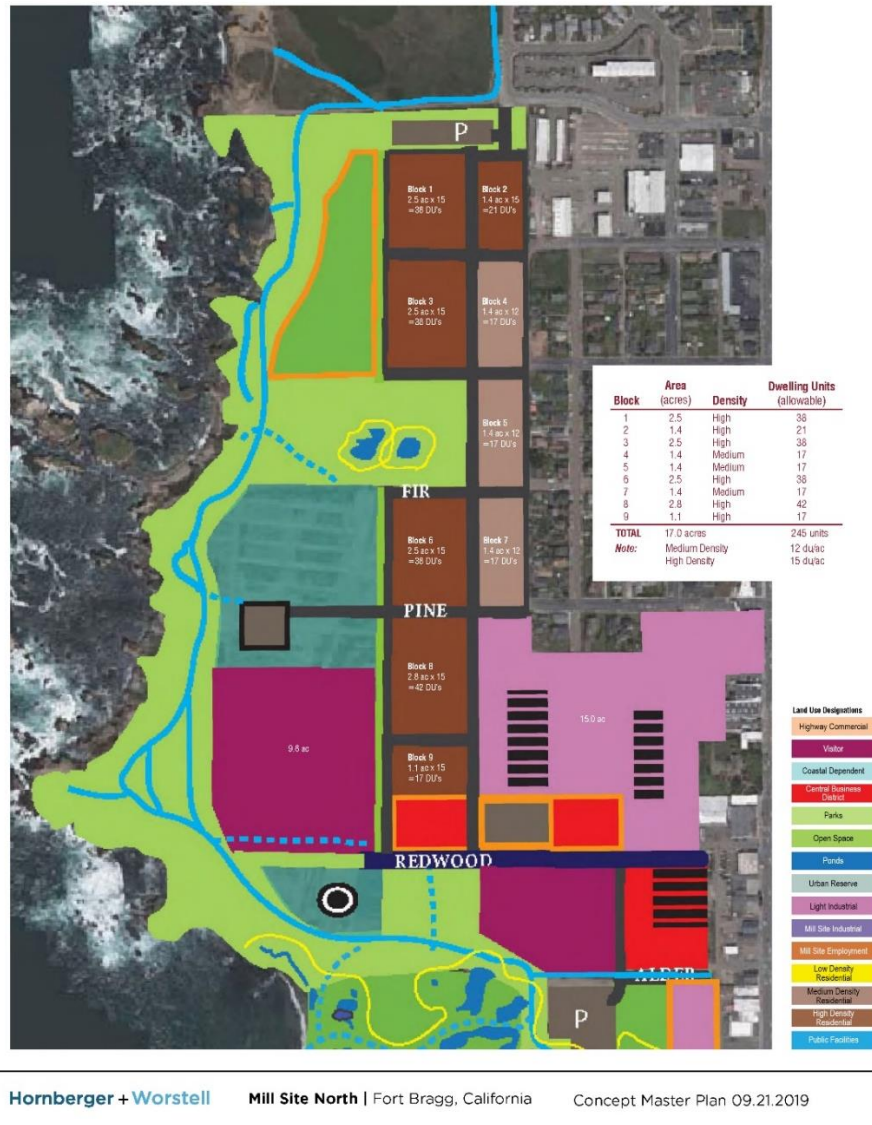


Figure 8. Mill Site North, Concept Master Plan, Land Use (Hornberger + Worstell, 2019).

Community Planning

Substantial community engaged planning has occurred since the Georgia Pacific closed the timber mill in 2002. Key planning processes and outcomes are summarized in Table 3.

Table 3. City of Fort Bragg, former Georgia-Pacific Mill Site planning processes and outcomes.

Date(s)	Process	Outcome(s)
2002-2006	Mill Closure – Community Envisioning Process	Community engaged reuse concept
2009-2012	DRAFT Specific Plan	a Draft Utility Master plan and Draft Master Subdivision Map, as well as a Draft Development Agreement and market analysis. However, Georgia Pacific withdrew their application before an environmental analysis was conducted. The Specific Plan was not finalized.
2004-2013	Noyo Headlands Park Vision, Acquisition, Entitlements	The City designed and constructed Noyo Headlands Park - 107 acres of parkland with multiuse trail situated along the bluff tops, providing public access to the former Mill Site coastline for the first time in over a century.
2014 – 2018	Noyo Headlands Park Construction	
2017-2020	City lead public input processes	The City conducted another round of public input and planning activities to consider reuse options. This included public workshops, meetings with community organizations, community surveys, tabling at the Farmer’s Market, conducting site tours, and holding 18 public city meetings through the City Council and Planning Commission.
2020-2022	Economic Diversification Feasibility Study	The current effort, funded by the Economic Development Administration, has engaged the City Council, planning commission, Harbor District, industry, non-governmental organizations, tribes and the public in an active economic diversification study.

Key outcomes of these community engaged planning processes include the following community supported development guidelines:

- Prioritizing a diversity of higher wage job generating uses;
- Including mixed-use development and affordable housing;
- Extension of Central Business District onto the Mill Site;
- Employ sustainable design and management practices;
- Phased development process.

The current economic diversification feasibility study integrates outcomes of these prior works and provide context for advancing key inter-connected projects to catalyze jobs growth, new revenue and realization of long developed visions.

Diversification Study Process

Regional Government Services Authority (RGS) was selected by the City of Fort Bragg, California, to complete an Economic Diversification Feasibility Study from the vantage point of the former Georgia Pacific Mill Site. Goals of the feasibility analysis are to: a) leverage extensive prior community engaged planning outcomes since the mill closure in 2002 to reflect community supported alternatives; b) evaluate feasibility of potential future development alternatives in terms of their contribution towards economic diversification, quality jobs creation, and sustainability; and c) position the City for subsequent public and private-partnership funding to support project implementation.

Background

The RGS team worked closely with city staff to understand and assess past actions and community supported reuse alternatives. The team engaged with a newly formed Economic Development Ad Hoc Committee comprised of two representatives of both City Council and Planning Commission to hear first-hand priorities, discuss alternatives, and report stakeholder engagement learnings. The project team also worked with city staff to identify and engage community stakeholders, industry, academia and workforce training providers, non-governmental organizations, other local jurisdictions and special districts, State of California and community groups in the process of scoping feasibility assessment focus projects (Table 4).

Table 4. Economic diversification feasibility study stakeholder engagements.

Stakeholder	Topic(s)
Business Community Representatives	Blue economy; Economic opportunities and challenges
City of Fort Bragg Economic Development Ad Hoc Committee	Study scope; Blue economy; Community priorities
Sherwood Valley Band of the Pomo	Mill site reuse alternatives; blue economy; workforce development; economic opportunity
Noyo Harbor District	Current conditions; Blue economy; Future alternatives
Mendocino College	Blue economy; Workforce training; partnerships
Noyo Center for Marine Science	Center concept and activity; Blue economy; education; workforce development.
West Business Development Center	Blue economy; Regional economic development coordination; Economic opportunities and challenges
Governors' Office of Business & Economic Development (Go-Biz)	Blue economy; aquaculture; funding opportunities; coordination
Humboldt Bay Harbor District	North Coast wind power development; Blue economy opportunity
Port of San Diego's Aquaculture & Blue Technology Program	Blue economy opportunity
California Sea Grant	Blue economy opportunity
Aquaculture Specialists and Entrepreneurs	Blue economy opportunity
Blue Tech Businesses	Blue economy opportunity
University of California, Agriculture & Natural Resources (UCANR)	Community development; workforce training; partnerships

These engagements provided valuable context for identifying and selecting the three interconnected focus projects for this feasibility study: Blue Economy Innovation Hub, Noyo Center for Marine Science, and Redwood Avenue Extension. The engagements also verified community supported directions and reuse priorities, and confirmed blue economy market interest, with a particular focus on the appeal of new aquaculture and marine fisheries focused facilities. Key job generating uses of interest that were identified during the stakeholder engagements include:

- Marine Research Center;
- Aquaculture Innovation Cluster;
- Hospitality businesses including hotel(s) and dining;

- Interagency Government Center – Resource Agencies and/or Research Institutions;
- Coastal Industries Cluster (Power Generation, Fisheries Related, Industrial Crafts);
- Regional sports field complex;
- Other recreational facilities (i.e. Golf course, expanded biking facilities, athletic playing fields, eco-tourism facilities/opportunities).

Assets

The current study reveals numerous local and regional assets that could support the strategic directions desired by the community and contribute to the city’s ability to diversify and make more resilient its local and regional economy. Key assets identified during this study include:

- **Community.** Talented motivated staff, engaged leadership and community stakeholders, and an extensive body of community engaged plans. The bones of the City of Fort Bragg are solid. The former lumber mill history leaves the city with a wealth of historic buildings, neighborhoods, parks and community facilities. Along with the facilities, the remote location of the city has attracted self-determined community members including tradespeople, artists, dreamers and doers. Even while improvements can be made on many fronts, this foundation of engaged leaders, self-determined community members, and neighborhood character provides a great launching pad for economic rebirth.
- **Location.** With direct proximity to the Pacific Ocean, and current Coastal Industrial zoning, the Mill Site offers a unique opportunity to grow a Blue Economy² Cluster. Components of a potential Blue Economy Cluster in Fort Bragg could include:
 - **Noyo Harbor.** The Noyo Harbor is a protected harbor providing full service marine facilities in support of a small but productive fishing industry. It is located just south of the former mill site, with the north harbor being accessible via city roads and state Highway 1, and the south harbor being accessible via Highway 20 and County roads. The Harbor supports fisheries packers and shippers including

² <https://www.portofsandiego.org/waterfront-development/blue-economy>

regular trucks running to and from the San Francisco Bay Area and other parts of California.

- **Marine Research.** Several research facilities are currently located along the California Coast from Humboldt Bay to Bodega Bay, and the Monterey Bay to Scripps Oceanography, to the Port of San Diego. The Port of San Diego's Aquaculture & Blue Technology Program has been helpful in connecting the City of Fort Bragg with resources and other enterprises supporting the blue economy cluster in the San Diego area.
- **Aquaculture Business.** Operations focused on shellfish and kelp farming would be attractive. Many of these businesses employ market forces to positively affect the marine ecosystems, such as removing and ranching purple urchin, which supports kelp restoration efforts. Other examples include growing seaweeds to clean toxins from water, or for benefits of their carbon sequestration potential.
- **Power Generation.** A significant wind power farm is actively being contemplated off the Humboldt County coast. There may be opportunities for the City of Fort Bragg to participate in this developing market. Power generation affiliated with the former mill site would also contribute to regional resiliency and sustainability goals.
- **Desalination.** Long term climate patterns, including the current year drought suggest development of new drinking water sources would be strategically wise. The site is uniquely positioned to offer the city and region a possible desalination facility location. Such a facility could yield revenue and long-term sustainability benefits.
- **Coastal Trail and Parkland.** The City of Fort Bragg's 107-acre Noyo Headlands Park is situated along prime coastal bluff land with a multi-use, public access trail. This world-class facility runs for approximately 10-miles from the Noyo River up to MacKerricher State Park and Ten Mile Dune Preserve with direct access to downtown, neighborhoods

and lodgings. The newly created recreation facility is an invaluable asset for attracting recreational tourists, having the potential to drive increased visitation and small business innovation, and should not be overlooked.

- **Noyo Harbor Connection.** While the Noyo Headlands Park coastal trail connects Pomo Bluffs Park via the Noyo Harbor bridge, a critical connection between the former mill site and the harbor remains outstanding. Building such a connection would not only increase visitation and tourism access to the harbor, but it would also provide a secondary egress point in the event of future emergencies.
- **Innovative Uses.** Innovative concepts for economic development reuse emerged from stakeholder engagement during the initial project period and include interest and mobilization around the following concepts:
 - **Place-maker Space.** Development of a light industrial area for one or two buildings in the 5,000, 10,000 to 20,000 square foot range to provide a space for handcrafted arts such as ceramics, glass blowing, sculpture, metal work and welding. The center could provide a visitor attraction and retail opportunity, while providing skills development for the local workforce. This concept would build from the city's talented craft community and world renown of local artists and programs such as the Krenov School of Fine Furniture, Pacific Textile Arts, and local Mendocino Art Center.
 - **Commercial Kitchen and Cannery.** A local business community leader developed a co-op vegetable canning business plan to support local farmers, generate new salable goods, and increase local food security. The concept would provide facilities for canning of local produce and link the goods with market opportunities. Our goal would be to assist in locating the start-up capital to help get this off the ground and running. The idea for a facility has been duplicated as a commercial kitchen in many communities already. What is needed is a 2,000 square foot facility with refrigeration, sinks, storage and FDA approved surfaces.

- **Mixed-Use, Live-Work Space.** Provide for high density residential projects along Main Street (Hwy 1) with retail on the first level and residential live-work space above increasing downtown walkability and jobs-housing balance. Such an approach would improve existing downtown to former mill site connections, as well as reduce parking and transportation service needs.

Obstacles

Along with the assets noted above, the background and current conditions portion of this study revealed a number of obstacles that will likely need to be overcome to realize sustained and durable economic development including:

- **Site control.** As of this writing, Mendocino Railway owns the majority of site and is declaring federal status as a railway and thereby exempt from local and state oversight from the City of Fort Bragg, California Coastal Commission and other pertinent agencies. As documented previously in this report, the City is seeking a court ruling stating that Mendocino Railway is required to adhere to the City of Fort Bragg's Local Coastal Program (LCP), which guides development in the California's coastal zone. In order to advance community economic reuse visions, either the city or an aligned development partner needs to control the site to ensure rezoning is subject to a comprehensive community-based planning process.
- **Infrastructure.** The former mill site lacks roads, water, sewer, power, and broadband infrastructure. Resolving this shortcoming will be expensive, and likely involve a wide range of public and private funding sources. Critical infrastructure for realizing many of the Blue Economy opportunities will be ocean water intake and outflow facilities.
- **Investment Catalyst.** The former mill site is a unique coastal land resource with complex and potentially costly remediation and pre-development reuse planning and permitting needs. Catalyzing new private sector investment may depend heavily on cost and timeline reducing public sector investment.

Feasibility Criteria

Our feasibility assessment focused on three primary criteria: **Economic** (Costs, Benefits and Markets), **Technical** (Infrastructure) and **Demographic** (Workforce and Jobs Potential). We use these criteria to assess viability of each of the three interconnected focus projects previously mentioned: Blue Economy Innovation Hub, a marine science facility for Noyo Ocean for Marine Science, and Redwood Avenue Extension. We also rank these projects against the previously noted community supported development guidelines as a proxy for gauging political feasibility.

Focus Projects

Blue Economy

The World Bank defines the Blue Economy as *“the sustainable use of ocean resources for economic growth, and improved livelihoods and jobs, while preserving the health of marine and coastal ecosystems.”* This is an innovative sector encompassing a broad range of activities from traditional maritime ventures to new and emerging industries addressing issues related to climate change, sustainable fisheries, renewable energy, all within the context of healthy marine ecosystems. Conversations with Humboldt Bay Harbor District and the Port of San Diego suggest that coastal industrial land for this purpose is scarce in California and the City of Fort Bragg and Noyo Harbor District are encouraged to begin the process of pre-permitting aquaculture and blue tech facilities.

In May 2021, the City hosted an all-day stakeholder meeting held at various locations to discuss what a blue economy might look like in Fort Bragg. This initial meeting was met with support and curiosity, inspiring the City to generate a regional conversation. The release of EDA’s Build Back Better Regional Challenge created an opportunity and framework from which to discuss a regional partnership. The City coordinated a meeting with leadership from: Noyo Harbor District, Sherwood Valley Band of Pomo Indians, Mendocino College, Noyo Center for Marine Science and Housing Mendocino Coast.

After several meetings, the group decided to hold off on submitting a request for EDA investment understanding that more planning and design work was needed. Nevertheless, the Build Back Better Regional Challenge kicked off a series of meetings that continues today. The first goal

identified by the group was to work together to host a community-wide conversation – a Learning Festival - in connection with the Blue Economy Symposium coordinated by the City of Fort Bragg & California Sea Grant.

Blue Economy Symposium & Learning Festival

Building on the momentum and network created during the early-stage Blue Economy outreach, with generous funding and organizational support from California Sea Grant, the City of Fort Bragg convened the 2022 Blue Economy Symposium on May 19-20 (Appendix B). The Symposium engaged approximately 100 stakeholders, and involved a series of expert speakers and panelists on a range of relevant topics to the Blue Economy generally, aquaculture specifically, as well as the dynamics and interests of the Fort Bragg/Mendocino Coast community in advancing a Blue Economy economic development initiative. Highlights of the event included keynotes from California State Controller Betty Yee and US Congressman Jared Huffman; a presentation from the Director of the Hawaii Ocean Science & Technology Park at Kona, which represents a thriving blue economy innovation zone; panel sessions with local fishers discussing ongoing and potential future actions and interests in a regenerative blue economy model; presentations from the Port of San Diego and Humboldt Harbor District supporting the market conditions for expansion to business ready sites anywhere along the California coast; and presentations from long-standing and growing aquaculture operators providing inspiration and mentorship; and panels on workforce development and training programs and opportunities.

Along with the focus on aquaculture business, the Symposium included technical sessions on the opportunity and challenges of realizing significant gains at Fort Bragg, including the importance of ocean water intake and outflow infrastructure; critical infrastructure improvements need at Noyo Harbor, and the critical element of workforce training and human resource capacity, in the face of the long-term disinvestment. The sum of the Blue Economy Symposium was a collective awareness of both the opportunities and challenges facing the growth of a regenerative ocean-based economy in Fort Bragg, and a collective interest and enthusiasm for continuing to pursue the potential.

This two-day symposium was followed by two days of community events to keep the conversations going. The Learning Festival included more than twenty organizations that sponsored activities stretching from Hare Creek Beach (trail stewardship with Mendocino Land Trust) to MacKerricher State Park (Marine Area Protection tide pooling with CA State Parks). A complete list of activities is included with Appendix B).

Blue Economy Innovation Hub

The former mill site offers an ideally positioned opportunity to establish a Blue Economy Innovation Hub, similar to (but scaled down) the Natural Energy Laboratory of Hawaii Authority (NELHA) Ocean Science & Technology Park³. Such a facility could leverage the coastal bluff location, existing coastal industrial zoning, and proximity to key facilities including the City of Fort Bragg waste water treatment plant, the proposed Noyo Center for Marine Science facility, the central business district, and the Noyo Harbor.

For the purposes of this study, the location for the proposed Blue Economy Innovation Hub is just east of the existing city's waste water treatment facility. Figure 10 illustrates the location of the City of Fort Bragg Wastewater Treatment Plant, Noyo Center for Marine Science parcel, and the proposed Blue Economy Innovation Hub. Given recent ownership transitions on the site, the final location of Blue Economy Innovation Hub may vary.

Market

The blue economy market is robust and expected to grow (NOAA 2021). As stated previously, blue economy opportunities range from traditional maritime activities to new emerging sectors, all managing marine and coastal resources sustainably. In California, the blue economy plays an important role in coastal development throughout our 3,427 miles of coastline, touching businesses and downstream activities, as well as those reliant on the ocean.

Our research suggests there is a latent demand for access to approved and equipped sites for aquaculture businesses on California's coastline and entrepreneurs that require access to ocean water intake/discharge infrastructure are held back by complex and expensive permitting. Active blue economy incubators in southern California and elsewhere around the Pacific Rim reported

³ <http://nelha.hawaii.gov/>

there is more demand than space available for such companies to locate. Establishing core infrastructure including ocean water intake and outflow, power, water, and broadband would drive business recruitment success.

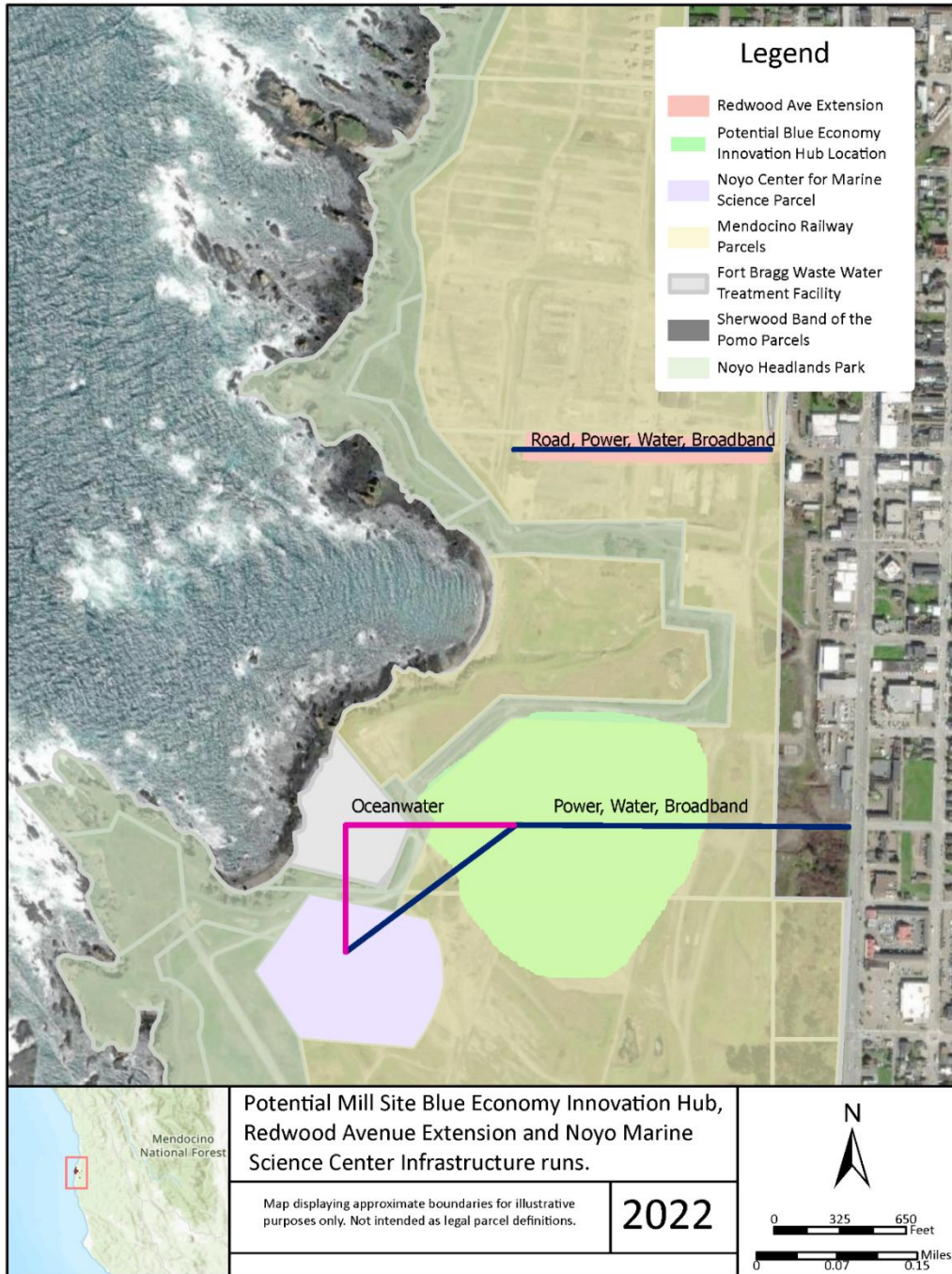


Figure 9. Potential Blue Economy Innovation Hub, Redwood Ave Extension and Noyo Marine Science Center Infrastructure runs.

Infrastructure and Permitting

Key infrastructure and project permitting steps will need to be taken in order to position the Blue Economy Innovation Hub to be most responsive to market opportunities. Key infrastructure would include:

- Site grading and establishing buildable pads (even to support temporary structures);
- Bringing water, sewer, power, and broadband;
- Establishing an ocean water intake/outflow capability.

Along with this infrastructure, permitting the site to provide for rapid (i.e. 3-6 month) timeframes for interested businesses to establish operations would be essential. The State of California, Office of Business and Economic Development (Go-Biz), along with the California Department of Fish & Wildlife provide full-time staff in support of growing the aquaculture industry. Working in coordination with these entities would facilitate project permitting and approvals, and contribute to industry recruitment.

The City of Fort Bragg has retained ASA Analysis and TWB Environmental to develop design concepts and cost estimates for establishing municipal ocean water intake and outflow infrastructure sufficient to bring ~1M gallons per day (gpd) of ocean water onshore for multiple potential uses including: aquariums, aquaculture and desalination. This study is evaluating a range of possible configurations, with rough permitting cost estimates ranging from \$2-\$5M. The ocean water intake and outflow feasibility study is expected to be complete in Q3, 2022 (Appendices C and D).

Workforce

Workforce talent to support the growth of a Blue Economy Innovation Hub would initially be drawn from the fisheries workforce subsisting out of the remaining activity at Noyo Harbor. Job skills training programs would need to be established in partnership with existing industry, new recruits, and education providers active in the region including Mendocino College, and potentially California Sea Grant and University of California and California State Universities. Additionally, supporting K-12 school districts to develop innovative science, technology,

engineering, mathematics (STEM) education will be important training for the next generation of blue economy leaders.

Job Creation

While job creation estimates for the Blue Economy Innovation Hub remain speculative, outreach to existing blue economy incubators in San Diego and the Humboldt Bay indicate a strong market demand for business ready sites. If the City of Fort Bragg is able to establish such a site, the likelihood of attracting new and growing companies within the desired target industries is high. For reference both the Port of San Diego Aquaculture & Blue Technology Program and the NELHA are impacted for space demand.

Ultimately, job creation will vary depending on many internal and external factors. Some of the internal factors that could affect job creation rates include such variables as product selection, business model and capitalization, technology, permitting and startup timeline, workforce and housing availability among others. Externalities such as market demand, climate change, macro-economic trends and other forces will also play a role. With such variables in mind, we estimate job creation potential using simple extrapolation yielding 28 jobs in year 1 following completion and pre-permitting of suitable sites, up to 224 jobs in year 4 after opening (Table 5).

Table 5. Blue Economy Innovation Hub job creation estimates over 4 years.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
DIRECT JOBS	20	40	80	160
INDIRECT JOBS	8	16	32	64
TOTAL PROJECTED JOBS	28	56	112	224

Noyo Center for Marine Science

An integral part of the Blue Economy Innovation Hub will be the Noyo Center for Marine Science. The Fort Bragg community identified a marine science and education center as a high priority to anchor initial Mill Site reuse activities and help generate living wage jobs in the community (Siri et al. 2008). This resulted in developing the Strategic Plan for the Noyo Center, including the following goals:

- Develop the concept of a science center, with a name that would not limit the scope of research and education programs that could utilize the facility.
- Define a mission for the center to take full advantage of regional resources and recognize the region’s fishing, lumber, and Pomo tribal legacies.
- Use the science center to express the goals of moving from extraction to sustainable economies and embody the multi-faceted values of ocean and coastal ecosystems. This approach recognizes the importance of ecosystems as well as sustainable fishery and forestry practices.
- Establish “green” building design principles that reflect the Center’s goals and adhere to state-of-the-art sustainable design criteria

In June 2006, the Fort Bragg City Council authorized funding for the development of a Noyo Center Detailed Project Program, which included among other attributes primary site features to inform infrastructure planning, facility design requirements and initial capital costs (Siri et al. 2008). Recommendations and cost estimates from the Detailed Project Program are utilized for the current economic development feasibility assessment. As previously noted, the City transferred 11.64 acres of former Mill Site property to the Noyo Center for Marine Science for the purpose of developing a marine science facility (Figure 5)

Infrastructure and Permitting

There are multiple potential routes to bring water, sewer, power and broadband to the Noyo Center for Marine Science facility. This study focused on the most direct route linking existing facilities, through the Blue Economy Innovation Hub. Cost estimates obtained for road, curb/gutter, water, sewer, power, lighting and broadband extension from Hwy 1 westward onto the mill site ranged from \$1200 to \$2700/foot (West & Yost 2011, Duran & Venables 2021). These cost estimates are likely lower than current supply chain and inflation driven cost. It is also unknown if a full road surface, curb/gutter infrastructure will be needed. Given these variables, we used \$2500/linear foot to estimate potential infrastructure costs to serve the Blue Economy Innovation Hub and Noyo Ocean Science Center (Table 6).

As of this writing, we are aware the EDA has awarded a \$1M investment to the Noyo Center for Marine Science, for site design, permitting and business planning of a facility on the Noyo Headlands. The expected completion date for this next phase of work is Q2 2024. Outcomes of this work will provide finer grained site design, planning and infrastructure cost estimates, and a business plan for supporting Noyo Center for Marine Science operations and blue economy expansion.

Table 6. Blue Economy Innovation Hub and Noyo Ocean Science Center infrastructure to site cost estimates.

Infrastructure	Linear Distance (ft)	Cost (@\$2500/ft)
Blue Economy Innovation Hub		
Road, water, sewer, power, broadband	1700	\$4.25M
Ocean Water	600	\$1.5M
Total Estimated Cost		\$5.75M
Noyo Center for Marine Science		
Road, water, sewer, power, broadband	1250	\$3.1M
Ocean Water	600	\$1.5M
Total Estimated Cost		\$4.6M

Redwood Avenue Extension.

The extension of Redwood Avenue onto the Mill Site provides an opportunity to connect the Central Business District with the interior of the Mill Site, and produce new job generating uses on prime development sites; creating a business corridor or bridge that would help attract visitors to the coastal bluff while providing an easy connection into downtown for services. In order to capture this opportunity, infrastructure and road improvements would need to be extended approximately 1,700 feet from the existing Lyme Redwood Forest Company property westward along Redwood Avenue for approximately 1,700 linear feet (Figure 10). The backbone infrastructure provided along Redwood Avenue would unlock the bluff properties and offer a new hospitality opportunity to serve the community, as well as provide a new venue for weddings and meetings, thus driving tourism revenue.

Infrastructure

In 2011, West & Yost Associates estimated a cost of \$1,100 per linear foot for 1,790-foot extension (West & Yost 2011). This cost did not include wet utilities (water, sewer and storm) in the estimated \$1,969,000 total project cost. Duran & Venables, Inc. provided a more recent cost estimate that includes all wet and dry utilities, roadbed and manholes (Duran & Venables 2021). Starting from Maple Ave and stretching west along Redwood Avenue for 1,790 linear feet at an estimated cost of \$2,720 per linear foot, or total estimated project cost \$4,868,800.

Hospitality/Conference Center Opportunity Site

By opening approximately 20 acres to visitor services along Redwood Avenue the City has the potential to provide a building envelope of 15 acres that could accommodate a hotel/conference facility of 100 to 200 hotel rooms. Another 5 acres of retail, restaurant and service opportunity space for business along Redwood Avenue that could yield another 54,000 square feet of leasable retail space. 5 acres of land with 25% lot coverage would yield approximately 54,000 of retail space with another 54,000 of office if a 2-story building was well positioned on the land.

Job Creation

Averaging the number of jobs per hotel room and using the industry average of 100 occupied rooms supports approximately 137 direct jobs and another 104 indirect jobs in the community. The City could reasonably expect to generate 241 jobs for 100 rooms, and 480-jobs for a 200 room hotel. For retail if one job is equal to 600 square feet of retail space our 54,000 square foot projection could yield another 90 jobs for a total capacity reaching 250 to 500 total jobs.

Transient Occupancy Tax Revenue

Total revenue potential for hospitality space of 200 room hotel with a daily rack rate of \$250 could yield approximately \$50k per night at 100% occupancy or more realistically approximately \$32.5k per night at 65% occupancy rate. The goal of an event space of 20,000 to 25,000 square feet integrated into the hotel is to attract weddings and events that increase the occupancy rate above 65% and generate overflow at peak summer months to other hospitality properties in town. Transient Occupancy Tax (TOT) of 12% at the 65% occupancy and \$32,500 generated could generate approximately \$700k/year for the City of Fort Bragg.

Sales Tax Revenue

Retail sales per square foot is more easily predictable to estimate in a retail mall environment than it is for a sole proprietor retail business in a seasonal tourist trade area. For the purpose of estimating potential revenue sales tax for the City of Fort Bragg RGS assumed \$350/ft² urban area and RGS selected \$250/ ft² for a seasonal tourist area for retail space. Therefore, a 54,000 ft² retail space could generate \$13.5M in gross annual receipts. Sale tax rate for Fort Bragg is 8.875%, although the city retains 1% of the total due to State, County and Special District taxes. Accordingly, our estimates suggest a reasonable annual sales tax revenue increase of \$13,500.

Feasibility Assessment

Summarizing the outcomes of the feasibility analysis presented here, each of the three contemplated projects are deemed politically feasible based on the engagements in this study and prior community engaged planning activities (Table 7). While each project will require significant infrastructure investment to realize new tax revenue for the City, the Redwood Avenue Extension is the most likely to generate new tax revenue (TOT, sales and property tax increases) in the nearest term. Establishing the Blue Economy Innovation Hub has the potential to generate significant community benefit in the form of new ventures and employment opportunities, which in turn translates in to increased sales tax revenue to the City. The amount of infrastructure investment and time horizon to realize the jobs growth and tax revenue gains deserve further study. The Noyo Center for Marine Science vision has strong community support, and could be a pivotal catalyst in attracting increased tourism, and human capital to the City and region. The business case for its long-term operations, and ability to contribute meaningfully to the economic vibrancy of the Blue Economy Innovation Hub and the City will be part of the recently funded site analysis and business planning grant. We look forward to the findings from that study to further clarify the potential economic impacts of the Noyo Center for Marine Science vision.

Table 7. Former Georgia-Pacific Mill Site, economic diversification feasibility assessment, City of Fort Bragg, 2022.

Project	Political ¹	Economic ²	Technical ³	Projected Cost ⁴	Job Growth Potential ⁵	Notes
Blue Economy Innovation Hub Infrastructure: Ocean Water Intake and Discharge	✔	✔	⚠	\$2-5M (permitting) \$12M-\$30M (infrastructure)	100-200	Costs for permitting and infrastructure. Jobs growth from recruited or established firms. Regulatory uncertainty around ocean water intake and outflow.
Noyo Marine Science Center Infrastructure	✔	⚠	⚠	\$4M-\$8M (infrastructure)	50-100	Anchor project with potential to drive visitation. Dependent on ocean water intake/outflow. Financial sustainability remains uncertain.
Redwood Avenue Extension	✔	✔	✔	\$4-7M	100-200	Projected jobs growth associated with hotel opportunity site and CBD business extension along Redwood Avenue.
✔ = feasible project based on best currently available information			⚠ = uncertain financial viability or solutions to known obstacles not identified			
<p>¹Concept is supported by Fort Bragg City Council and community.</p> <p>²Concept achievable with some public investment, has feasible path to sustainable revenue generation, and desired job creation outcomes.</p> <p>³Technical aspects are well understood with reasonable path to overcome known obstacles.</p> <p>⁴Projected public and/or private sector investment required to implement project.</p> <p>⁵Potential for new job creation within 5-years of project implementation.</p>						

Conclusion/Next Steps/Considerations

RGS Economic Development Advisors, working in partnership with the City of Fort Bragg leadership team, completed an economic diversification feasibility assessment for reuse of the former Mill Site on the western edge of the City. The feasibility assessment builds from years of community engaged planning, including direct engagements on topics of most current interest including the establishment of a Blue Economy Innovation Hub, realization of the Noyo Center for Marine Science vision and the extension of Central Business District (CBD) amenities along Redwood Avenue to coastal headlands. Our assessment suggests the most direct path to realizing new jobs growth and near-term city tax revenue increases would be the extension of the CBD along Redwood Avenue onto the Mill Site. Over the longer term, establishing critical ocean water intake and outflow infrastructure would enable the realization of both the vision for a Blue Economy Innovation Hub, and the Noyo Center for Marine Science. Both of these visions are compelling, and deserve further inquiry. Resolution of current land use and entitlement issues with property owners will also provide for shorter term realization of long-dreamed of economic reuse of the former mill site. Our professional experience, and working alongside the talented city staff over the past year, suggest that continuing momentum on these transformative visions will be the surest way to realize them in the future. With that in mind, we offer the following list of next steps and recommendations to maintain that momentum:

1. Work with Noyo Harbor District to strengthen harbor infrastructure, implement pilot aquaculture project, improve connectivity between the city and harbor, and continue to develop strategies aimed to advance the region's blue economy initiatives.
2. Continue feasibility, design and engineering for ocean water intake and outflow infrastructure
3. Establish MOU with Port of San Diego's Aquaculture & Blue Technology Program.
4. Continue to facilitate regional collaboration with Noyo Ocean Collective, a unique partnership between the City of Fort Bragg, Noyo Harbor District, Sherwood valley band of Pomo, Mendocino College, Noyo Center for Marine Science and West Business Development Center.

5. Collaborate with Noyo Center for Marine Science to advance their mission to *advance ocean conservation through education, exploration and experience*.
6. Continue working towards a collaborative development strategy with Mendocino Railway.
7. Pursue all relevant public and private/philanthropic funding opportunities.
8. Support robust STEM education in K-12 curriculum.
9. Collaborate with multiple partners (Mendocino Council of Governments, Noyo Harbor District, Sherwood Valley Band of Pomo Indians) to resolve circulation issues in north harbor and provide connectivity to coastal trail.
10. Evaluate and plan for infill development in and around CBD

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Economic Overview

City of Fort Bragg, CA



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Demographic Profile

The population in the City of Fort Bragg, CA was 7,298 per American Community Survey data for 2014-2018.

The region has a civilian labor force of 3,375 with a participation rate of 59.0%. Of individuals 25 to 64 in the City of Fort Bragg, CA, 15.1% have a bachelor's degree or higher which compares with 32.9% in the nation.

The median household income in the City of Fort Bragg, CA is \$43,003 and the median house value is \$329,900.

Summary¹

Demographics	Percent			Value		
	City of Fort Bragg, CA	Mendocino County, California	California	City of Fort Bragg, CA	Mendocino County, California	California
Demographics						
Population (ACS)	—	—	—	7,298	87,422	39,148,760
Male	49.6%	49.7%	49.7%	3,623	43,439	19,453,769
Female	50.4%	50.3%	50.3%	3,675	43,983	19,694,991
Median Age ²	—	—	—	39.8	42.8	36.3
Under 18 Years	24.1%	21.6%	23.2%	1,761	18,891	9,073,655
18 to 24 Years	8.8%	7.7%	9.9%	643	6,732	3,856,220
25 to 34 Years	12.2%	11.4%	15.1%	893	9,969	5,904,012
35 to 44 Years	12.3%	11.6%	13.2%	896	10,119	5,185,165
45 to 54 Years	13.6%	12.1%	13.2%	996	10,569	5,155,853
55 to 64 Years	11.7%	15.2%	11.9%	856	13,297	4,658,398
65 to 74 Years	10.3%	13.2%	7.8%	751	11,538	3,061,431
75 Years, and Over	6.9%	7.2%	5.8%	502	6,307	2,254,026
Race: White	80.0%	83.6%	60.1%	5,837	73,121	23,529,068
Race: Black or African American	1.0%	0.6%	5.8%	74	531	2,267,875
Race: American Indian and Alaska Native	1.3%	4.1%	0.8%	92	3,591	296,475
Race: Asian	1.2%	1.9%	14.3%	86	1,689	5,604,339
Race: Native Hawaiian and Other Pacific Islander	0.2%	0.2%	0.4%	13	170	153,366
Race: Some Other Race	11.9%	4.6%	13.8%	866	4,020	5,415,410
Race: Two or More Races	4.5%	4.9%	4.8%	330	4,300	1,882,227
Hispanic or Latino (of any race)	32.2%	24.8%	38.9%	2,350	21,679	15,221,577
Economic						
Labor Force Participation Rate and Size (civilian population 16 years and over) ⁵	59.0%	58.5%	63.4%	3,375	41,549	19,630,514
Prime-Age Labor Force Participation Rate and Size (civilian population 25-54) ⁵	73.5%	76.0%	80.9%	2,025	23,231	13,086,124
Armed Forces Labor Force ⁵	0.5%	0.1%	0.4%	29	87	127,777
Veterans, Age 18-64 ⁵	2.8%	4.6%	3.2%	120	2,329	791,255
Veterans Labor Force Participation Rate and Size, Age 18-64 ⁵	54.2%	69.1%	75.7%	65	1,609	598,956
Median Household Income ^{2,5}	—	—	—	\$43,003	\$49,233	\$71,228
Per Capita Income ⁵	—	—	—	\$22,741	\$27,395	\$35,021
Mean Commute Time (minutes) ⁵	—	—	—	15.9	20.1	29.3
Commute via Public Transportation ⁵	0.8%	0.2%	5.1%	23	90	910,567
Educational Attainment, Age 25-64						
No High School Diploma	18.2%	14.2%	16.3%	664	6,220	3,405,116
High School Graduate	37.1%	28.0%	20.4%	1,349	12,295	4,273,011
Some College, No Degree	23.2%	29.1%	21.5%	844	12,808	4,494,430
Associate's Degree	6.5%	8.3%	7.9%	236	3,636	1,653,184
Bachelor's Degree	10.7%	14.8%	21.6%	389	6,510	4,518,374
Postgraduate Degree	4.4%	5.7%	12.2%	159	2,485	2,559,313
Housing						

Summary¹

	Percent			Value		
	City of Fort Bragg, CA	Mendocino County, California	California	City of Fort Bragg, CA	Mendocino County, California	California
Total Housing Units	—	—	—	3,178	40,909	14,084,824
Median House Value (of owner-occupied units) ²	—	—	—	\$329,900	\$356,800	\$475,900
Homeowner Vacancy	0.0%	1.2%	1.2%	0	253	83,128
Rental Vacancy	1.6%	2.1%	3.5%	28	301	217,600
Renter-Occupied Housing Units (% of Occupied Units)	61.9%	40.8%	45.4%	1,719	13,917	5,880,000
Occupied Housing Units with No Vehicle Available (% of Occupied Units) ⁵	11.9%	6.3%	7.2%	329	2,138	939,034
Social						
Poverty Level (of all people) ⁵	20.7%	18.5%	14.3%	1,490	15,877	5,487,141
Households Receiving Food Stamps/SNAP	14.0%	11.5%	9.1%	388	3,905	1,184,714
Enrolled in Grade 12 (% of total population)	0.5%	1.8%	1.5%	34	1,562	606,324
Disconnected Youth ^{3,5}	0.0%	5.3%	2.0%	0	238	41,030
Children in Single Parent Families (% of all children) ⁵	57.1%	41.7%	33.2%	966	7,336	2,872,646
Uninsured	10.6%	9.3%	8.5%	766	8,065	3,280,167
With a Disability, Age 18-64 ⁵	19.8%	14.8%	8.1%	840	7,408	1,971,981
With a Disability, Age 18-64, Labor Force Participation Rate and Size ⁵	42.6%	41.7%	41.2%	358	3,092	811,916
Foreign Born	18.6%	13.0%	26.9%	1,357	11,322	10,537,529
Speak English Less Than Very Well (population 5 yrs and over)	15.9%	9.3%	18.1%	1,088	7,679	6,621,028

Source: [JobsEQ®](http://www.jobseq.com)

1. American Community Survey 2014-2018, unless noted otherwise

2. Median values for certain aggregate regions (such as MSAs) may be estimated as the weighted averages of the median values from the composing counties.

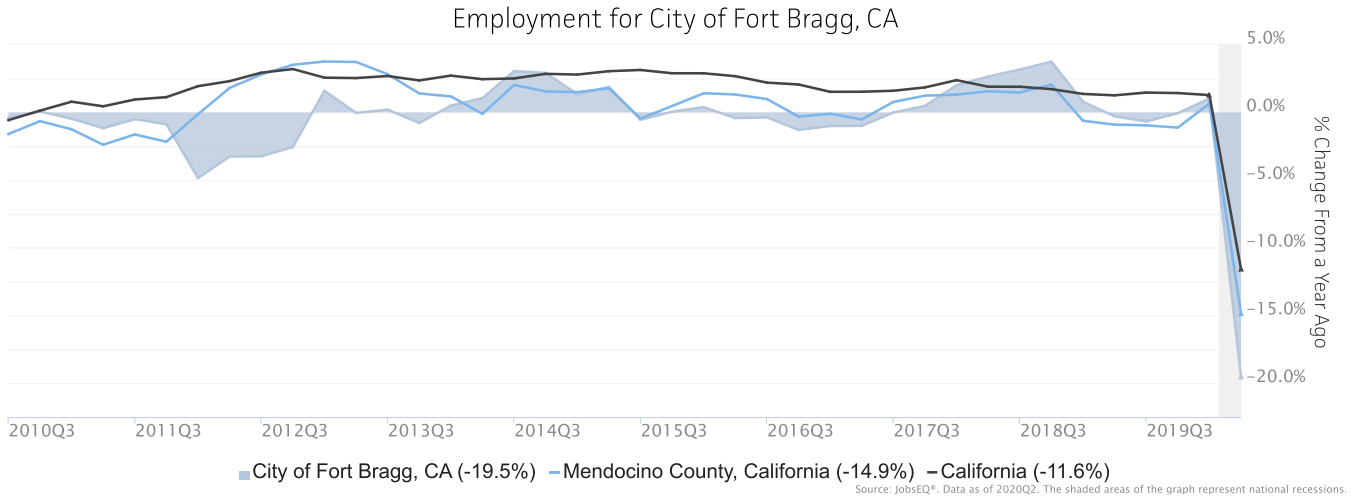
3. Disconnected Youth are 16-19 year olds who are (1) not in school, (2) not high school graduates, and (3) either unemployed or not in the labor force.

4. Census 2019, annual average growth rate since 2009

5. See Rio Arriba errata note in the Data Dictionary.

Employment Trends

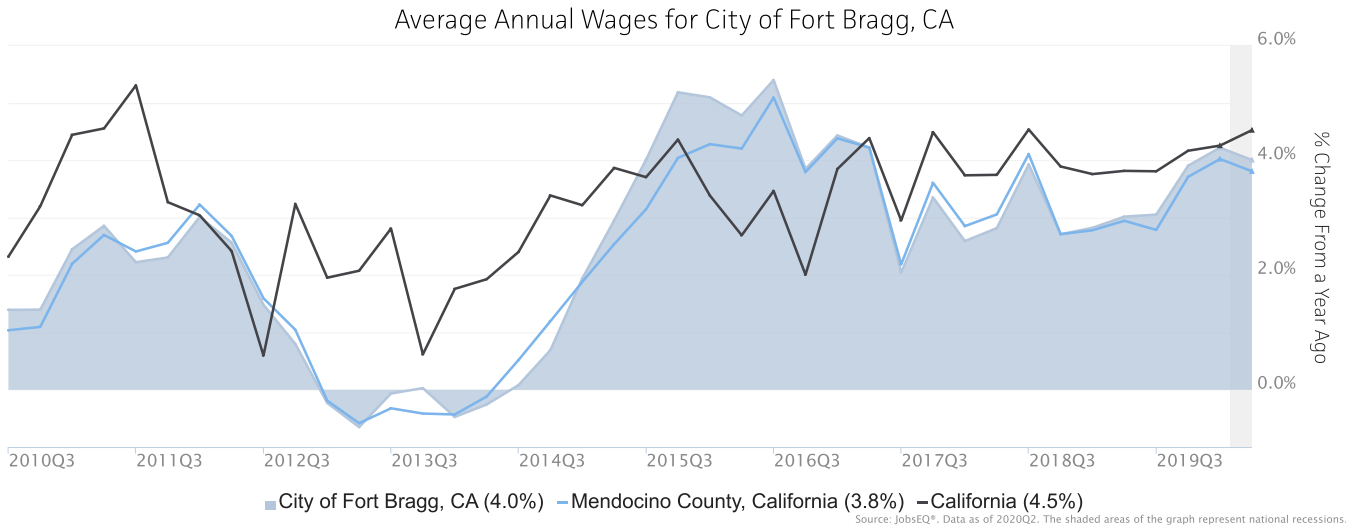
As of 2020Q2, total employment for the City of Fort Bragg, CA was 4,175 (based on a four-quarter moving average). Over the year ending 2020Q2, employment declined 19.5% in the region.



Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2019Q4 with preliminary estimates updated to 2020Q2.

Wage Trends

The average worker in the City of Fort Bragg, CA earned annual wages of \$41,863 as of 2020Q2. Average annual wages per worker increased 4.0% in the region over the preceding four quarters. For comparison purposes, annual average wages were \$58,849 in the nation as of 2020Q2.



Annual average wages per worker data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2019Q4 with preliminary estimates updated to 2020Q2.

Cost of Living Index

The Cost of Living Index estimates the relative price levels for consumer goods and services. When applied to wages and salaries, the result is a measure of relative purchasing power. The cost of living is 19.1% higher in City of Fort Bragg, CA than the U.S. average.

Cost of Living Information

	Annual Average Salary	Cost of Living Index (Base US)	US Purchasing Power
City of Fort Bragg, CA	\$41,863	119.1	\$35,155
Mendocino County, California	\$41,557	119.1	\$34,898
California	\$71,351	144.1	\$49,502
USA	\$58,849	100.0	\$58,849

Source: [JobsEQ®](#)

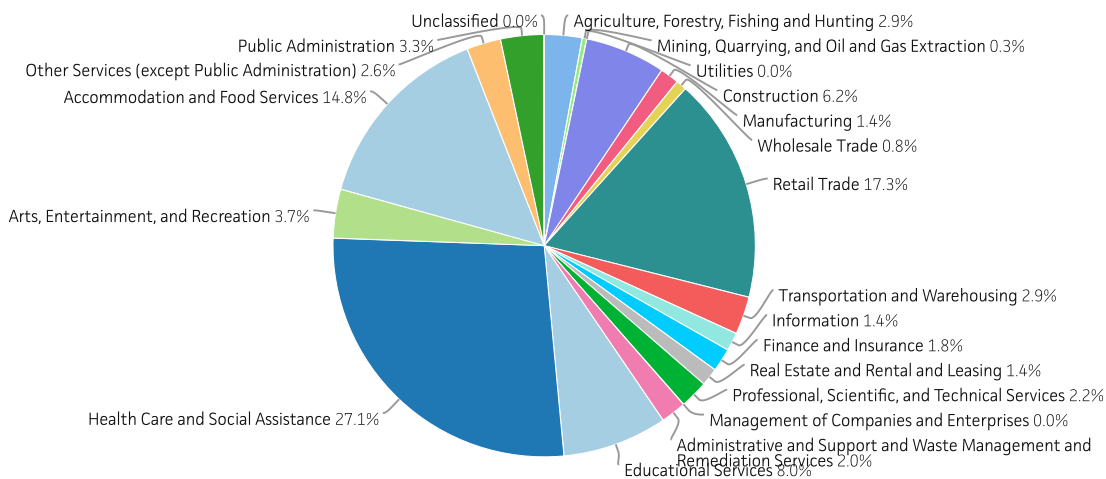
Data as of 2020Q2

Cost of Living per C2ER, data as of 2020q1, imputed by Chmura where necessary.

Industry Snapshot

The largest sector in the City of Fort Bragg, CA is Health Care and Social Assistance, employing 1,131 workers. The next-largest sectors in the region are Retail Trade (721 workers) and Accommodation and Food Services (616). High location quotients (LQs) indicate sectors in which a region has high concentrations of employment compared to the national average. The sectors with the largest LQs in the region are Agriculture, Forestry, Fishing and Hunting (LQ = 2.14), Arts, Entertainment, and Recreation (2.00), and Health Care and Social Assistance (1.86).

Total Workers for City of Fort Bragg, CA by Industry



Source: JobsEQ®, Data as of 2020Q2

Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2019Q4 with preliminary estimates updated to 2020Q2.

Sectors in the City of Fort Bragg, CA with the highest average wages per worker are Mining, Quarrying, and Oil and Gas Extraction (\$66,266), Public Administration (\$56,924), and Finance and Insurance (\$55,691). Regional sectors with the best job growth (or most moderate job losses) over the last 5 years are Health Care and Social Assistance (+90 jobs), Educational Services (+33), and Construction (+25).

Over the next 5 years, employment in the City of Fort Bragg, CA is projected to contract by 41 jobs. The fastest growing sector in the region is expected to be Health Care and Social Assistance with a +1.0% year-over-year rate of growth. The strongest forecast by number of jobs over this period is expected for Health Care and Social Assistance (+58 jobs), Construction (0), and Mining, Quarrying, and Oil and Gas Extraction (0).

NAICS	Industry	Empl	Current	5-Year History			5-Year Forecast				
			Avg Ann Wages	LQ	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
62	Health Care and Social Assistance	1,131	\$47,334	1.86	90	1.7%	603	268	277	58	1.0%
44	Retail Trade	721	\$35,351	1.69	-27	-0.7%	425	206	261	-42	-1.2%
72	Accommodation and Food Services	616	\$22,886	1.76	-126	-3.6%	490	219	276	-5	-0.2%
61	Educational Services	334	\$43,961	0.97	33	2.1%	142	73	79	-10	-0.6%
23	Construction	257	\$45,471	1.06	25	2.0%	126	45	81	0	0.0%
71	Arts, Entertainment, and Recreation	156	\$24,443	2.00	-9	-1.1%	100	48	59	-7	-0.9%
92	Public Administration	139	\$56,924	0.69	22	3.5%	56	26	36	-6	-0.9%
11	Agriculture, Forestry, Fishing and Hunting	121	\$39,513	2.14	-79	-9.6%	57	27	37	-6	-1.0%
48	Transportation and Warehousing	121	\$44,869	0.62	-8	-1.2%	63	27	37	-1	-0.2%
81	Other Services (except Public Administration)	109	\$29,004	0.59	-37	-5.7%	57	28	33	-4	-0.7%
54	Professional, Scientific, and Technical Services	91	\$46,263	0.32	13	3.0%	37	14	24	-2	-0.3%
56	Administrative and Support and Waste Management and Remediation Services	82	\$43,010	0.31	4	1.1%	43	20	27	-3	-0.7%
52	Finance and Insurance	74	\$55,691	0.43	-9	-2.2%	30	13	21	-4	-1.0%
31	Manufacturing	60	\$50,958	0.18	3	0.9%	26	11	19	-4	-1.4%
51	Information	59	\$41,929	0.71	-16	-4.7%	21	10	17	-6	-2.0%
53	Real Estate and Rental and Leasing	56	\$39,916	0.77	7	2.5%	27	13	15	-1	-0.5%
42	Wholesale Trade	34	\$50,796	0.21	2	1.0%	15	6	11	-2	-1.3%
21	Mining, Quarrying, and Oil and Gas Extraction	14	\$66,266	0.82	7	13.8%	7	2	5	0	0.2%
22	Utilities	0	n/a	0.00	-2	n/a	0	0	0	0	-0.8%
55	Management of Companies and Enterprises	0	n/a	0.00	-1	n/a	0	0	0	0	-0.5%
99	Unclassified	0	n/a	0.00	-15	n/a	0	0	0	0	-0.3%
Total - All Industries		4,175	\$41,863	1.00	-124	-0.6%	2,220	967	1,295	-41	-0.2%

Source: [JobsEQ®](http://www.chmuraecon.com/jobseq)

Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2019Q4 with preliminary estimates updated to 2020Q2. Forecast employment growth uses national projections adapted for regional growth patterns.

Occupation Snapshot

The largest major occupation group in the City of Fort Bragg, CA is Food Preparation and Serving Related Occupations, employing 511 workers. The next-largest occupation groups in the region are Sales and Related Occupations (472 workers) and Healthcare Practitioners and Technical Occupations (418). High location quotients (LQs) indicate occupation groups in which a region has high concentrations of employment compared to the national average. The major groups with the largest LQs in the region are Farming, Fishing, and Forestry Occupations (LQ = 2.12), Healthcare Practitioners and Technical Occupations (1.74), and Community and Social Service Occupations (1.71).

Occupation groups in the City of Fort Bragg, CA with the highest average wages per worker are Legal Occupations (\$95,100), Healthcare Practitioners and Technical Occupations (\$94,500), and Management Occupations (\$86,300). The unemployment rate in the region varied among the major groups from 1.3% among Healthcare Practitioners and Technical Occupations to 7.9% among Personal Care and Service Occupations.

Over the next 5 years, the fastest growing occupation group in the City of Fort Bragg, CA is expected to be Healthcare Support Occupations with a +2.1% year-over-year rate of growth. The strongest forecast by number of jobs over this period is expected for Healthcare Support Occupations (+33 jobs) and Community and Social Service Occupations (+9). Over the same period, the highest separation demand (occupation demand due to retirements and workers moving from one occupation to another) is expected in Food Preparation and Serving Related Occupations (437 jobs) and Sales and Related Occupations (339).

City of Fort Bragg, CA, 2020Q2¹

SOC	Occupation	Empl	Mean Ann Wages ²	Current			5-Year History			5-Year Forecast				
				LQ	Unempl	Unempl Rate	Online Job Ads	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
35-0000	Food Preparation and Serving Related	511	\$29,900	1.52	33	7.2%	n/a	-108	-3.7%	435	175	262	-1	0.0%
41-0000	Sales and Related	472	\$39,000	1.17	16	4.9%	n/a	-15	-0.6%	313	141	198	-26	-1.1%
29-0000	Healthcare Practitioners and Technical	418	\$94,500	1.74	3	1.3%	n/a	12	0.6%	125	56	62	6	0.3%
43-0000	Office and Administrative Support	417	\$41,600	0.78	9	3.4%	n/a	-15	-0.7%	215	98	137	-20	-1.0%
31-0000	Healthcare Support	309	\$32,000	1.68	6	3.1%	n/a	25	1.7%	246	105	108	33	2.1%
53-0000	Transportation and Material Moving	285	\$37,700	0.82	12	5.5%	n/a	-8	-0.6%	159	67	107	-15	-1.1%
11-0000	Management	263	\$86,300	0.97	3	1.6%	n/a	-24	-1.7%	109	36	74	-1	-0.1%
25-0000	Educational Instruction and Library	263	\$60,500	1.11	6	3.8%	n/a	27	2.2%	113	55	63	-5	-0.4%
47-0000	Construction and Extraction	190	\$56,100	0.98	13	6.6%	n/a	23	2.7%	103	30	73	0	0.0%
37-0000	Building and Grounds Cleaning and Maintenance	155	\$35,300	1.10	8	4.9%	n/a	-18	-2.1%	93	44	55	-5	-0.7%
39-0000	Personal Care and Service	141	\$33,700	1.24	8	7.9%	n/a	-15	-2.0%	110	48	63	-1	-0.1%
13-0000	Business and Financial Operations	137	\$61,500	0.59	1	2.0%	n/a	9	1.3%	63	19	46	-1	-0.2%
21-0000	Community and Social Service	124	\$51,500	1.71	1	1.7%	n/a	31	6.0%	78	22	47	9	1.4%
49-0000	Installation, Maintenance, and Repair	107	\$46,700	0.67	3	3.2%	n/a	-10	-1.8%	48	17	35	-3	-0.7%
51-0000	Production	86	\$41,900	0.35	5	4.6%	n/a	-8	-1.8%	45	18	31	-5	-1.1%
27-0000	Arts, Design, Entertainment, Sports, and Media	79	\$54,500	1.05	1	5.7%	n/a	-5	-1.2%	38	15	26	-4	-0.9%

City of Fort Bragg, CA, 2020Q2¹

SOC	Occupation	Empl	Mean Ann Wages ²	Current			5-Year History			5-Year Forecast				
				LQ	Unempl	Unempl Rate	Online Job Ads	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
45-0000	Farming, Fishing, and Forestry	57	\$37,700	2.12	5	6.3%	n/a	-38	-9.7%	41	11	33	-3	-1.1%
33-0000	Protective Service	56	\$63,500	0.61	1	2.3%	n/a	5	2.0%	31	15	18	-2	-0.8%
15-0000	Computer and Mathematical	39	\$69,500	0.30	0	n/a	n/a	1	0.3%	14	3	11	0	-0.3%
19-0000	Life, Physical, and Social Science	26	\$81,200	0.71	0	n/a	n/a	1	0.7%	11	3	9	0	-0.1%
17-0000	Architecture and Engineering	21	\$85,800	0.30	0	n/a	n/a	6	6.9%	8	3	6	-1	-0.5%
23-0000	Legal	19	\$95,100	0.54	0	n/a	n/a	1	0.7%	5	2	4	0	-0.4%
Total - All Occupations		4,175	\$49,800	1.00	135	4.5%	n/a	-124	-0.6%	2,408	981	1,468	-41	-0.2%

Source: [JobsEQ®](#)

Data as of 2020Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

1. Data based on a four-quarter moving average unless noted otherwise.

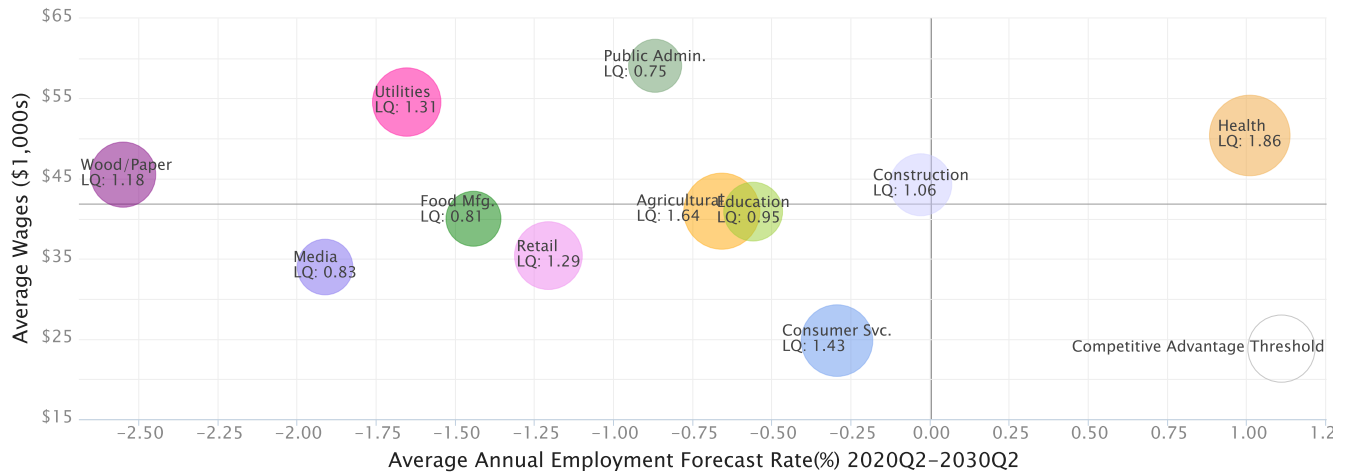
2. Wage data are as of 2019 and represent the average for all Covered Employment

Occupation employment data are estimated via industry employment data and the estimated industry/occupation mix. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2019Q4, imputed where necessary with preliminary estimates updated to 2020Q2. Wages by occupation are as of 2019 provided by the BLS and imputed where necessary. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

Industry Clusters

A cluster is a geographic concentration of interrelated industries or occupations. The industry cluster in the City of Fort Bragg, CA with the highest relative concentration is Health with a location quotient of 1.86. This cluster employs 1,131 workers in the region with an average wage of \$50,388. Employment in the Health cluster is projected to expand in the region about 1.0% per year over the next ten years.

Industry Clusters for City of Fort Bragg, CA as of 2020Q2



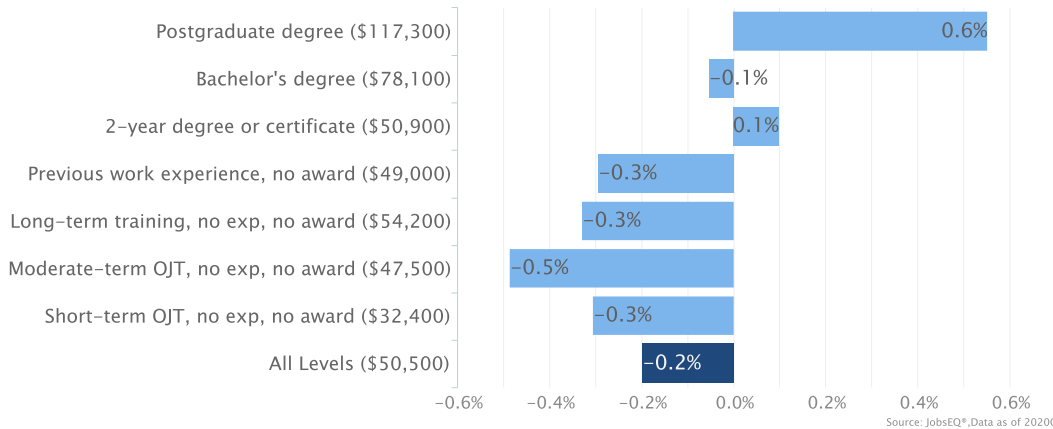
Source: JobsEQ®, Data as of 2020Q2

Location quotient and average wage data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics, imputed where necessary, and updated through 2019Q4 with preliminary estimates updated to 2020Q2. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

Education Levels

Expected growth rates for occupations vary by the education and training required. While all employment in the City of Fort Bragg, CA is projected to contract 0.2% over the next ten years, occupations typically requiring a postgraduate degree are expected to grow 0.6% per year, those requiring a bachelor’s degree are forecast to contract 0.1% per year, and occupations typically needing a 2-year degree or certificate are expected to grow 0.1% per year.

Annual Average Projected Job Growth by Training Required for City of Fort Bragg, CA



Employment by occupation data are estimates are as of 2020Q2. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

FAQ

What is a location quotient?

A location quotient (LQ) is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is separation demand?

Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. The total projected demand for an occupation is the sum of the separation demand and the growth demand (which is the increase or decrease of jobs in an occupation expected due to expansion or contraction of the overall number of jobs in that occupation).

What is a cluster?

A cluster is a geographic concentration of interrelated industries or occupations. If a regional cluster has a location quotient of 1.25 or greater, the region is considered to possess a competitive advantage in that cluster.

What is the difference between industry wages and occupation wages?

Industry wages and occupation wages are estimated via separate data sets, often the time periods being reported do not align, and wages are defined slightly differently in the two systems (for example, certain bonuses are included in the industry wages but not the occupation wages). It is therefore common that estimates of the average industry wages and average occupation wages in a region do not match exactly.

What is NAICS?

The North American Industry Classification System (NAICS) is used to classify business establishments according to the type of economic activity. The NAICS Code comprises six levels, from the “all industry” level to the 6-digit level. The first two digits define the top level category, known as the “sector,” which is the level examined in this report.

What is SOC?

The Standard Occupational Classification system (SOC) is used to classify workers into occupational categories. All workers are classified into one of over 804 occupations according to their occupational definition. To facilitate classification, occupations are combined to form 22 major groups, 95 minor groups, and 452 occupation groups. Each occupation group includes detailed occupations requiring similar job duties, skills, education, or experience.

About This Report

This report and all data herein were produced by JobsEQ®, a product of Chmura Economics & Analytics. The information contained herein was obtained from sources we believe to be reliable. However, we cannot guarantee its accuracy and completeness.

FORT BRAGG & THE BLUE ECONOMY

MEETING AGENDA FRIDAY, MAY 21, 2021

AGENDA OVERVIEW

10:00 am Mendocino Coast College, 1211 Del Mar Drive

12:00 pm Mill Site South, Cypress Street

12:30 pm Town Hall, 363 N Main St.

3:00 pm Thanksgiving Coffee, 19100 S. Harbor Drive

The US Department of Commerce's Economic Development Agency invested CARES Act funding to help the City of Fort Bragg develop a strategy for economic diversification. Over the past several weeks, City staff has been working with an economic development consultant team to better understand the assets, opportunities and strengths of our region, in order to identify strategic investments that could support the long term economic prosperity of our community.

One of the most exciting areas of opportunity is within an emerging "Blue Economy" industry. This innovative sector encompasses a broad range of activities related to climate change, fisheries, renewable energy, transport and tourism; it is about sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and nurturing a healthy marine ecosystem.

The objective of today's meeting is to make stakeholder introductions, to learn from and about one another, and to discuss collaborating on an initial project - a Blue Economy Symposium. The symposium is tentatively scheduled for October as an opportunity to work together to refine ideas and share with the community.

Attendees

CITY OF FORT BRAGG

Tabatha Miller, City Manager

John Smith, Public Works Director

Sarah McCormick, Housing & ED

Economic Development Ad-Hoc:

Jessica Morsell-Haye, Vice Mayor

Jeremy Logan, Planning Chair

Jay Andreis, Planning Vice Chair

Regional Government Services Team:

Joshua Metz, Economic Development

David Spaur, Economic Development

SHERWOOD VALLEY BAND OF POMO

Melanie Rafanan, Tribal Chair

Tina Sutherland, THPO

NOYO HARBOR DISTRICT

Jim Hurst, Chairman

Richard Shoemaker, Commissioner

Michelle Norvell, Commissioner

Tomessa DeVita, Office Personnel

STAKEHOLDERS AND INFLUENCERS

Joe Caito, Caito Fisheries

Scott Hockett, Noyo Fish Company

Robert Juntz, Ocean Fresh LLC

Paul Katzeff, Thanksgiving Coffee

NOYO CENTER FOR MARINE SCIENCE

Dave Turner, Board President

Sheila Semans, Executive Director

MENDOCINO COMMUNITY COLLEGE

COAST CENTER

Amanda Xu, Dean of Centers

Katherine Brown, Coast Center

URCHINOMICS

Brian Tsuyoshi Takeda, Founder/CEO

Harry Rappaport, Finance & Strategy

Peter Struffenegger, Operations

Denise MacDonald, Marketing

PRESENTERS

Paula Sylvia, Port of San Diego

Larry Oetker, Humboldt Bay Harbor

AGENDA DETAIL

10:00 am Mendocino Coast College, 1211 Del Mar Drive

- 10:00 to 10:10 Check-In
- 10:10 to 10:20 Introductory Comments by Sarah McCormick
- 10:20 to 10:30 Welcome from Amanda Xu, Dean of Centers
- 10:30 to 11:25 Attendee Introductions
- 11:25 to 11:45 Blue Economy Symposium Collaboration

11:45 pm Mill Site South Tour

12:30 pm Fort Bragg Town Hall, 363 N Main Street

- 12:30 Lunch Provided
- 1:00 to 1:05 Tabatha Miller, City Manager
- 1:05 to 1:15 Sarah McCormick, Housing & Economic Development Coordinator
- 1:15 to 1:35 Larry Oetker, Humboldt Bay Harboe, Recreation, and Conservation District
- 1:40 to 2:10 Paula Sylvia, Port of San Diego's Aquaculture & Blue Technology
- 2:10 to 2:40 Brian Tsuyoshi Takeda, Founder Urchinomics Presentation
- 2:40 to 3:00 Noyo Center for Marine Science Presentation

3:00 pm Thanksgiving Coffee, 19100 S. Harbor Drive

- 3:00 to 4:00 Coffee and Sweets (Thank you, Thanksgiving Coffee!)
- 4:00 to 5:00 South Harbor Walking Tour

Collaboration is rarely easy, nor does it follow a straight line. It will take the leadership of all involved to generate goodwill, approach problems with creativity and help develop an individual sense of co-ownership. We all bring different skill sets, expertise and perspectives to the table – and we will need all of us, including all of our resources to cultivate a robust blue economy in Fort Bragg. Thank you to all for participating.

Please contact Sarah McCormick, Housing & Economic Development, City of Fort Bragg for further detail or inquiries.

email: smccormick@fortbragg.com desk: 707-961-2827 x113 cell: 415-933-1165

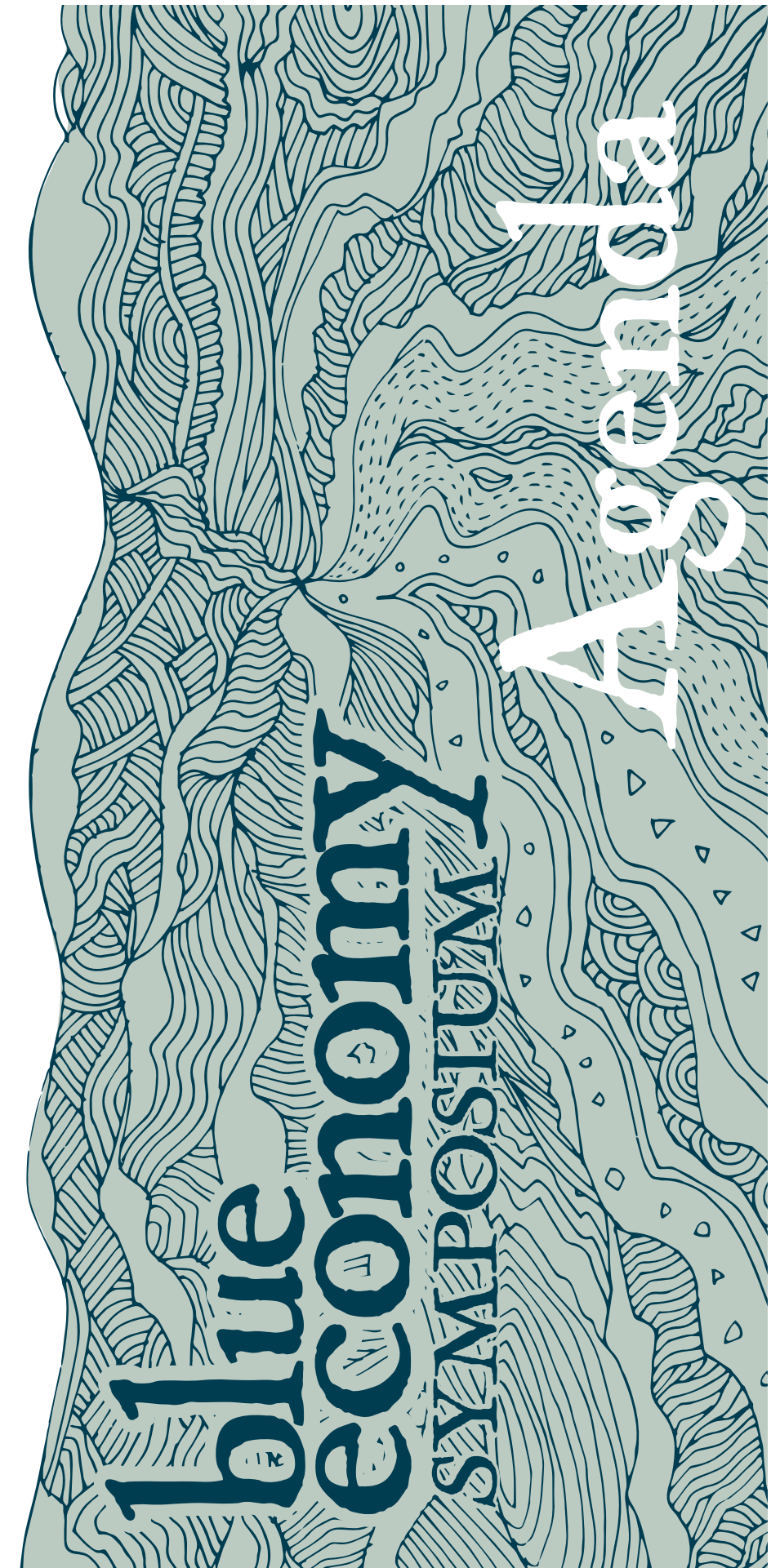
The Blue Economy Symposium is a collaboration between the City of Fort Bragg and California Sea Grant focusing on exploring the needs and potential for developing a resilient and vibrant blue economy in and around Fort Bragg. This symposium will bring together local, state and federal agencies to develop pathways forward for the community.

The first day of the symposium will focus on city and harbor infrastructure needs, discussions with commercial/ recreational fishers and associated businesses about sustainable fishing economies, then followed by education, entrepreneurship and job force training considerations.

The second day will explore the potential of developing an aquaculture park in the region. Speakers will present information on different aspects of current and potential aquaculture activities elsewhere in California that are restorative and/or commercial in nature.

It is said that “a rising tide lifts all boats”... thank you for participating in this important conversation.

SPECIAL THANKS TO
CALIFORNIA SEA GRANT FOR
THEIR GENEROUS SUPPORT



THURSDAY, MAY 19TH

12:30 pm – 1:00 pm

COFFEE & CONVERSATION

Donated by: Paul & Joan Katzeff, Thanksgiving Coffee

1:00 pm – 1:45 pm - OPENING

- Tribal Blessing: Sherwood Valley Band of Pomo
 - Welcoming Remarks: Jessica Morsell-Haye, City of Fort Bragg
 - Keynote: Paula Sylvia, Port of San Diego
-

1:45 pm – 2:45 pm - INFRASTRUCTURE

Facilitated by: Sarah McCormick, City of Fort Bragg

- Noyo Ocean Collective: Sarah McCormick
 - Municipal Ocean Water Infrastructure: Radhika deSilva & Tim Hogan
 - Noyo Harbor District: Anna Neumann, Harbormaster
-

2:45 pm – 3:00 pm - BREAK

3:00 PM – 4:15 PM - FORT BRAGG FISHERIES

AND THE BLUE ECONOMY

Facilitated by: Carrie Pomeroy, UC Santa Cruz

& Jocelyn Enevoldsen, Cal Poly Humboldt

Panel discussion with local commercial and recreational fisheries entrepreneurs about key features of Fort Bragg fisheries, the state of the working waterfront, their visions for a vibrant local blue economy, and potential synergies with others for achieving them.

- Joe Caito, Caito Fisheries
- Bob Juntz, Ocean Fresh Seafood
- Scott Hockett, Commercial Fisherman & Noyo Fish Company
- Dan Platt, Commercial Fisherman & Noyo Harbor Tours
- Michelle Norvell, Groundfish Conservation Trust

- Grant Downie, Commercial Fisherman
 - Sean Thornton, Telstar Charters
 - Kevin Browning, Ambush Charters
 - Heather Sears, Commercial Fisherman & Princess Seafood
-

4:15 pm – 5:30 pm - EDUCATION, ENTREPRENEURSHIP & JOB FORCE TRAINING

Facilitated by: Sheila Semans, Noyo Center for Marine Science

- Noyo Center for Marine Science: Sheila Semans, Executive Director
 - West Business Development Center: Mary Anne Petrillo, Executive Director
 - CA Sea Grant Job Force Training: Shauna Oh, Director
 - Mendocino College Coast Center: Tim Karas, President
-

FRIDAY, MAY 20TH

10:00am – 10:30am - COFFEE & CONVERSATION

Donated by: Paul & Jan Katzeff, Thanksgiving Coffee

10:30am – 11:15am - OPENING

Facilitated by Sarah McCormick, City of Fort Bragg

- Welcoming Remarks: Bernie Norvell, City of Fort Bragg and Melanie Rafanan, Sherwood Valley Band of Pomo
 - Keynote Speaker: CA State Controller Betty Yee
-

11:15am – 12:00pm - AQUACULTURE

Facilitated by Luke Gardner, CA Sea Grant

- California Aquaculture 101: Randy Lovell, CDFW
 - Aquaculture Parks & Incubators: Gregory Barbour, Hawaii Ocean Science & Technology Park
 - Indigenous Aquaculture: Severino Gomes, Kashia Band of Pomo
-

12:00pm – 1:00pm - LUNCH

Provided by: The City of Fort Bragg & CA Sea Grant

1:00PM - 1:20PM - AFTERNOON REMARKS

Facilitated by Mayor Bernie Norvell, City Of Fort Bragg

- Keynote Speaker: US Congressman Jared Huffman

1:30pm – 2:30pm CONSERVATION AQUACULTURE

Facilitated by Kevin Johnson, CA Sea Grant

- Kelp: Gina Contolini, CA Sea Grant
 - Sunflower Sea Star Restoration: Norah Eddy, The Nature Conservancy
 - White Abalone: Kristin Aquilino, CA Sea Grant
 - Olympia Oysters: Gary Fleener, Hog Island Oyster Farming
-

2:30 pm – 2:45 pm - BREAK

2:45pm – 3:45pm - COMMERCIAL AQUACULTURE

Facilitated by Luke Gardner, CA Sea Grant

- Monterey Bay Seaweeds: Dan Gossard
 - Sunken Seaweeds: Torre Polizzi and Leslie Booher
 - The Cultured Abalone Farm: Doug Bush
 - Urchinomics: Peter Struffenegger
-

3:45pm – 6:00pm - RECEPTION

Stroll through local history at the Guest House Museum, dive underwater without getting wet in the Noyo Center's 360 geodesic dome and view their extraordinary Orca exhibit – then wander up the block to catch a glimpse of the magic that is Art Explorer's.

- Guest House Museum: Showcasing California aquaculture products exquisitely prepared by KW Saltwater – abalone, oysters, urchin and seaweeds
- Noyo Center for Marine Science Discovery Center: Local North Coast Brewing Company offerings
- Art Explorer's: Marine themed art reception with prints, collages, paintings and ceramics, alongside sweet treats made by A Sweet Affair

blue economy

SYMPOSIUM & LEARNING FESTIVAL

The Blue Economy Learning Festival

Join top researchers, educators, purveyors, guides and fishers to immerse yourself in a multitude of ocean-related enterprises at the core of a sustainable economic future on the Mendocino Coast.

SATURDAY, MAY 21

FREE SHUTTLE

Ditch your car and hop on MTA shuttle.
Sponsor: Mendocino Transit Authority

COAST GUARD 47- MOTOR LIFEBOAT

The U.S. Coast Guard is one of our nation's six military services. The Station at Noyo River is a multi-mission surf station, with an emphasis on search and rescue, law enforcement, and environmental protection. Step on board one of their lifeboats and meet the men and women who serve on it.

- Time: 9:00 AM – Noon
- Meet: South Harbor
- Sponsor: US Coast Guard

ART EXPLORERS OPENING RECEPTION, "THE OCEAN IS LIFE"

Art Explorer's is a creative arts program primarily serving adults with developmental disabilities, and committed to "provide a fun, nurturing, non-judgmental and artistically stimulating environment for creativity to thrive." Their space at 333 N Franklin Street is magical and a must experience for all.

- Time: 9:00 AM – 3:00 PM
- Meet: Art Explorers, 333 N. Franklin St.
- Sponsor: Art Explorers

ABALONE & COFFEE AT THE SLACKTIDE CAFE

Come visit Noyo Center's newly acquired facility in Noyo Harbor and learn about our plans for Blue Economy research. Enjoy a cup of coffee and pastries on our deck during a brief presentation on our plans, including an abalone broodstock program.

- Time: 9:00 AM – Noon, Presentation at 10AM
- Meet: Slacktide Cafe, 32430 N. Harbor Drive, Noyo Harbor
- Sponsor: Noyo Center for Marine Science

HARE CREEK BEACH STEWARDSHIP

Stewardship is open to all ages and experience levels. Stop by to pull invasive plant species, maintain the trail, and take in the beautiful scenery.

- Time: 10:00 AM to Noon
- Meet: Hare Creek Beach (park @ Mendocino College Coast Center)
- Sponsor: Mendocino Land Trust

NOYO HARBOR FISH MARKET

Come down to the South Harbor! The fishing fleet will be selling their catches right off their boats, with a host of local vendors selling wares in Grader Park. Live music, too!

- Time: 10:00 AM – 2:00 PM
- Meet: South Harbor Grader Park
- Sponsor: Noyo Harbor District

CYCLE COASTAL TRAIL TO TEN MILE

Join the SOB's Seniors on Bikes on one of their daily rides, along the Noyo Headlands Trail and MacKerricher State Park Haul Road. Special stops along the way highlight Learning Festival activities.

- Time: 10:00 AM
- Meet: Skunk Train Parking Lot
- Sponsor: SOB, Seniors On Bikes Club

CROW'S NEST INTERPRETIVE CENTER: WHALES, WATER & WILDFLOWERS

Walk the beautiful coastal trail, look for whales as you enjoy the season's wildflowers in bloom, and end up at the Crow's Nest, Noyo Center's foothold on the ocean. See our touch tank aquarium, sea lion skeletons and natural history exhibits.

- Time: 10:00 AM – 4:00 PM
- Meet: Crow's Nest Interpretive Center: End of Jere Melo Way (Cypress Street runway)
- Sponsor: Noyo Center for Marine Science

BLUE ZONE PROJECT - COASTAL MENDOCINO COUNTY KICK-OFF EVENT

Discover how to get involved in transforming Mendocino County into a community where healthy choices are easier for everyone! Learn how Blue Zone principles can lead to a longer, better life! Stop by and enjoy free family-friendly activities, giveaways and prizes.

- Time: 11:00 AM – 3:00 PM
- Meet: Cypress Street Meadow
- Sponsor: Adventist Health

COAST CENTER MENDOCINO COLLAGE OPEN HOUSE & SPECIMEN EXHIBIT

The doors of Mendocino College's Coast Center are open to all. Come walk the hallways, peek into classrooms, familiarize yourself with their specimen collection and peer through microscopes.

- Time: 11:00 AM – 3:00 PM
- Meet: Mendocino College
- Sponsor: Mendocino Lake Community College

BORROW-A-BUDDY

We love our four-legged friends! Take a shelter dog on a fun local field trip. You'll have a loving buddy for the day and if you hit it off... possibly longer! Learn more from the Mendocino Coast Humane Society at Adventist's Blue Zone Celebration.

- Time: 11:00 AM – 3:00 PM
- Meet: Cypress Street Meadow, Noyo Headlands Park
- Sponsor: Humane Society

DISCOVERY CENTER - KELP EXHIBIT

Come see Noyo Center's beautiful kelp exhibit and view underwater video footage of our nearshore habitats in the Discovery Center's 360-degree geodesic Ocean Immersion Dome.

- Time: 11:00 AM – 5:00 PM
- Meet: Noyo Center for Marine Science – 338 N. Main
- Sponsor: Noyo Center for Marine Science

ALL ABOARD ADVENTURES WITH CAPTAIN TIM ON THE SEA HAWK

Captain Tim has worked out of the Noyo Harbor for over 40 years and donated four chartered boat excursions to students to support community engagement in the Learning Festival. Thank you, Captain Tim.

- Visit: www.allaboardadventures.com
- Sponsor: Captain Tim and the Sea Hawk

OPEN MIC NIGHT

Bring you songs to Larry Spring Commons for an open mic night hosted by Karlyn DeSteno with Maggie Pizza served in the Riverboat. Entrance by donation

- Time: 5:00 PM – 8:00 PM
- Meet: Enter through the gates beside 225 E. Redwood Ave.
- Sponsor: Spring Commons

S'MORES & STORIES AROUND THE FIRE

Point Cabrillo Light Station invites you to toast marshmallows while listening to stories exploring the rich history of our area. Thank you, Beachcomber for sharing your fire pits!

- Time: 6:00 PM – 8:00 PM
- Meet: Park at end of Glass Beach Road and walk over Pudding Creek Trestle
- Sponsor: Point Cabrillo Light Station

NIGHT SKIES & TELESCOPES FROM THE COASTAL TRAIL

Amateur astronomers gather at Otsuchi Point to see what deep-sky wonders emerge.

- Time: 6:00 PM – 8:00 PM
- Meet: Cypress Street access to Noyo Headlands Park



The Blue Economy Learning Festival

SUNDAY, May 22

FREE SHUTTLE

Ditch your car and hop on MTA shuttle.
Sponsor: Mendocino Transit Authority

COASTAL BIRDING WITH THE AUDUBON SOCIETY

Birds are everywhere to be found, no matter where you live. Come explore the Noyo Headlands Trail, meet our local birds and make new birding friends.

- Time: 9:00 AM – Noon
- Meet: South of Glass Beach
- Sponsor: Mendocino Coast Audubon Society

FREE GUEST HOUSE MUSEUM OPEN HOUSE

The Fort Bragg Historical Society invites you to visit the Guest House Museum where local history is cherished and preserved.

- Time: 10:00 AM – 4:00 PM
- Meet: Guest House Museum, 343 N. Main St.
- Sponsor: Fort Bragg Historical Society

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- Meet: Crow's Nest Interpretive Center: End of Jere Melo Way (Cypress Street runway)
- Sponsor: Noyo Center for Marine Science

COHO SALMON & PUDDING CREEK

Coho salmon are the rarest species of salmon in California. Come learn about local efforts committed to restoring habitat and fish passage along Pudding Creek with our local chapter of Trout Unlimited (TU).

- Time: 11:00 AM – Noon
- Meet: Pudding Creek Trestle
- Sponsor: Trout Unlimited, Redwood Empire Chapter

MACKERRICHER TIDE POOLING

WITH KATHARINE GABRIELSON

Explore the rocky intertidal zone at MacKerricher State Park, one of California's Marine Protected Areas – and say hello to the mussels, barnacles, and anemones that cling to the rocky tidepools.

- Time: 11:00 AM – 1:00 PM
- Meet: Laguna Point, MacKerricher Park
- Sponsor: CA State Parks

DISCOVERY CENTER – KELP EXHIBIT

Come see Noyo Center's beautiful kelp exhibit and view underwater video footage of our nearshore habitats in the Discovery Center's 360-degree geodesic Ocean Immersion Dome.

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- Time: 11:00 AM – 3:00 PM
- Meet: Cypress Street Meadow
- Sponsor: Adventist Health

GUIDED PLANT WALK WITH CA NATIVE PLANT SOCIETY

Plants are the foundation of our ecosystems, and CA has more plant species than any other state. Join Professor Teresa Scholar on a guided plant identification to learn about plants of the Mendocino Coast.

- Time: 12:30 PM
- Meet: South end of Pudding Creek Trestle
- Sponsors: Mendocino College & CA Native Plant Society

EXPLORE OTIS R. JOHNSON WILDERNESS PARK

Walk seven forested acres of park in the middle of Fort Bragg and learn about forest and watershed ecology from local experts.

- Time: 2:00 PM to 4:00 PM
- Meet: Otis R. Johnson Wilderness Park
- Sponsors: Tess Albin-Smith and Doug Albin

Appendix C. Saltwater intake and outflow permitting requirements and potential costs.

Feasibility					
Components	OPA Section	Studies Required	Study Purpose	Cost Range	
Site	M.2.b	Alternative site analysis	To evaluate alternative sites for plant on land and intake/discharge in ocean. Focus is on finding sites where subsurface intake is feasible, avoiding sensitive habitat	\$100,000	\$250,000
Design	M.2.c	Conceptual design of intake and discharge configurations	To evaluate alternative designs that minimize impacts	\$250,000	\$500,000
Technology	M.2.d(1)(a) Subsurface Intake	Geotechnical sampling for subsurface intake	To determine the hydraulic transmissivity of subsurface/subsea sediments	\$250,000	\$500,000
		Numeric modeling for subsurface intake	To show no impact to groundwater, seawater intrusion barriers, freshwater habitat	\$250,000	500,000
		Benthic survey	To determine presence of sensitive habitat and benthic topography	\$100,000	\$250,000
		Life-cycle energy/cost analysis	To determine energy/cost for the entire facility over its lifetime	\$500,000	\$1,000,000
	M.2.d(1)(c) Surface Intake	12-month ichthyoplankton study	To estimate mortality of organisms at the intake and discharge (if using a surface intake and discharge diffuser) or only at the discharge (if using a subsurface intake and discharge diffuser)	\$500,000	\$1,500,000
	M.2.d(2) Discharge	Numeric modeling for discharge design and dilution	To determine compliance with the Brine Mixing Zone, evaluate resuspension of sediments, and minimize shear	\$250,000	\$500,000
Mitigation	M.2.e	Marine Life Mortality Report	To estimate the marine life mortality resulting from construction and operation of the facility – intake and discharge	\$100,000	\$250,000
Total				\$2,300,000	\$5,250,000



Fort Bragg Blue Economy Intake and Discharge

The City of Fort Bragg (City) is taking the lead to generate a regional conversation and explore how a strategic approach to opportunities within the “Blue Economy” could drive the regional economy - improving livelihoods and wages, while also nurturing healthy marine ecosystems. The City has engaged a consulting team¹ to evaluate solutions to withdraw ocean water (intake) and return treated wastewater back to the ocean (discharge) for the following uses:

- ❖ **Blue Economy Innovation Center** for small, land-based aquaculture facilities and blue tech businesses.
- ❖ **The Noyo Marine Science Center** future Noyo Headlands facility (aquariums, research, etc.).

The City's Wastewater Treatment Facility (WWTF) and a portion of the adjacent former Georgia Pacific Lumber Mill property is the proposed site for development. The WWTF treats the City's sanitary wastewater and discharges the treated effluent into the ocean via an offshore multi-port linear diffuser (NPDES No. CA0023078). The effluent pipe from the WWTF to the multi-port linear diffuser is constructed within a 50-ft wide easement under tide and submerged land. Recent upgrades to the WWTF have phased out the use of large trickling filters, creating sufficient space for the proposed ocean water intake- and discharge-related infrastructure within the footprint of the existing public facility.

The following configurations are being considered:

- ❖ An offshore surface water intake and pipeline constructed in the existing easement with the treated effluent returned via the existing treated effluent pipeline and multi-port linear diffuser.
 - This offshore surface water intake configuration is currently the preferred option. It includes the construction of an offshore intake and influent pipe within the existing easement, and routing of ocean water to a wet well onshore. If found feasible, the onshore infrastructure including a raw water wet well, seawater holding tank, treated effluent holding tank, and pumphouse would be constructed within the footprint of the existing WWTF. Offshore infrastructure would be designed and constructed to minimize in-water maintenance and maximize system reliability.
 - The water intake is expected to have a capacity of approximately 1 million gallons per day (MGD). To optimize system reliability and maintain a maximum 0.5 feet per second (fps) through-slot velocity, the intake would include two approximately 2-foot high and 20-inch diameter drum-shaped intake screens. An influent pipeline approximately 1,500 feet long and 10 inches in diameter would convey the water onshore; a second identical influent pipeline would be constructed alongside to lend system redundancy and facilitate cleaning.
 - Two influent pipeline options are being considered.
 - Pipeline Option 1 would be laid mostly under the seabed and drilled through the bluffs. The conveyance from the intake to the influent wet well would be passive and would not need pumps. Infrastructure for this system is estimated to cost approximately \$30 million.
 - Pipeline Option 2 would be laid on the seabed and on the bluffs. The approximately 50-foot rise of the bluffs over the sea surface would necessitate influent to be pumped from the intake to the influent wet well. Infrastructure for this system is estimated to cost approximately \$12 million.
 - Water quality associated with these systems will be compatible with intended Blue Economy uses.

¹ ASA Analysis & Communication, Inc. and TWB Environmental Research and Consulting, Inc.

- Effluent from Blue Economy uses would be treated as needed (by the users) and discharged to the existing effluent pipe immediately downstream of the existing chlorine contact tank. The Blue Economy effluent and WWTF effluent would mix while in transit within the effluent pipe and discharge via the existing multi-port linear diffuser.
- ❖ A subsurface intake, if geotechnical conditions are conducive to the construction and operations of such an intake, and water quality supports intended uses.
 - Five subsurface intake types are being considered – vertical beach wells, Ranney wells, nearshore and offshore infiltration galleries, slant wells and horizontal wells.
 - All subsurface intakes would draw from under the seabed. Depending on proximity to the shore, water quality would be more or less impacted by onshore activities and freshwater aquifers.
 - All subsurface intake water would have lower dissolved oxygen than surface water; water would be aerated prior to use by organisms. Aeration would oxidize other dissolved substances (e.g., iron, manganese) whose oxidized forms could be toxic to organisms.
 - There are uncertainties with ability to drill through rock at this site.
 - Scaling other California-based subsurface intake estimates, the system for Fort Bragg could cost approximately \$60 million.
 - The Amendment to the Ocean Plan addressing desalination facility intakes requires that subsurface intakes be shown to be infeasible prior to considering surface water intakes. This requirement does not apply to the planned Fort Bragg system.
- ❖ A shoreline surface water intake that directly feeds the raw water wet well, using either passive or traveling screens.
 - This system would also need a pipe to convey water from the ocean side of bluffs to the influent wet well. The pipeline would need to be drilled through the bluffs and water to flow via gravity, or pipeline to be laid on the bluffs and water pumped into the influent wet well.
 - Insufficient water depth at the shoreline could make this configuration less viable.
- ❖ An offshore surface water intake in a 'new' area, instead of the existing easement.
 - The relative merits of constructing within the existing easement to reduce additional impacts or acquiring a new easement are yet to be determined.
 - A 'new' area would reduce the likelihood of potential recirculation of the WWTF effluent but could introduce other water quality issues.
- ❖ A shoreline discharge.
 - The WWTF was originally constructed with a shoreline discharge. The outfall was subsequently extended offshore to meet Ocean Plan requirements. It is unlikely that a shoreline discharge would be allowable for the Blue Economy effluent.
- ❖ A new dedicated seawater effluent pipe and outfall in a 'new' area away from the existing easement.
 - Comingling the Blue Economy effluent with the WWTF effluent lends many advantages; separating them does not provide any advantages. This option is unlikely to be carried forward for its own merits.

The concepts presented here are preliminary and will be modified based on agency input and feasibility of implementation.

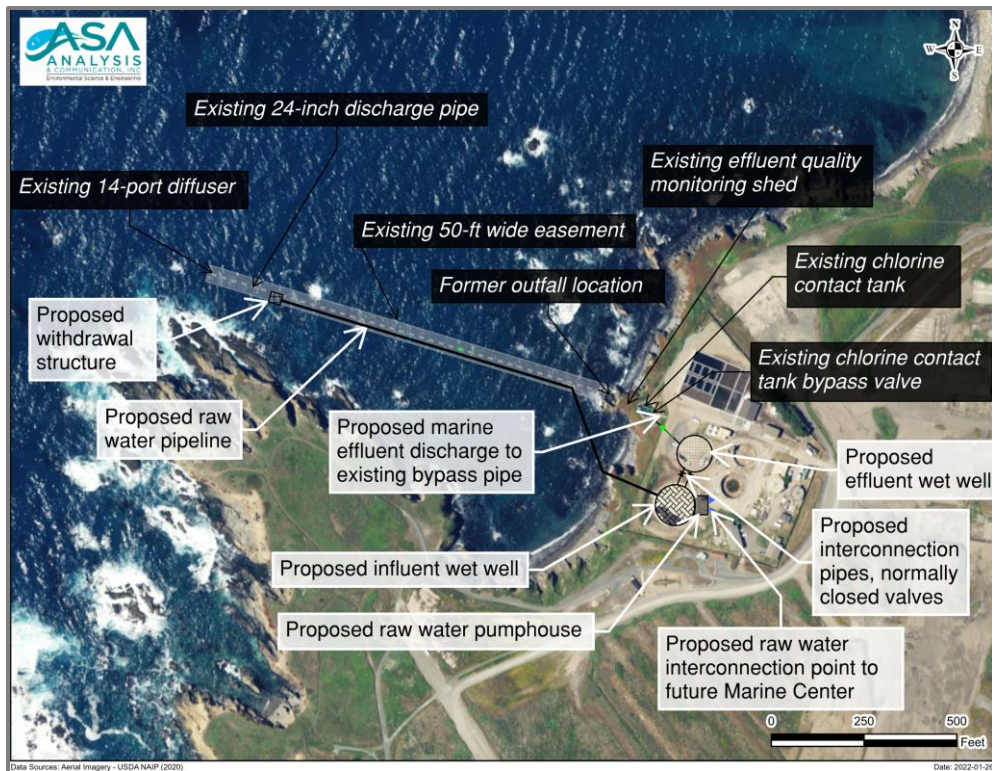


Figure 1. Sketch of the Plan View of the Proposed Intake and Discharge System

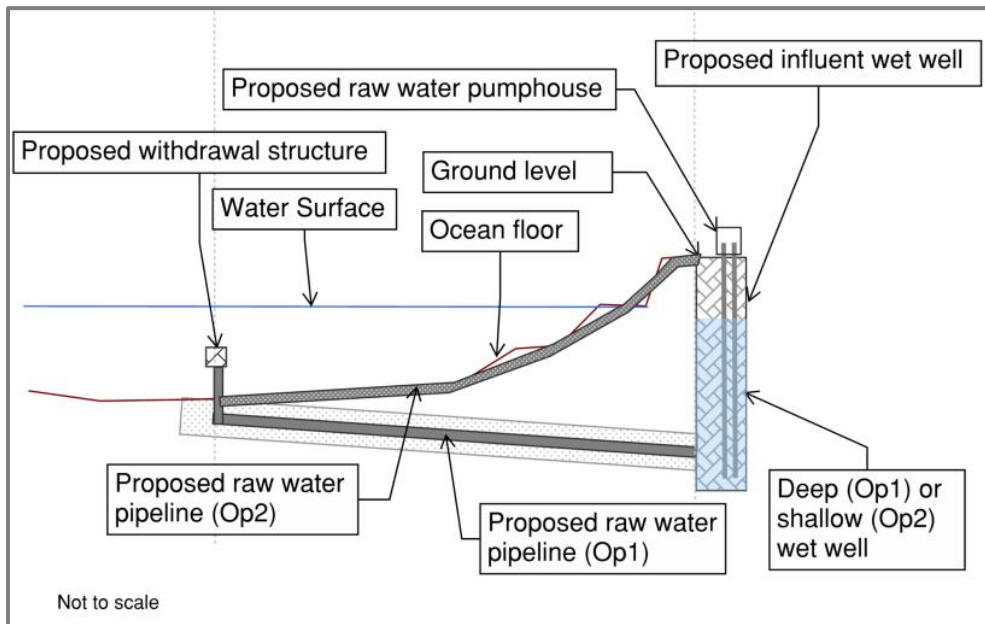


Figure 2. Sketch of the Transverse View of the Proposed Intake

Additional information on regional effort to establish a Blue Economy on the Mendocino Coast may be found at: www.visitfortbraggca/events or www.city.fortbragg.com/departments/city-manager/economic-development

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