

6. AVIATION SYSTEM ELEMENT

The aviation system is part of a multimodal transportation system, as it connects people and packages to surface, sea, and rail transport.

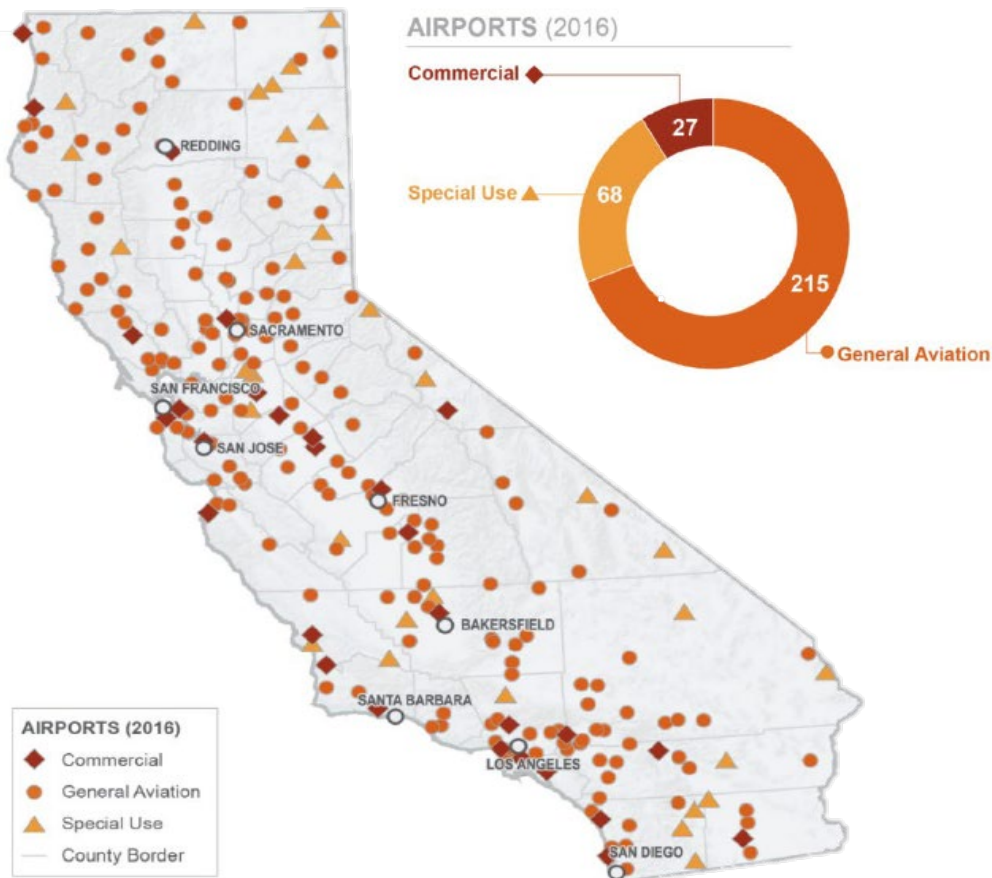
Aviation is a part of the global transport system; California's more than 300 airports move goods to and from domestic and international markets. The Humboldt region's nine public-use airports, give residents and visitors access to faster travel which can connect them to interregional, interstate, and international destinations.

California's public-use airports are also job centers, trade hubs, and emergency facilities; serving a variety of freight, passenger, and emergency response transportation, as well as related business and government operations. As the single

commercial airport in the region, California Redwood Coast–Humboldt County Airport is a key transportation asset for the region's mobility and its tourism and business economies.

Prior to COVID-19, which caused nationwide enplanements to decline 93 percent, California's airports welcomed over 227 million passengers and moved 4.8 million tons of air-cargo annually.

- Caltrans, Feb 2021



Source: Passenger enplanements from the Federal Aviation Administration Passenger Boardings and All-Cargo Data for U.S. Airports (Caltrans 2021)

AIRPORT ACCESS & MOBILITY

[In the recent update of the California Transportation Plan 2050 \(CTP 2050\), Caltrans emphasizes the State’s goals for integrating the aviation system with a multi-modal transportation system.](#)

CTP 2050

BY 2050. As the economy recovers and interregional travel and tourism begin to rise, California’s airports will become increasingly vital elements of the state’s multimodal transportation system. California’s Aviation System Plan is focused on enhancing future connectivity between air travel and other modes, improving airport access in small and rural communities, and expanding sustainable energy solutions to curb aviation-related emissions.

– Caltrans, Feb 2021

“Aviation gives the State’s multimodal transportation system access, range, and speed.”

– 2017 RTP Guidelines for RTPAs

Airside & Landside

For those familiar with airport operations, “airside” and “landside” are terms that distinguish between the areas dedicated for boarding flights and the areas more related to ground transport. When navigating around airports, landside generically means the area outside (external to) the passenger boarding area, and airside generically means the internal area for boarding aircraft, including skyways and runways. The boundary between the two is that area of security checkpoints, and passport and customs control. When discussing airports in the context of transportation planning, the landside and airside areas are considered more broadly. In this context, the landside area encompasses the external roads and other travelways that give ingress and egress to the airport, which usually means local roads and state highways. The broader airside includes the airport’s surface grounds for ground support and emergency vehicles, including ramps, aprons, runways, and taxiways.

Congestion and other barriers on either side can impede mobility. Congestion on the landside can affect whether passengers make or miss their scheduled flights; congestion on the airside can affect how well airplanes meet their scheduled arrival and departure times. In this sense, landside deals more with ground transportation, whereas airside deals more with air transportation. In furthering the goal for regional transportation mobility, access, and connectivity, the multi-modal transportation system focuses on local airports’ landside.

Ground access to airports is important not only to passengers, but also to airport employees, air cargo, and public transit. To have an integrated, multi-modal system, people must have a choice of modes to reach an airport, with access being comfortable and convenient for walking, biking, transit, and taxis/shuttles, as well as driving. The quality of ground access also certainly affects goods movement/freight operations/performance. For instance, the pavement condition (particularly for heavier trucks), number of lanes, and lane widths will affect freight access/movement.

AVIATION PLANNING

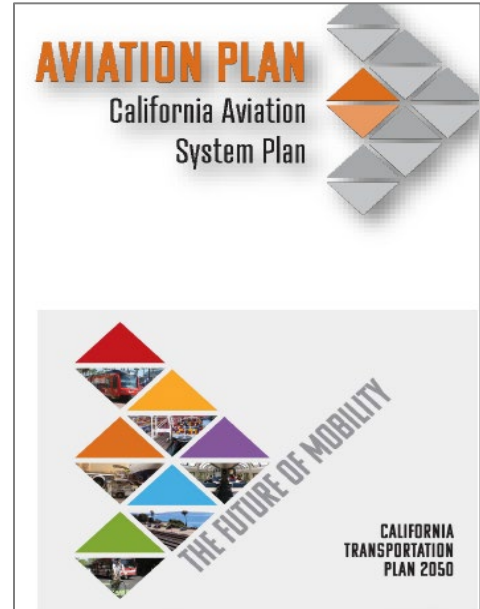
STATE PLANNING

The *California Aviation System Plan*¹ (CASP) is one of Caltrans’ six modal transportation plans that together comprise the *California Transportation Plan 2050* (CTP 2050).

Caltrans updated the CASP of 2020 with an explicit purpose to

- identify a new vision for California’s aviation system,
- identify the relationships between aviation and other transportation modes, and seek out solutions to make California’s aviation facilities resilient to the effects of global climate change while identifying new ways to serve California’s growing population (CASP 2020).

The CASP includes State policies, a statewide inventory, the Aeronautics Division Capital Improvement Program (CIP), and a General Aviation System Needs Assessment (GASNA). The GASNA lists the core project needs for general aviation airports. The CIP lists capital and planning projects for both commercial and GA airports, as submitted to Caltrans by airport sponsors/owners. Generally, CIP projects are based on the airports’ master plans (or comparable long-range plan). The CIP, which Caltrans compiles every two years, covers a 10-year timeframe. The projects in the CIP are unconstrained, meaning not all projects listed are programmed or funded.



CTP 2050: OUR AIRPORTS

CHALLENGES

- ▶ **Carbon footprint** for planes has improved over the years, improvements are still needed; although planes contribute a large share of emissions to the environment, they are vital to our economy and livelihood.
- ▶ **Unmanned Aerial Vehicles (UAV)** driven by increasing consumer and industrial demand, may result in operational and safety issues related to airspace management.
- ▶ **Limited capacity** at many airports may not be able to accommodate long-term forecasted growth in demand.

OPPORTUNITIES

- ▶ **More efficient goods movement** as aviation provides a high-speed mode of transportation for high-value goods.
- ▶ **Shifting short-haul air** travel within the State to High-Speed Rail.
- ▶ **Improved connectivity** by increasing accessibility to emergency response and evacuation lifelines as air travel is often one of the most viable modes of transportation to rural areas of the state.
- ▶ **New technology** options such as electric and hybrid jet engines could reduce emissions and fuel consumption in the aviation industry.
- ▶ **Improved airport-land use planning** that incorporates airports as regional economic and transportation hubs.

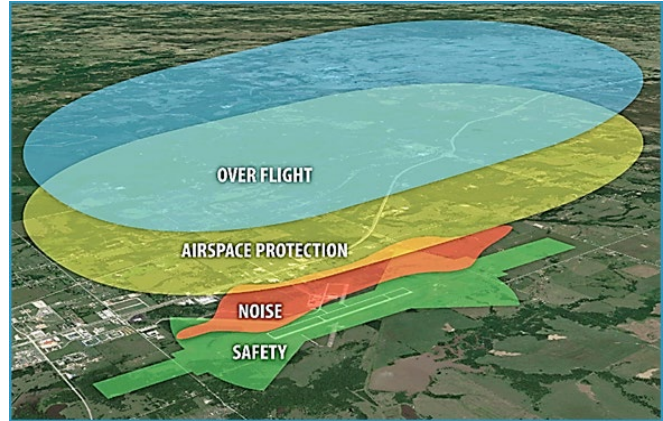
¹ Caltrans released the “Preliminary Draft” on November 6, 2020.

REGIONAL PLANNING

Airport Land Use Compatibility

Every county in which a public-use airport is located is required to establish an Airport Land Use Commission (ALUC) (per California PUC, Sections 21670 et seq.) This Commission has the single purpose to protect airports and public safety by overseeing the compatibility of land uses adjacent to public-use airports. ALUCs are an advisory body to local planning jurisdictions.

The Humboldt County Board of Supervisors is the county’s designated ALUC. As the ALUC, they have authorized a nine-member Aviation Advisory Committee (AAC) to advise them on aviation matters within the county. The two planning bodies, the ALUC and AAC, must evaluate potential conflicts concerning noise, safety, airspace protection, and aircraft overflight in land uses near an airport. They do this in two primary ways: (i) by preparing Airport Land Use Compatibility Plans (ALUCPs); and (ii) by reviewing local agency general and specific plans for consistency with the ALUCP goals and objectives (per CPUC §21676(a)). The ALUC makes safety recommendations via consistency determinations.



Source: Mead & Hunt, Inc., 2019

The *Humboldt County Airport Land Use Compatibility Plan* “[provides the policies and criteria to be used by the ALUC when assessing the compatibility between the County’s public use airports and proposed land use development in the areas surrounding them.](#)” The compatibility criteria set standards for building heights, building construction, and restricted uses of land. The standards and criteria are designed to

- (1) [minimize the exposure of the public to noise and safety hazards,](#)
- (2) [provide for safer aircraft operations,](#)
- (3) [protect the airport from encroachment and minimize incompatible development in the immediate vicinity of the airport, and](#)
- (4) [ensure that prospective buyers of real estate \(within the Airport Influence Areas\) are notified that the airport and aircraft overflights are present \(ALUCP, updated April, 2021\).](#)

The ALUCP applies to land use in areas surrounding all public-use airports within Humboldt County with these exceptions:

- o the Hoopa Valley Airport located on the Hoopa Valley Reservation and owned and operated by the sovereign Hoopa Valley Tribe.
- o ALUCs have no authority over federal, State or tribal lands
- o the ALUCs have no authority over areas “already devoted to incompatible uses.”

While ALUCS can adopt ALUCPs, they do not have the authority to implement their own compatibility policies.

– California Aviation System Plan, 2020 Draft

“Incompatible land uses around airports are considered the largest imminent and continuous threat to California’s air transportation system of public-use airports.”

– California Aviation System Plan, 2016

Airport Ground Access Improvement Program

The Redwood Coast Airport is a primary air carrier airport because it has annual enplanements over 10,000 (~~55,168~~ 86,147 enplanements in ~~2015–2019~~) (FAA ~~2016b~~ 2021a). Primary air carrier airports are required to have an Airport Ground Access Improvement Program (AGAIP), which must address mass transit, road (major arterial and highway), and other ground access deemed appropriate by the Airport Land Use Commission (California Government Code 65081.1(a)). Since the update of the RTP in 2014, the HCAOG Board, with a recommendation from the Humboldt County Aviation Advisory Committee, has adopted the AGAIP as part of the RTP updates. See Appendix for full program report.

Airport Master Plans

The purpose of airport master plans is to assess the demand for airport facilities, and to guide actions that would help meet those demands. An airport master plan is prepared for, and adopted by, the agency that owns and/or operates the airport.

Each of the County-owned airports operates according to its respective Airport Master Plan. The current airport master plans are:

- *Arcata-Eureka Airport Master Plan Report, Public Review Draft*. Accepted by the Board of Supervisors on September 9, 2005 (County of Humboldt, 2005a). (This airport is being renamed the California Redwood Coast–Humboldt County Airport.)
- *Dinsmore Airport Master Plan Report*, Revised May 2007 (County of Humboldt, 2007a).
- *Garberville Airport Master Plan Report*. Accepted by the Board of Supervisors on September 4, 2007 (County of Humboldt, 2007b).
- *Kneeland Airport Master Plan Update*. September 2005 (County of Humboldt, 2005b).
- *Murray Field Airport Master Plan Report*. Accepted by the Board of Supervisors on September 4, 2007 (County of Humboldt, 2007c).
- *Robnerville Airport Master Plan Report*. Accepted by the Board of Supervisors on September 4, 2007 (County of Humboldt, 2007d).

(Hoopa, Samoa Field, and Shelter Cove Airports do not currently have master plans.)

REGIONAL AVIATION SYSTEM

The most well-known airport in Humboldt County is probably the California Redwood Coast–Humboldt County Airport (formerly the Arcata-Eureka Airport),² because it is the only one that provides scheduled passenger service. It is, of the nine public-use airports in Humboldt County, the only commercial airport.

“Of the various ways to transport cargo, aircraft—with their speed and distance—are especially efficient at transporting long-haul, low-weight, high value, time-sensitive goods.”

– California Aviation System Plan, 2011

² The County of Humboldt has applied to the FAA to rename the airport.

The region’s other eight airports are all General Aviation (GA) airports. General Aviation consists of all aviation activity except military flights, scheduled passenger airlines, or air cargo service. GA airports serve a wide array of public interests and services, such as: individuals flying private aircraft, flight training, charter flights, recreational flying, on-demand cargo flights, private and corporate air transport, agriculture flights, firefighting, and medical and emergency response operations.

AIRPORT FACILITIES & SERVICES

Humboldt County has nine public-use airports (Figure 7.1, see Maps Tab). One is a commercial airport and eight are general aviation airports (GA). The County of Humboldt owns the commercial airport and five GA airports:

- California Redwood Coast-Humboldt County Airport (Arcata-Eureka) — commercial airport
- Dinsmore Airport
- Garberville Airport
- Kneeland Airport
- Murray Field Airport
- Rohnerville Airport

The Humboldt County Aviation Department manages all County airports.³

The other three airports are owned by separate jurisdictions:

- City of Eureka owns and manages Samoa Field Airport (formerly called Eureka Municipal Airport);
- Hoopa Valley Tribal Council owns and manages the Hoopa Airport; and
- Shelter Cove Resort Improvement District #1 owns and manages the Shelter Cove Airport.

While GA generates significant economic activity, commercial airlines dominate the aviation industry in terms of jobs and output.

- CASP 2020

The Caltrans’s Division of Aeronautics applies its own Airport Functional Classification system (apart from the FAA). It further categorizes GA airports as limited use, community, regional, or metropolitan. Humboldt’s eight GA airports are classified as:

- **GA Limited Use Airports: Dinsmore, Hoopa** – Airports that provide limited access, usually located in non-urban areas, provide no services and may be used for a single purpose, and have a few or no based aircraft.
- **Community Airports: Garberville, Kneeland, Samoa Field, Shelter Cove** – Airports that provide access to other regions and states; located near small communities or in remote locations; serve, but are not limited to, recreational flying, training, and local emergencies, accommodate predominantly single engine aircraft under 12,500 pounds gross vehicle weight, provide basic or limited services for pilots or aircraft.

³ The County recreated the independent Department of Aviation in 2018, changing it from a division under the Public Works Department.

Table Aviation-1. Public-use Airports in Humboldt County

AIRPORT			LOCATION		FACILITIES							SERVICES
FAA Identifier	Name	Owner	Community	Distance ¹ / Direction	Based Aircraft ²	Aircraft ops: Avg. for 12-mo. period ending 05/31/2019	Number of Runways	Longest Runway (ft.)	Surface	Lighted	Approach Visibility ³	Control Tower, Airline Service, AvGas, Jet Fuel, Maintenance, Automobile Rentals, Food
O33	Samoa Field (formerly called Eureka Municipal)	City of Eureka	Eureka	13 SW	10	48/wk	2	2,700	Asphalt	No	Vis	n/a
O21	Hoopa	Hoopa Tribe	Hoopa	20 E	1	75/yr 21/mo	2	2,325	Asphalt	No	Vis	n/a
0Q5	Shelter Cove	Resort Improvement District #1	Shelter Cove	56 S	0	58/wk	2	3,407	Asphalt	No	Vis	Food
ACV	Redwood Coast (formerly called Arcata-Eureka)	County	McKinleyville	–	45 27	115/d	2	5,998 6,046	Asphalt	Yes	Prec	Airline service ⁴ , AvGas, jet fuel, automobile rentals, food
D63	Dinsmore	County	Dinsmore	37 SE	1	31/wk	2	2,510	Asphalt	No	Vis	n/a
O16	Garberville	County	Garberville	55 S	18	45/d	2	2,783	Asphalt	No	Vis	AvGas
O19	Kneeland	County	Kneeland	17 SE	1	134/wk	2	2,252	Asphalt	No	Vis	n/a
EKA	Murray Field	County	Eureka	11 S	48 22	152/d	2	3,011	Asphalt	Yes	NP	AvGas, maintenance
FOT	Rohnerville	County	Fortuna	25 S	40 3	68/d	2	4,025	Asphalt	Yes	NP	AvGas, maintenance

¹Distance (in nautical miles) and direction from Redwood Coast Airport.

²“FAA Information Effective [25 March 2021](#)” (www.airnav.com/airports, accessed [April 1, 2021](#)).

³Statute mile. [Precision; Visual; Non-Precision].

⁴Including Air Taxi

Source: “Arcata-Eureka Airport Master Plan Report” (Caltrans 2005b)

- **Regional Airports: Murray Field, Rohnerville** – Airports that in addition to interregional and interstate access may provide international access as well; serve several cities or counties in an area with a larger population base and higher concentration of business and corporate aircraft activity than Community airports. They may provide aviation fuel and most services for pilots and aircraft, and have a published instrument approach. They may have a tower.⁴

The following describes each airport’s locale, services, and intermodal transportation links.

ACV California Redwood Coast–Humboldt County Airport (formerly the Arcata-Eureka Airport) (County of Humboldt)

The California Redwood Coast–Humboldt County Airport (Redwood Coast Airport/ACV, a.k.a. Arcata Airport or Arcata-Eureka Airport) lies on a 200-foot-high plateau above the Pacific Ocean. It is located in McKinleyville within the unincorporated County, approximately seven miles north of Arcata and 15 miles north Eureka. [The United States Navy established the “Arcata-Eureka Airport” in 1942.](#) The County of Humboldt owns and operates this airport. In 2013 the County Board of Supervisors approved renaming it to California Redwood Coast–Humboldt County Airport.

Airport grounds cover 745 acres. A 247-acre site at the airport is a designated Foreign Trade Zone (Site #4). The site is restricted to 50 acres of activated area. There is room for expanding facilities (e.g. box hangars, tie downs, and hangars) on the north side of the general aviation ramp. The County also leases space, for example, for the U.S. Coast Guard Search and Rescue Base and an FAA Federal Service Station. The airport’s terminal building (1,400-square foot) houses offices of the Humboldt County Aviation Department, U.S. Coast Guard, and Transportation Security Administration (U.S. Department of Homeland Security). The terminal also houses three car rental companies, a conference room, and a restaurant (vacant in recent years).

Commercial Airline Service

The Redwood Coast Airport is a non-hub, primary commercial airport with both commercial passenger air service and freight service. Enplanements (i.e., commercial passenger boardings) at Redwood Coast Airport (ACV) declined each year between 2009 and 2015, primarily due to the loss of service during those years. (See Table *Aviation-2*) In 2010, Horizon Air (offering service through Alaska Airlines) cancelled daily flights to Seattle-Tacoma International Airport (SEA), then pulled out altogether in April 2011, which ended direct flights from ACV to LAX. One carrier then remained at ACV: Skywest operating United Express flights to Sacramento (SAC) and San Francisco International Airports (SFO). In December 2014, however, Skywest/United Express cancelled service to Sacramento. In 2015 the decline in enplanements reversed with an upswing of 6.7%, although the year’s enplanements were still only 54% of 2009’s. In April, 2016, Peninsula Airlines, Inc., (PenAir) began serving ACV with flights to Portland International Airport (PDX) and Redding Municipal Airport (RDD) ; however, in early August, 2017, PenAir dropped its Humboldt service, and a few days later announced that the company had filed for Chapter 11 bankruptcy protection and was also seeking to terminate its Crescent City flights.

⁴ California Aviation System Plan: 2016 Policy Element (Caltrans Division of Aeronautics, October 2016).

[ACV enplanements were trending upwards in 2018 and 2019. With the onset of the COVID-19 global pandemic in March 2020, flight service and enplanements fell in all markets across the world.](#)

[In April, 2021, “America’s first new mainline airline in nearly 15 years” \(according to their press release\) launched. Avelo Airlines is based out of the Hollywood Burbank Airport and offers non-stop flights between Burbank and 11 destinations \(previously unserved routes\) in the western U.S. Burbank to Arcata is one of its inaugural routes. The new airline launched with \\$19 one-way fares for the first month. Flights began May 2021.](#)

Table Aviation-2. California Redwood Coast Airport Enplanements 2009-20159

Calendar year	Enplanements	Change from previous year	Airline service changes
2009	102,440	--	
2010	93,402	-8.8%	Delta Airlines leaves (April); flights to SEA end (August)
2011	70,455	-24.6%	Flights to LAX end (April)
2012	61,705	-12.4%	
2013	56,682	- 8.9%	
2014	51,688	- 9.7%	Flights to SAC end (Dec)
2015	55,168	+6.7%	
2016	69,732	+26.40%	
2017	65,932	-5.45%	
2018	69,575	+5.35%	
2019	86,147	+23.82%	

Source: FAA [2021a](#) and [b](#)

Intermodal Links

Airport Road provides direct access from the airport to U.S. 101 and Central Avenue, a regionally significant roadway (arterial). The airport is served by two public transit lines: Redwood Transit System (local) and Amtrak (regional). Three car rental companies have staffed kiosks at the airport. Private (commercial) shuttle and taxicab companies and local hotels also provide ground transport. The airport parking lot has 296 long-term parking spaces and 55 short-term parking spaces. Additionally, there are 27 parking spaces reserved for employees.

D63 Dinsmore Airport (County of Humboldt)

The Dinsmore Airport is located a quarter-mile east of Dinsmore, in an isolated area of eastern Humboldt County, [less than three miles from the Trinity County line to the east](#). The airport is in a canyon of the Van Duzen River Valley. [Lands uses surrounding the airport are timberland, agricultural, and rural residential.](#)

[The airport opened in 1956 and has mostly retained the original layout.](#) Adjacent hills rise 1,000 feet above the runway elevation. Pilots flying in and out of Dinsmore Airport must know mountain

flying and nonstandard approach/departure paths. Airport property includes 23 acres owned in fee-simple plus 426 acres in easements. [There is one hangar.](#) This airport operates only during daytime.

Intermodal Links

Dinsmore Airport is accessed by State Route 36, a two-lane road. It is almost 42 miles along SR 36 to the interchange with U.S. 101. [The SR 36 directly accesses the airport’s gravel parking area for automobiles, adjacent to the west apron. A gravel driveway leads to the east apron and automobile parking area.](#) Access to the active airfield is provided at both aprons via pedestrian and vehicle gates; the entire perimeter is fenced to prevent unauthorized vehicles and pedestrians from entering the airfield.

O16 Garberville Airport (County of Humboldt)

Garberville Airport is located approximately two miles southwest of downtown Garberville. It rests on a bluff, elevation 551 feet above mean sea level. Adjacent to the west, terrain rises up to 1,000 feet above the runway within one mile. [Rural residential uses are as close as a quarter-mile to the south and east of the airport. Other surrounding land uses are timberland and agricultural along the South Fork Eel River.](#)

[Humboldt County has owned and operated the airport since 1950. The County has 51 acres owned in fee and 6 acres of easements. The airport has one runway](#) and is mostly used for private planes.

Intermodal Links

Garberville Airport is accessed from Sprowel Creek Road, which connects to U.S. 101 two miles to the east.

O21 Hoopa Airport (Hoopa Valley Tribe)

The Hoopa Airport is located one mile southeast of Hoopa, serving the Hoopa-Willow Creek area. It is owned and operated by the Hoopa Valley Tribe. It is a public airport, classified as a Limited Use General Aviation Airport. The airport covers 40 acres and has one runway and aircraft tiedowns. The airport is open for day use only; however, in the case of emergencies the airport can place battery-powered lights along the edge of the runway to permit landings.

Intermodal Links

Hoopa Airport is on Hoopa Airport Road, which crosses Hospitality Road and intersects with Tish Tang Road, both local roads. The airport is approximately two road miles to State Route 96 via Tish Tang Road, and 14 miles to State Route 299 in Willow Creek.

O19 Kneeland Airport (County of Humboldt)

Kneeland Airport is on a butte approximately 15 miles southeast of the City of

Eureka. The terrain falls sharply immediately beyond the end of its single runway; otherwise it is surrounded by mountainous open space. The airport is at elevation 2,737 feet above mean sea level, which often places it above foggy conditions. Thus, the Kneeland Airport principally serves as an alternate landing site when other airports in the Humboldt Bay area are temporarily closed due to fog (e.g., Redwood Coast, Samoa Field, Murray Field, and Rohnerville). The airport supports flight training and small-package delivery services. Cal Fire's heliport and associated buildings are located just west of the airport.

Intermodal Links

Kneeland Airport accesses U.S. 101 principally via Kneeland Road/Freshwater Road. The road distance to Eureka or Arcata is about 20 miles.

EKA Murray Field Airport (County of Humboldt)

Murray Field covers 131 acres immediately east of Humboldt Bay, at an elevation of 10.5 feet above mean sea level. It is located less than two miles from Eureka and approximately five miles from Arcata. The airport is bounded by Fay Slough to the north and by Eureka Slough to the southwest and east. The Airport has one runway (asphalt).

Murray Field Airport supports public, private, and commercial aviation services, including air freight transport businesses (see Goods Movement Element). Northern Air has operated there for over 40 years and is the airport's Fixed Base Operator (FBO). They lease two hangars from the County. Their services include fuel, transient aircraft parking, aircraft rental, flight instruction, and engine maintenance repair. Additionally, the U.S. Coast Guard conducts training maneuvers at Murray Field Airport.

Intermodal Links

From Airport Road, Murray Field directly accesses U.S. 101 and Jacobs Avenue, a frontage road to U.S. 101.

FOT Rohnerville Airport (County of Humboldt)

Rohnerville airport is located 0.8 miles south of Fortuna. The airport sits on a plateau above the Eel River, [adjacent to rural residential area and undeveloped land](#). [The airport has one asphalt](#) runway, which ends at rapidly falling terrain south of the airfield. The current runway length can accommodate 100 percent of small aircraft with less than 10 passenger seats, excluding larger Cal Fire aircraft. A Cal Fire station has been operating on the east side of Rohnerville Airport since 1964. The Cal Fire station is an air attack base and a fire-fighter training facility.

Intermodal Links

The Rohnerville Airport has access to U.S. 101 via a route of arterial and minor local roads; the routes range from approximately four to 5.5 miles long. The lack of direct airport-highway access (for high volumes of cars and large trucks) constrains opportunities to expand the airport's airfreight services and general aviation, or to develop complementary commercial and industrial uses. The

County of Humboldt, City of Fortuna, and Caltrans District 1 are partnering on the “Rohnerville Airport Connectivity Study” project to identify viable route alternatives and decide on a preferred alternative or prioritized alternatives. The study was partially funded in FY 2016-17 and HCAOG expects additional funding will be available in the next one to two fiscal years.

O33 Samoa Field Airport (City of Eureka)

Samoa Field Airport is located on a peninsula, west of downtown Eureka and Humboldt Bay. Samoa Field, formerly called Eureka Municipal Airport, is owned and managed by the City of Eureka. The airport serves primarily recreational and personal business purposes. There is one asphalt runway; it is not lighted and night operations are prohibited. The airport has 11 hangars for public use and ten runway tiedowns. No aviation services are available. A WWII-era building onsite houses a private bed and breakfast.

Intermodal Links

The Samoa Field Airport is positioned next to road, rail, and harbor modes. It is accessed by New Navy Base Road, a regionally significant roadway (arterial), which connects the Samoa Peninsula to State Route 255 (northbound to Manila and Arcata, and eastbound to Woodley Island and Eureka). The airport is close to two harbor facilities: the Fairhaven Terminal and the Simpson Chip Export Dock (approximately 1.5 to 2 miles). The airport is also less than two miles from the end of the NCRA railroad tracks (Eel River Division) in Samoa.

OQ5 Shelter Cove Airport (Shelter Cove Resort Improvement District #1)

Shelter Cove Airport, in Shelter Cove, is located in the principal population center of Humboldt County’s southern Lost Coast region. [The land uses that surround the airport are commercial recreation, and low- to medium-density residential. Residential land use is within one-quarter mile of the airport.](#) The airport is publicly owned and is operated by the Shelter Cove Resort Improvement District #1 (located in Shelter Cove). The airport has one runway; it is not lighted and night operations are prohibited. Aircraft parking is available. [The Airport is unmanned and offers no services.](#)

Intermodal Links

From the Shelter Cove Airport, local roads access Shelter Cove Road, a regionally significant roadway (County jurisdiction). It is approximately 25 miles to U.S. 101, near Redway/Garberville.

Table Aviation-3. Forecast Airport Activity for Humboldt County, 2017-2039

<u>Airport</u>	<u>Forecasted Number of Based Aircraft</u>	<u>Forecasted Operations in 2039</u>
<u>California Redwood Coast Airport (ACV)</u>	<u>Assumed to remain similar to existing conditions in 2017 for all airports</u>	<u>Approximately 42,312 annual operations</u>
<u>Dinsmore Airport (D63)</u>		<u>Approximately 1,600 annual operations. [Based on slight increase to baseline operations and approximately 1,600 annual operations in 2017.]</u>
<u>Garberville Airport (O16)</u>		<u>Approximately 16,500 annual operations. [Based on slight increase to baseline operations and approximately 16,500 annual operations in 2017.]</u>
<u>Kneeland Airport (O19)</u>		<u>Approximately 7,000 annual operations</u>
<u>Murray Field Airport (EKA)</u>		<u>Approximately 55,450 annual operations or 152 average annual daily operations</u>
<u>Rohnerville Airport (FOT)</u>		<u>Approximately 27,500 annual operations or 75 average annual daily operations</u>
<u>Samoa Field Airport (O33)</u>		<u>Approximately 2,764 annual operations or eight average annual daily operations</u>
<u>Shelter Cove Airport (OQ5)</u>		<u>Approximately 2,208 annual operations or six average annual daily operations [Based on approximately nine annual average daily operations, with approximately 250 operations per month during the high-season, circa 2021.]</u>

Source: *Humboldt County Airport Land Use Compatibility Plan (ALUCP)*, February 2021.

Note: Hoopa Airport is not subject to the ALUCP.

The Tables *Aviation-4* and *Aviation-5* below show demand forecasts from 2010 to 2025 for Humboldt County public airports, as reported in the airport master plans or from airport staff. Future demand for aviation services was projected based on existing levels of based aircraft and annual operations.

Table Aviation-4. Aviation Forecast for Based Aircraft, 2010-2025

Aircraft type	Based Aircraft Forecast ¹			
	2010	2015	2020	2025
<i>Redwood Coast Airport</i>				
Single-Engine	6	8	11	15
Twin-Engine	2	3	4	5
Turbo-Prop	1	6	6	6
Jets	2	3	6	10
Helicopter	4	4	4	4
<i>Total</i>	15	24	31	40
<i>Dinsmore Airport</i>				
Single-Engine	2	4	6	8
<i>Total</i>	2	4	6	8
<i>Garberville Airport</i>				
Single-Engine	20	21	21	22
Twin-Engine	2	2	4	5
Helicopter	0	1	1	1
<i>Total</i>	22	24	26	28

Table continues on next page.

<i>Hoopa Airport</i>				
Based Aircraft	1	1	1	1
<i>Total</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>Kneeland Airport</i>				
Based Aircraft	0	0	0	0
<i>Total</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Murray Field Airport</i>				
Single-Engine	91	92	93	94
Twin-Engine	12	13	14	15
Jet	2	3	3	4
Helicopter	1	1	2	2
<i>Total</i>	<i>106</i>	<i>109</i>	<i>112</i>	<i>115</i>
<i>Robnerville Airport</i>				
Single-Engine	31	32	32	33
Twin-Engine	5	5	5	5
Jet	1	1	2	2
Helicopter	1	1	1	1
<i>Total</i>	<i>38</i>	<i>39</i>	<i>40</i>	<i>41</i>
<i>Samoa Field Airport</i>				
Based Aircraft	11	23*	23	23
<i>Total</i>	<i>11</i>	<i>23</i>	<i>23</i>	<i>23</i>
<i>Shelter Cove</i>				
Based Aircraft	0	0	0	0
<i>Total</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

¹Forecasts for County airports are from their respective master plans. Hoopa, Samoa Field, and Shelter Cove Airports' forecasts are from their respective staff.

*If local demand warrants building 10 T-hangars.

Table Aviation-5. Aviation Forecast for Annual Operations, 2010-2025

Operation Type ¹		Annual Operations Forecast ²			
		2010	2015	2020	2025
<i>Redwood Coast Airport</i>					
Itinerant	Air Carrier	11,650	11,700	11,675	11,650
	Air Taxi	4,650	5,600	6,450	7,300
	General Aviation	9,700	9,800	9,950	10,100
	Dedicated Air Cargo	1,250	1,400	1,625	1,850
	<i>Subtotal</i>	<i>27,250</i>	<i>28,500</i>	<i>29,700</i>	<i>30,900</i>
Local	General Aviation	7,700	7,800	7,950	81,00
	Military / Government	15,000	15,000	15,000	15,000
	Dedicated Air Cargo	550	700	800	900
	<i>Subtotal</i>	<i>23,250</i>	<i>23,500</i>	<i>23,750</i>	<i>24,000</i>
	<i>Total</i>	<i>50,500</i>	<i>52,000</i>	<i>53,450</i>	<i>54,900</i>
<i>Kneeland Airport</i>					
Itinerant	Single-Engine Fixed	3,000	3,000	3,300	3,300
	Single-Engine Variable	2,000	2,000	2,000	2,000
	<i>Subtotal</i>	<i>5,000</i>	<i>5,000</i>	<i>5,300</i>	<i>5,300</i>

Table continues on next page.

Table Aviation-5. Aviation Activity Forecast for Annual Operations *continued*

Operation Type ¹		Annual Operations Forecast ²				
		2010	2015	2020	2025	
<i>Kneeland Airport</i>						
Local	Single-Engine Turboprop	50	50	100	100	
	Helicopters	500	500	500	500	
	Light Twin-Engine	50	50	100	100	
	Single-Engine Fixed	500	500	800	800	
	Single-Engine Variable	400	400	700	700	
	<i>Subtotal</i>	<i>1,500</i>	<i>1,500</i>	<i>2,200</i>	<i>2,200</i>	
		<i>Total</i>	<i>6,500</i>	<i>6,500</i>	<i>7,500</i>	<i>7,500</i>
<i>Dinsmore Airport</i>						
		Itinerant General Aviation	1,045	1,105	1,170	1,236
		Local General Aviation	630	665	700	740
		<i>Total</i>	<i>1,670</i>	<i>1,770</i>	<i>1,870</i>	<i>1,975</i>
<i>Garberville Airport</i>						
		Itinerant General Aviation	7,475	7,896	8,340	8,809
		Local General Aviation	8,542	9,022	9,530	10,066
		<i>Total</i>	<i>16,017</i>	<i>16,918</i>	<i>17,870</i>	<i>18,875</i>
<i>Hoopa Airport</i>						
		Itinerant General Aviation	TBD			
		Local General Aviation	TBD			
		<i>Total</i>	TBD			
<i>Murray Field Airport</i>						
Itinerant	Air Taxi	160	170	180	190	
	General Aviation	21,360	22,560	23,830	25,170	
	Military / Government	320	340	360	380	
	<i>Subtotal</i>	<i>21,840</i>	<i>23,070</i>	<i>24,370</i>	<i>25,740</i>	
	Local General Aviation	48,050	50,750	53,600	56,620	
	<i>Total</i>	<i>69,890</i>	<i>73,820</i>	<i>77,970</i>	<i>82,360</i>	
<i>Robnerville Airport</i>						
Itinerant	General Aviation	11,360	12,020	12,710	13,450	
	Military / Government	390	390	390	390	
	<i>Subtotal</i>	<i>11,750</i>	<i>12,410</i>	<i>13,100</i>	<i>13,840</i>	
	Local General Aviation	17,620	18,610	19,660	20,760	
		<i>Total</i>	<i>29,370</i>	<i>31,020</i>	<i>32,760</i>	<i>34,600</i>
<i>Samoa Field Airport</i>						
		Itinerant General Aviation	100	100	100	100
		Local General Aviation	200	400*	400	400
		<i>Total</i>	<i>300</i>	<i>500</i>	<i>500</i>	<i>500</i>
<i>Shelter Cove Airport</i>						
		Itinerant General Aviation	TBD			
		Local General Aviation	TBD			
		<i>Total</i>	TBD			

¹ An operation is counted for each landing and each departure, such that a touch-and-go flight is counted as two operations.

² Forecasts for County airports are from their respective master plans; Samoa Field Airport forecasts are from City of Eureka staff.

* Estimate if additional hangars are built.

GOAL, OBJECTIVES, & POLICIES

GOAL: The regional aviation system has safe and efficient facilities and services. It is part of a strong multimodal transportation system and is adequately linked to the national aviation network for freight and passenger service. Humboldt’s public-use airports and adjacent land uses and circulation patterns are compatible.

OBJECTIVES: To strive for this goal, HCAOG shall support policies that help achieve the RTP’s main objectives/planning priorities (in alphabetical order):⁵

OBJECTIVES:	AVIATION
Balanced Mode Share/ Complete Streets	<ul style="list-style-type: none"> ◆ Retain and enhance Humboldt County’s access to scheduled passenger airline service so that residents, visitors, and businesses have transportation mobility options. ◆ Increase intermodal connections between regional aviation facilities and the surface transportation system for freight and for all airport users, including passengers, tenants, and employees.
Economic Vitality	<ul style="list-style-type: none"> ◆ Improve the economic benefits of the regional aviation system’s air freight, commerce, and tourism capacities.
Efficient & Viable Transportation System	<ul style="list-style-type: none"> ◆ Maximize the utility and potential compatibility of regional air freight and passenger airline services with adjacent land uses. ◆ Provide affordable and sustainable multimodal options for small and rural communities to access to the national air transportation system.
Environmental Stewardship & Climate Protection	<ul style="list-style-type: none"> ◆ Reduce air pollutant emissions and air quality impacts of air freight transport and air passenger travel.
Equitable & Sustainable Use of Resources	<ul style="list-style-type: none"> ◆ Reduce aircraft noise, ground access congestion, and encroachment concerns resulting from conflicts between incompatible land uses and airport space.
Safety	<ul style="list-style-type: none"> ◆ Achieve orderly expansion of airports and adoption of land use measures and transportation designs that minimize the public’s exposure to safety hazards within areas around public airports. (Consistent with California Aviation System Plan 2020)

⁵ The objectives are described in more detail in the RTP Introduction (Chapter 1).

OBJECTIVE: BALANCED MODE SHARE/COMPLETE STREETS

~~Policy AS-1~~ HCAOG shall include feasible aviation projects in the Regional Transportation Plan, including facility improvements and efforts to maintain and expand air freight and scheduled passenger airline service for Humboldt County. ~~{Moved to Efficient & Viable Transportation System objective}~~

Policy AS-1* HCAOG shall support [efforts to integrate aviation with other modes of transportation for the conveyance of people and goods](#). HCAOG shall encourage programs and projects that improve multimodal surface transportation to airports (e.g. transit/microtransit, secure bicycle storage, [rideshare, mobility on-demand](#)). HCAOG shall apply Complete Streets strategies to [commercial airport](#) access road improvements for regional projects included in the Regional Transportation Plan.

~~Policy AS-2~~ HCAOG shall support multimodal trips by encouraging programs and projects to integrate scheduled passenger airline service with other travel modes (e.g. transit routes/schedules, secure bicycle storage).

~~Policy AS-3~~ HCAOG shall apply Complete Streets strategies to airport access road improvements for regional projects included in the Regional Transportation Plan, as well as for local projects in jurisdictions' Capital Improvement Programs.

~~Policy AS-4~~ HCAOG shall consider feasible projects to develop or extend surface transportation or mass transit systems to improve intermodal ground access to the airport, and any other ground access improvement projects the RTPA deems appropriate to that end. Proposed projects will be included in the Regional Transportation Plan and/or the accompanying Airport Ground Access Improvement Program (AGAIP) for the Redwood Coast Airport (per California Government Code §65081.1(a)).

* draft Policy AS-1 has combined Policies AS-2, 3, 4, and 6

OBJECTIVE: ECONOMIC VITALITY

Policy TBD

~~Policy AS-5~~ HCAOG shall help promote full utilization of airfreight capabilities in Humboldt County, and shall support increasing regional aviation resources for intermodal goods movement. ~~{Moved to Goods Movement Element}~~

~~Policy AS-6~~ HCAOG supports improving ground access to airports in order to enhance passenger, air cargo, and general aviation airport opportunities. ~~{Consistent with California State Aviation Plan Policy MB-3.} {Incorporated into AS-1}~~

OBJECTIVE: EFFICIENT & VIABLE TRANSPORTATION SYSTEM

Policy AS-7 HCAOG shall support regional, long-term airport planning to maintain the utility of Humboldt County airports and maximize connections to the national aviation network, [including intermodal connections](#). HCAOG encourages airport operators to review airport needs every five years, regularly update airports plans, and implement capital improvement programs.

~~Policy AS-18 HCAOG shall include feasible aviation projects in the Regional Transportation Plan, including shall support fix-it-first facility improvements for airports and efforts to maintain and expand air freight and scheduled passenger airline service for Humboldt County.~~

~~Policy AS-8 HCAOG supports lead agencies' regulatory authority to ensure that land use and proposed development in the vicinity of public airports are compatible with airport activities. HCAOG encourages the Humboldt County Airport Land Use Commission to update the 1993 Airport Land Use Compatibility Plan—Humboldt County Airports and to maintain a current ALUCP.~~

OBJECTIVE: ENVIRONMENTAL STEWARDSHIP

~~Policy AS-9 HCAOG shall promote programs to reduce aviation-related air pollution, including promoting HCAOG shall promote projects and programs that increase the energy efficiency and use of “clean” energy sources in aviation transportation.; HCAOG shall also promote programs to reduce aviation-related air pollution.~~

OBJECTIVE: EQUITABLE & SUSTAINABLE USE OF RESOURCES

Policy AS-10 Promote compatibility planning between airports and surrounding land uses. (Consistent with California State Aviation Plan 2016– Policy PL-2)

OBJECTIVE: SAFETY

Policy AS-11 Support the Airport Land Use Commission and airport operators in identifying, avoiding, and eliminating activities which introduce potential aviation safety hazards, airspace hazards, or security hazards.

NEEDS ASSESSMENT

The top priority need for airports is to meet all safety requirements. Safety needs include proper design and conditions for all airport facilities (e.g., access roads, boarding areas, runways, etc.), proper security, and compatible land uses around airports. After safety, priority needs are determined by how well the region's airports are meeting the demand for aviation services, and whether or not opportunities and fiscal resources are available to meet the need.

Ground Access

Ground access needs around airports arise from constraints such as congestion, inadequate or substandard bicycle, pedestrian, and Americans with Disabilities Act access, poor internal and external circulation, and inadequate signage or traffic controls. Constraints that impede efficient cargo and commerce transport include congestion, inadequate intermodal services (e.g., freight, rail, transit), inadequate local roads,

“The (Aeronautics) Division considers promoting a safe aviation environment for pilots, passengers, and persons on the ground its most important obligation.”

– California Aviation System Plan, 2016

conflicts between goods movement and passenger operations, and poor airport access due to surrounding land use encroachment (Caltrans 2016).

The Airport Ground Access Improvement Plan (AGAIP) for Redwood Coast Airport states, “The dominant ground transportation issue is the lack of pedestrian and bicycle connectivity to access the airport terminal from adjacent properties.” The AGAIP identifies potential improvements, some of which are: pedestrian facilities on Airport Road and Airport Loop Road, and bicycle lockers. Refer to Appendix II, “Airport Ground Access Improvement Plan for California Redwood Coast–Humboldt County Airport” for full report.

Global Warming Climate Change & Sea Level Rise

The global climate crisis from greenhouse gas emissions will impact the aviation system.

[The California Aviation System Plan \(CASP 2020\) discusses where airports are particularly vulnerable to sea-level rise, and](#)

[identifies the 11 California airports, four of which are commercial service airports, that will be affected by SLR as water increases above the existing mean higher highwater datum \(MHHW\)...One coastal airport in Humboldt Bay and four airports adjacent to the San Francisco bay are vulnerable to a 3-foot increase in SLR. \(Caltrans 2021\)](#)

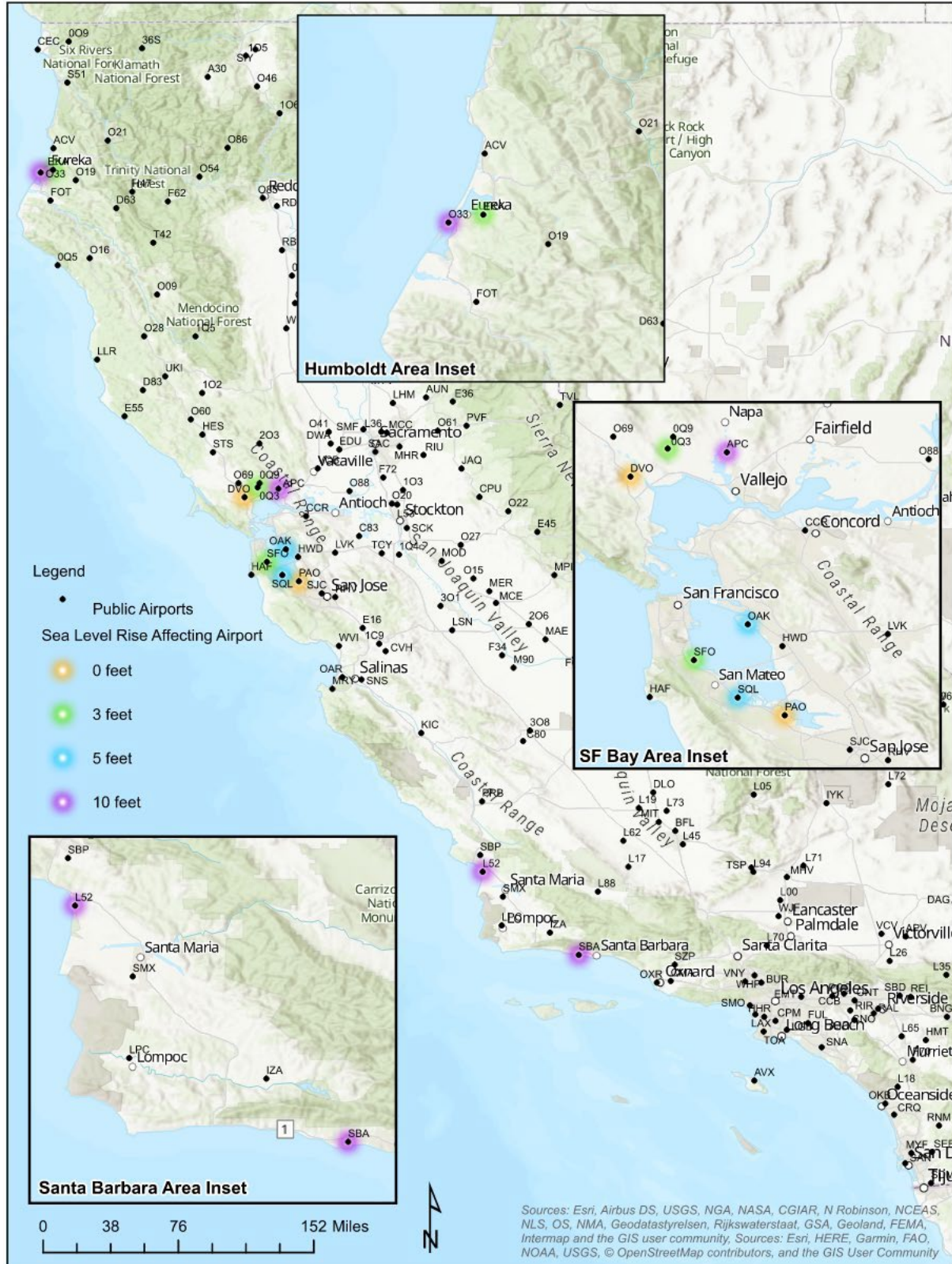
These tables and map, excerpted from the CASP 2020, show Humboldt’s vulnerable airports:

Airport (FAA ID)	Sea Level Rise (above MHHW)			
	0 feet	3 feet	5 feet	10 feet
Humboldt Bay Area				
Murray Field Airport (EKA)		Y	Y	Y
Samoa Field (O33)				Y
San Francisco Bay Area				
Sonoma Valley Airport (0Q3)		Y	Y	Y
Napa County Airport (APC)				Y
Gross Field Airport (DVO)	Y	Y	Y	Y
Metropolitan Oakland International Airport (OAK)			Y	Y

Table 6-7 predicts the extent of SLR that would occur at coastal airports based on three probability scenarios: high, medium, and low probability.

Table 6-7: Projected Sea Level Rise: 2030-2050			
Year	High probability (66%)	Medium probability (0.5%)	Extremely Low probability
North Spit Gauge (Humboldt County) – as measured in feet			
2030	0.7	1	1.2
2040	1.1	1.6	2
2050	1.5	2.3	3.1
San Francisco Gauge – as measured in feet			
2030	0.5	0.8	1
2040	0.8	1.3	1.8
2050	1.1	1.9	2.7
San Luis Obispo Gauge – as measured in feet			
2030	0.5	0.7	1 foot
2040	0.7	1.2	1.6
2050	1	1.8	2.6
Santa Barbara Gauge – as measured in feet			
2030	0.4	0.7	1
2040	0.7	1.1	1.6

California Natural Resources Agency, *State of California Sea-Level Rise Guidance, 2018 Update*.



Map reproduced from the CASP 2020 (preliminary draft, Caltrans Feb. 2021)

In Humboldt County, sea level rise from global warming is compounded by tectonic subsidence, and miles of coastline multiply the area that is at-risk of being inundated. These factors make Humboldt one of the State's counties most vulnerable to sea level rise. Local engineers, scientists, and planners have been monitoring and researching regional vulnerabilities and risks, especially around Humboldt Bay. A recent study has identified critical assets that are at risk for projected sea level rise; in the report the author states that Murray Field Airport is in an area already at-risk under current (2014) conditions, because it is located

in areas that were mapped as vulnerable to tidal inundation by MMMW (*mean monthly maximum water*) tides (7.74 feet) and MAMW (*mean annual maximum water*) king tide (8.79 feet) and are most at risk if shoreline structures such as dikes and railroad beds are breached or overtopped (Trinity Associates 2015).

Correspondingly, Murray Field Airport is also deemed vulnerable to inundation under conditions projected in the near-term (2015 to 2050: MMMW +0.5 m.) and long-term (2050 to 2100: MMMW +1.0 m) planning periods. As the State's Aeronautics Division summarizes, "Low elevation coastal airports will need to address this issue from their operational perspective" (Caltrans 2016).

General Aviation System Needs Assessment (GASNA)

Semi-annually, airports statewide turn in lists of their core project needs to Caltrans's Aeronautics Division. The Division compiles the data into the General Aviation System Needs Assessment (GASNA) "to help the FAA understand the types of projects that might best serve the entire State aviation system of airports" (Caltrans 2016). The GASNA highlights what capital improvement projects (CIP) airports need to better meet safety and infrastructure needs, along with capability upgrades. Table *Aviation-5* shows what local airports need in order to meet minimum standards for their airport classification, as reported in the 2013 updates to the GASNA (Caltrans' Aeronautics Division did not update the GASNA in 2015 or 2017).

Additionally, the summaries below describe what local airports need in order to accommodate existing and forecasted demand for aviation services. There are needs for infrastructure and non-infrastructure projects, i.e., for both airport planning and upgrading or expanding facilities. Following in the next subsection, the Action Plan, Table *Aviation-6* lists each airport's proposed Capital Improvement Plan projects.

FACILITY NEEDS

California Redwood Coast- Humboldt County Airport

The recently updated *Airport Land Use Compatibility Plan* listed these improvements for the Airport:

<u>Planned Facility Improvements</u>	<u>Description</u>
<u>Airside</u>	<ul style="list-style-type: none"> • <u>Box Hangars</u> • <u>Executive Hangars</u> • <u>Runway 1 PAPI</u> • <u>Runway 19 PAPI</u> • <u>Corporate Hangar Area</u> • <u>Aircraft Rescue and Fire Fighting (ARFF)</u> • <u>Electrical Vault</u> • <u>Relocated Beacon</u> • <u>Air Traffic Control Tower (ATCT)</u> • <u>Runway 14 Touchdown Zone Lights</u>
<u>Landside</u>	n/a

Source: Humboldt County ALUCP, Table G-1 (April 2021)

Dinsmore Airport: Runway

Dinsmore Airport’s principal constraints to increasing operations are its runway length and non-standard approach and departure procedures. The runway length is 766 feet shorter than required for 75 percent of small airplanes with 10 passenger seats or less. It will be relatively more costly to extend or realign this airport’s runway due to the sloping terrain, the location of Highway 36, and dense forest on the east and west sides of the airport. The *Dinsmore Airport Master Plan* recommends that Humboldt County request a modification of FAA standards to maintain the current width of the runway, to allow part of Highway 36 to remain inside the runway safety area, to allow nonstandard conditions with regard to the object-free area for Runway 9-27, and to maintain tiedowns within the aircraft parking limit. It also recommends that space be established and preserved for aircraft storage facilities, in case demands increase.

The Humboldt County Airport Land Use Compatibility Plan notes, “The planned improvements to the (Dinsmore) Airport shown in the Master Plan and on the ALP include a 20-year plan that discusses sites for future rehabilitation and reconstruction of the runway, ramp, storm drain, as well as fencing and gates” (ALUCP, April 2021).

Garberville Airport: Facilities for Future Demand

The *Garberville Airport Master Plan* shows a forecast of the airport adding eight based aircraft from 2005 to 2025. Between 2005 and 2014, however, the airport’s based aircraft has decreased from 20 to 18 (FAA 2014) [update needed]. If demand increases, development would include extending the apron further north; constructing two taxiway exits and hangars; and adding tiedown parking positions, aircraft storage units, and designated parking. The existing space at the airport could accommodate ten new tie-downs.

The recently updated [Airport Land Use Compatibility Plan](#) listed these additional improvements:

IMPROVEMENTS – GARBERVILLE AIRPORT	
Planned Facility Improvements	Description
Airside	<ul style="list-style-type: none"> • Design Underground Storm Drainage for Runway Safety Area (RSA) Enhancement • Construct Underground Storm Drainage for RSA Enhancement • Design Ramp Reconstruction, Rehabilitation and Expansion • Construct Ramp Reconstruction, Rehabilitation and Expansion • Design Runway Rehabilitation and Reconstruction • Construct Runway Rehabilitation and Reconstruction • Design Relocation of Wind Cone and Segmented Circle • Relocate Wind Cone and Segmented Circle
Source: Humboldt County ALUCP (April 2021)	

Hoopa Airport: Runway

The Hoopa Airport is a Limited Use General Aviation Airport, but it does not meet all the minimum standards of that class of airport. The airport’s runway length and weight-bearing capacity are short of the minimum standards (see Table *Aviation-4* for details).

Kneeland Airport: Runway Expansion

Operational levels at Kneeland Airport are most restricted by the runway length and clearance. The runway length (2,235 feet) is 885 feet shorter than required for 75 percent of small airplanes with 10 passenger seats or less. Expanding the runway has three major constraints:

1. The most significant factor is the environmental constraint presented by the Kneeland Prairie pennycress, a perennial herb of the coastal uplands of Humboldt County. The Kneeland Prairie pennycress is on the California Endangered Species list (since February 2000) and is a designated critical habitat. There are two known populations (colonies): one on either side of the airport’s runway. The plant’s endangered species status precludes modifying the airfield;
2. The Cal Fires’ Helitack Base (for helicopter-delivered firefighting resources), located immediately west of the airfield, limits that airport’s ability to satisfy lateral runway clearance requirements; and,
3. Topographic and geologic conditions “severely limit” how much the runway can be expanded (County of Humboldt, 2005a).

[The updated Airport Land Use Compatibility Plan notes that Kneeland Airport’s 20-year plan “mostly discusses stabilization and sealing of Runway 15 33” \(Humboldt County ALUCP 2021\)](#)

Murray Field Airport: Preserve Land for Expansion

Murray Field Airport’s priority needs are to construct the runway/taxiway and to install wildlife fencing. The *Murray Field Airport Master Plan Report* recommends that the County of Humboldt preserve three acres on the south/southwest side of the airport for future needs to expand airport facilities (i.e., based-aircraft storage and parking). The report also identifies three acres on the north side of the airport that might be useful for future airport development. The building area at Murray

Field Airport are constrained by the presence of protected wetlands which attract wildlife. (County of Humboldt, 2007c).

Rohnerville Airport: Facilities for Future Demand

The *Rohnerville Airport Master Plan* (County of Humboldt, 2007d) outlines phased development to expand the airport facilities for projected growth. Development plans include: reconfiguring, expanding, or adding new aprons; constructing a new taxiway, T-hangers or tiedowns, and perimeter fencing; installing new runway lighting; and improving the runway safety area.

Samoa Field Airport: Airport Classification Standards

Although Samoa Field Airport is classified as a Community General Aviation Airport, it does not meet all the minimum standards of this airport class. The airport's longest runway does not reach the minimum length, width, or weight-bearing standards. Additionally, the airport does not have visual aid equipment, 24-hour on-field weather services, or an instrument approach procedure. See Table *Aviation-4* for details.

Shelter Cove Airport: Airport Classification Standards

Like Samoa Field Airport, the Shelter Cove Airport is also classified as a Community General Aviation Airport but does not meet all the minimum standards. It, too, does not have visual aid equipment, 24-hour on-field weather services, or an instrument approach procedure. Neither does its longest runway meet minimum standards for length. See Table *Aviation-5* for details.

The Caltrans Division of Aeronautics prepares, in odd years, the General Aviation System Needs Assessment (GASNA) to supplement the Capital Improvement Plan (of the CASP). With the GASNA, the Division of Aeronautics staff inform and recommend to airport operators, local governments, and the FAA those improvement projects they surmise would benefit California's overall aviation system. The GASNA recommends priorities of unfunded safety, capacity, and capability projects at primarily GA airports. The table below reproduces the 2013 GASNA table by Caltrans (the most recent available at time of printing).

Table Aviation-6. Airport Enhancement Needs to Upgrade to Minimum Standards (Airports in Caltrans District 1)

District 1 All Projects Attribute Details							Longest Runway Attributes					
Airport by Caltrans Airport Functional Classification ¹	Min. stdd length ² (Feet)	Length (Feet)	Extension cost estimate	Width (feet)	Widening cost estimate	Asphalt runway pavement condition (G-good, F-fair, P-poor)	PCI ³	PCI or visual inspection year	New pavement overlay cost for existing runway length	Usable runway rehabilitation cost estimate	Weight bearing capacity ⁴ (single wheel/000 lbs)	Runway safety area ⁵
Primary Commercial Service Non-Hub				150		Good	Very Good				50	
REDWOOD COAST (formerly Arcata)	7,000	5,998	\$1,107,711	150		ASPH-G	79	2006	\$408,865	\$408,105	60	S
Regional General Aviation				75		Good	Very Good				12.5	
MURRAY FIELD*	5,500	3,000	\$1,381,875	75		ASPH-G	99	2006			19	
ROHNERVILLE*	5,600	4,005	\$1,175,515	100		ASPH-G	76	2006	\$180,225	\$180,225	30	
Community General Aviation				75		Fair	Very Good				12.5	
SAMOA FIELD (formerly Eureka Muni)	3,500	2,700	\$353,760	60	\$386,925	ASPH-G	91	2002			10	
GARBERVILLE	3,700	3,050	\$359,288	75		ASPH-F	53	2011	\$528,413	\$93,893	30	
KNEELAND*	4,500	2,252	Infesible-terrain	50	\$829,125	ASPH-G	95	2006			13	U
SHELTER COVE	3,500	3,400	\$44,220	60	386,925	ASPH-G	100	2011			20	
Limited Use				60		Fair	Very Good				12.5	
DINSMORE	3,800	2,510	\$456,350	48	\$336,072	ASPH-P	32	2006	\$278,309	\$835,581	unknown	
HOOPA	3,100	2,325	\$285,588	50	\$228,470	ASPH-F	N/A	N/A			10	
Cost Totals			\$5,164,307		\$2,167,517					\$1,596,260		

Table continues on next page.

Table Aviation-6. (continued)

District 1 All Projects Attribute Details		Other Desirable Airport Safety Attributes						
Airport by Caltrans Airport Functional Classification ¹	Visual aid	Visual aid equip. and install. cost estimate	Instrument approach procedure	24-hour on-field automated weather services	24-hour on-field automated weather services equip. & install. cost estimate	Available fuel & grade	Fuel equip. & install. cost estimate	Airport layout plan ² (date)
Primary Commercial Service Non-Hub	VASI/PAPI³		ILS	Yes				100LL & Jet A
REDWOOD COAST (formerly Arcata)	PAPI		ILS	Yes				100LL & Jet A 1/1/2002
Regional General Aviation	VASI/PAPI		GPS/VOR	Yes				100LL & Jet A
MURRAY FIELD*	VASI		GPS	None	\$130,000	100LL	\$50,000	7/16/2010
ROHNERVILLE *	VASI		GPS	Yes		100LL	\$50,000	7/16/2010
Community General Aviation	VASI/PAPI		GPS/VOR	Yes		100LL		
SAMOA FIELD (formerly Eureka Munic.)	None	\$60,000	None	None	\$130,000	None	\$100,000	1/1/1984
GARBERVILLE	None	\$60,000	None	Yes		100LL		7/16/2010
KNEELAND*	None	\$60,000	None	None	\$130,000	None	\$100,000	5/1/1993
SHELTER COVE	None	\$60,000	None	None	\$130,000	None	\$100,000	8/1/1997
Limited Use	None		None	None		100LL		
DINSMORE	None		None	None		None	\$100,000	11/3/2010
HOOPA	None		None	None		None	\$100,000	12/1/1992
Cost Totals		\$240,000			\$520,000		\$600,000	

Note: Airport enhancement needs and estimated costs to upgrade to minimum standards as defined in the System Needs Assessment are listed in priority order from left to right.

¹ Priority 1 Airport (grey highlight); Priority 2 Airport (*); Non-NPIAS Facility (bold italic text); All runway dimensions (in feet); Minimum standard deficient (red text);

² Airport layout Plan minimum standard (> 5-years in red text).

³ VASI=Visual approach slope indicator. PAPI= Precision approach path indicator.

Source: Caltrans 2013 (most current GASNA available as of August 2017).

ACTION PLAN: PROPOSED PROJECTS

The proposed projects in Table *Aviation-6* address airports’ current or anticipated needs for projected future demand. Funds may or may not be available to implement these projects within the RTP’s short-term or long-term planning horizon. Project priorities may change based on funding, FAA priorities, or national emergencies. Projects were identified based on Airport Master Plans, *Humboldt County Aviation Division of Public Works–Airport Capital Improvement Plan (ACIP)*, *California Aviation System Plan: Capital Improvement Plan 2019-2028* (Caltrans 2019), and communications with local agency staff and committee members.

Table update is incomplete – Revisions needed from airport operators

Table Aviation-7. Regional Airport Capital Improvement Plan (CIP) and Planning Projects

Project Name/Description	Short or Long Term ¹	FAA	State	Local	Implementation Year(s)	Estimated Cost ² (000s)
Redwood Coast Airport (Arcata Airport) – County of Humboldt						
Obstruction Mitigation Plan	ST	tbd		tbd	2016	\$75
Pavement Maintenance Management Plan	ST	tbd		tbd	2016	\$85
Taxiways B&G Drainage Improvements	ST	tbd		tbd		
Air Freight Needs Assessment (to study Redwood Coast, Murray Field, and Rohnerville Airports)	ST		tbd	tbd	TBD	\$38
Phase 4 ARFF – Construct ARFF Building*	ST	5,321	0.00	591	2016	\$5,912
Phase 3 construct fire station	ST	tbd		tbd	2017	\$3,700
Design runway lighting improvements*	ST	699,653	0.00	78	2018	\$777
Obstruction Removal*	ST	180,000	0.00	20	2018	\$200
Study hazard removal	ST	tbd		tbd	2018	\$150
Construct runway lighting improvements*	ST	4,398	0.00	489	2019	\$4,887
RNR TWY B&G/drainage (design complete 2006)	ST	tbd		tbd	2019	\$509
Design roadway entrance to airport	ST	tbd		tbd	2019	\$250
Construct Runway Lighting Improvements Phase 3*	ST	3,208	0.00	356	2020	\$3,564
Safety Management System*	ST	45	0.00	5	2020	\$50
Install sidewalk on Airport Road (see Complete Streets Element, Table <i>Streets-4</i> , for project details)						
					<i>Subtotal</i>	<i>\$20,197</i>

Table continues on next page.

Project Name/Description	Short or Long Term ¹	FAA	State	Local	Implementation Year(s)	Estimated Cost ² (000s)
Dinsmore Airport – County of Humboldt						
Design west end storm drain improvements	ST	tbd		tbd	2016	\$50
Install fence and gates	ST	tbd		tbd	2016	\$40
Design windsock and segmented circle	ST	tbd		tbd	2016	\$42
Obstruction Mitigation Plan & AGIS Survey*	ST	135	7	8	2017	\$150
Construct windsock and segmented circle	ST	tbd		tbd	2017	\$88
Construct west end storm drain improvements	ST	tbd		tbd	2018	\$300
Remove/lower hazard to aircraft/ obstructions*	ST	135	7	8	2019	\$150
Construct fence and gates	ST	tbd		tbd	2019	\$166
Design ramp improvements	ST	tbd		tbd	2019	\$50
					<i>Subtotal</i>	<i>\$1,036</i>
Garberville Airport						
Design runway	ST	tbd		tbd	2014	\$53
Construct runway RNR	ST	tbd		tbd	2015	\$368
Construct ramp RNR and expansion*	ST	509	25	31	2016	\$565
Obstruction removal plan & AGIS Survey*	ST	109	5	7		\$121
Study removing or lowering hazards to aircraft	ST	tbd		tbd	2017	\$50
Design runway safety area drainage	ST	tbd		tbd	2018	\$7
Remove or lower aircraft hazards*	ST	180	9	11	2019	\$200
Construct runway safety area drainage	ST	tbd		tbd	2019	\$564
Ramp improvements and apron expansion	ST	509	25	31	2021	\$565
					<i>Subtotal</i>	<i>\$2,493</i>
Hoopa Airport – Hoopa Valley Tribe						
Taxiway extension to runway	ST	tbd	tbd	tbd	2016	\$50
Kneeland Airport – County of Humboldt						
RSA study	ST	tbd		tbd	2015	\$157
Study removing or lowering hazards to aircraft	ST	tbd		tbd	2015	\$5
Design stabilization	ST	tbd		tbd	2016	\$108
Construct stabilization	ST	tbd		tbd	2017	\$1,078
Obstruction Mitigation Plan & AGIS Survey	ST	135	68	8	2017	150
Design fencing and gates	ST	tbd		tbd	2018	\$45
Remove or lower hazards to aircrafts*	ST	135	68	8	2016	\$150
Construct fencing and gates	ST	tbd		tbd	2019	\$350
					<i>Subtotal</i>	<i>\$2,043</i>

Project Name/Description	Short or Long Term ¹	FAA	State	Local	Implementation Year(s)	Estimated Cost ² (000s)
Murray Field Airport – County of Humboldt						
Construct wildlife perimeter fencing/gates	ST	tbd		tbd	2013	\$609
ALP update	ST	tbd		tbd	2014	\$83
Design AWOS system	ST	tbd		tbd	2015	\$25
Design beacon security lighting, and emergency generator connection	ST	tbd		tbd	2015	\$25
Install and implement AWOS type system	ST	tbd		tbd	2016	\$270
Construct Runway 12/30 Rehabilitation (Phase 2)*	ST	810	41	50	2017	900
Beacon, security lighting, and emergency generator connection	ST	tbd		tbd	2017	\$100
Design RWY/TWY RNR	ST	tbd		tbd	2017	\$63
Construct RWY/TWY RNR*	ST	584	29	36	2018	\$649
Design entry road rehabilitation	ST	tbd		tbd	2018	\$40
Design lighting upgrade for runway and taxiway*	ST	tbd		tbd	2015	\$50
Construct entry road rehabilitation	ST	tbd		tbd	2019	\$480
Air Freight Needs Assessment— <i>see under Redwood Coast Airport</i>						
					<i>Subtotal</i>	<i>\$3,294</i>
Rohnerville Airport						
Obstruction removal*	ST	135	7	8	2020	\$150
Construct upgrade of RWY/TWY lighting system*	ST	1,199	60	73	2021	\$1,332
Rehabilitate Runway – Design*	ST	132	7	8	2018	\$147
Rehabilitate Runway – Construct Phase 2*	ST	1,112	56	68	2019	\$1,234
Rehabilitate Runway – Construct Phase 3*	ST	555	28	34	2020	617
Design and construct wildlife exclusion fence/gates*	ST	536	27	33	2021	\$595
Rohnerville Airport Connectivity Study (with City of Fortuna, Caltrans)	ST				2017-18	\$99
					<i>Subtotal</i>	<i>\$4,174</i>
Shelter Cove Airport – SCRID No. 1						
Airport Land Use Plan Update	ST	0.00	93	10.34	2019	\$103.4
Taxiway realignment planning	ST	0.00	81	9	2019	\$90
Tiedown area paving, SE and NW tiedown	ST	504	25.2	30.8	2019	\$560
Improve drainage – southeast tiedown area	ST	0.00	450	50	2020	\$500
Pilots' lounge	ST	0.00	67.5	7.5	2020	\$75

Project Name/Description	Short or Long Term ¹	FAA	State	Local	Implementation Year(s)	Estimated Cost ² (000s)
Taxiway realignment	ST	630,000	31.5	38.5	2020	\$700
10 space pilot's parking lot planning and design	ST	0.00	23	3	2026	\$26
10 space pilot's parking lot	ST	0.00	90	10	2027	\$100
					<i>Subtotal</i>	<i>\$1,501</i>
Samoa Field (formerly Eureka Municipal) – City of Eureka						
Resurface runway/repaint markings*	ST	0.00	135	15	2019	\$150
T-Hangar Improvements	ST	0.00	180	20	2021	\$200
Resurface Parking Areas	ST	0.00	0	0	2022	\$0
Design T-hangars*	ST	0.00	27	3	2023	\$30
Construct ten T-hangars*	ST	0.00	270	30	2024	\$300
Remove/prune willow stand*	ST	0.00	37.8	4.2	2026	\$42
Install runway lights*	ST	0.00	495	55	2027	\$550
Construct security fencing*	ST	0.00	139.5	15.5	2028	\$155
					<i>Subtotal</i>	<i>\$1,130</i>
Airport Land Use Commission – County of Humboldt						
County-wide update of the <i>Airport Land Use Compatibility Plan: Humboldt County Airports (ALUCP)</i> *	ST	0.00	495	55	2017-18	\$550
					<i>Subtotal</i>	<i>\$550</i>
					<i>Short-term Subtotal</i>	<i>\$37,018</i>
					<i>Long-term Subtotal</i>	<i>\$0</i>
					Regional Projects–Funded (constrained) Subtotal	TBD
					Regional Projects–Not funded (unconstrained) Subtotal	TBD
					REGIONAL AVIATION PROJECTS TOTAL	\$37,018

¹ Short-term is 1-5 years; long-term is 6-10 years. ² To estimate the cost in year of implementation, assume a 2% annual rate of inflation.

* Project is listed in the “California Aviation System Plan: Capital Improvement Plan Year 2017-2026 (Caltrans, May 2017)

Acronyms: Reconstruct and Rehabilitate (RNR), Automated Weather Observation System (AWOS), taxiway (TWY), runway (RWY), Aircraft Rescue and Fire Fighting Building (ARFF).

PERFORMANCE MEASURES

The table below lists performance measures for the region’s aviation system. The table groups performance measures by “goal,” which correspond to the RTP’s six main objectives/planning priorities.

Table Aviation-7. Performance Measures for the Regional Aviation System

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
Safety	<i>Collision rates</i> <i>Aviation safety</i>	Have rates of crashes, fatalities, and injuries decreased?	<ul style="list-style-type: none"> Severity of collisions and injuries. Number of safety improvement projects implemented. Fatal accident rate of commercial air carrier or general aviation. 	Accident statistics collected by Caltrans District 1 Safety Division, CHP, local agencies, Federal Aviation Agency (FAA).
	<i>Airport hazards</i>	Are safety accidents decreasing? Do all airports have a safety management system? Are airport tarmac areas and fueling facilities securely fenced? Are there secure boundaries for airport runways, taxiways, aprons?	<ul style="list-style-type: none"> Number of runway incursions and/or operational errors. Number of preventable workplace injuries. Airports without a safety management system. Area of unsecure fencing at airport perimeters, card access, gate monitoring system. 	Airport Master Plans or safety reports, Caltrans Office of Aviation Planning, Division of Aeronautics, FAA statistics.
Balanced Mode Shares (Complete Streets)	<i>Mobility</i>	Has travel time decreased for passengers, freight/goods trips?	<ul style="list-style-type: none"> Travel mode split (shares) for freight transport. 	US Census, American Community Survey, goods movement industry.
	<i>Reliability</i> <i>Performance</i>	Has the speed and/or reliability of on-time performance improved?	<ul style="list-style-type: none"> Percentage of on-time deliveries/arrivals for commercial freight/passenger trips. 	FAA statistics, goods movement industry studies.

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
Efficient, Viable Transportation System	<i>System condition</i>	Do aviation facilities meet standards for state of good repair?	<ul style="list-style-type: none"> • Condition of aviation facilities. • Maintenance/rehabilitation funding shortfalls. 	Aviation Depts, Caltrans District 1, Harbor District, goods movement industry, StreetSaver or other pavement management software.
	<i>System preservation</i>	Is the road (runway) maintenance or rehabilitation backlog decreasing?	<ul style="list-style-type: none"> • Total cost per capita to sustain (modal) system performance at base-year level. • Maintenance cost per capita to preserve (modal) system at base-year conditions. 	
	<i>State of good repair</i>	Is the road (runway) maintenance or rehabilitation backlog decreasing?	<ul style="list-style-type: none"> • Condition of aviation facilities. • Maintenance/rehabilitation funding shortfalls. • Total cost per capita to sustain (modal) system performance at base-year level. • Maintenance cost per capita to preserve (modal) system at base-year conditions. 	
Environmental Stewardship & Climate Protection (CO₂ reduction)	<i>Cost effectiveness of investments</i>	Are investments in RTIP projects helping achieve RTP goals?	Per one thousand dollars invested: <ul style="list-style-type: none"> • Decreased safety violations/accidents. • Decrease in system-operating cost. • Increased frequency and reliability of aviation service. • Decrease in air pollution emissions. • Increase in commercial passenger miles carried. 	Caltrans, California Air Resources Board (CARB), CHP, Public Works Departments, local and state environmental compliance reporting.
	<i>Benefits to costs ratio</i>	Have investments improved system efficiency and/or productivity?	<ul style="list-style-type: none"> • Decreased safety violations/accidents. • Decrease in system-operating cost. • Increased frequency and reliability of aviation service. • Decrease in air pollution emissions. • Increase in commercial passenger miles carried. 	
		Have system operating and maintenance costs decreased? Are truck, harbor, aviation, or rail market shares increasing for commercial passenger/freight services?	<ul style="list-style-type: none"> • Decreased safety violations/accidents. • Decrease in system-operating cost. • Increased frequency and reliability of aviation service. • Decrease in air pollution emissions. • Increase in commercial passenger miles carried. 	
Environmental Stewardship & Climate Protection (CO₂ reduction)	<i>Fuel and energy use</i>	Has fuel consumption decreased?	<ul style="list-style-type: none"> • Fuel consumption gallons per capita, countywide or regionwide. • Fossil fuel use ratio of passenger miles traveled (per modes). • Ratio of fossil fuel use to freight miles traveled. 	Caltrans annual traffic counts, environmental and compliance reporting, FAA statistics.
	<i>Air quality</i>	Have air pollutant emissions decreased from general aviation sources?	<ul style="list-style-type: none"> • PM_{2.5}, PM₁₀ emissions. • Air quality levels, including greenhouse gas emissions. • Diesel exhaust emissions. 	
	<i>Adaptability and resilience to climate change impacts</i>	Have transportation CO ₂ emissions decreased?	<ul style="list-style-type: none"> • Total transportation CO₂ per capita, countywide, and/or air-basin-wide. • Passenger transportation CO₂ per capita, countywide, and/or air-basin-wide. 	

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
Equitable & Sustainable Use of Resources	<i>Equity</i>	Have transportation investments advanced environmental justice (EJ) objectives?	<ul style="list-style-type: none"> • Percentage of RTP/RTIP expenditures in environmental justice tracts. • Percentage of homes within half-mile of airport, EJ and non-EJ tracts. 	US Census, American Community Survey
	<i>Environmental justice</i>	<p>Has new transportation infrastructure developed agricultural or natural resource land?</p> <p>Are land uses and development compatible for adjacent transportation facilities?</p>	<ul style="list-style-type: none"> • Acres of sensitive lands on which transportation infrastructure is built. • Acres of land adjacent to airports that are zoned compatibly for airport noise and height restrictions/acres of incompatible encroachment. 	General Plan updates, Airport Land Use Compatibility Plan, Airport Master Plans.
Economic Vitality	<i>Economic sustainability</i>	<p>Have aviation investments contributed to economic growth?</p> <p>Has access to jobs, markets, and/or services increased as a result of recent aviation investments?</p>	<ul style="list-style-type: none"> • Direct and indirect economic benefits from increased aviation options. 	

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7. GOODS MOVEMENT ELEMENT

The Goods Movement Element discusses what resources, needs, and opportunities the region has to transport goods and passengers via state highway/trucking, maritime, aviation, and rail transportation.

EXISTING GOODS MOVEMENT SYSTEM

INTERMODAL GOODS MOVEMENT

To move goods efficiently over long distances, transportation systems must maximize viable land, sea, and air routes. An efficient intermodal transportation system will connect available highway, rail, port, and aviation facilities, and thereby give shippers and receivers access to inter-regional, national, and international markets. Port-rail connections can move large quantities efficiently, especially heavy bulk products such as sand, gravel, cement, and timber. Trucks can move smaller quantities faster because they can deliver to a buyer's doorstep and eliminate time spent offloading goods from a ship or train. Perishable products (flowers, produce, dairy) and overnight or emergency deliveries are moved most efficiently via air-truck connections.



In Humboldt County, the goods movement system includes highway (trucking), maritime, and aviation facilities. The common transportation facility that connects the three is U.S. 101, which accesses the county from north to south, and links Humboldt's cities. Major freight facilities that access U.S. 101 include the Port of Humboldt, the Redwood Coast Airport (formerly the Arcata-Eureka Airport), Murray Field Airport, and State Route 299 (and the NWP railroad line, albeit defunct). State Route 299, which junctions U.S. 101 in Arcata, is the main route for truck transport to/from eastern Humboldt County and Trinity County. State Route 255 (Arcata to Samoa Peninsula) is also an important intermodal route for the Port of Humboldt Bay. Additionally, Washington Street in Eureka has been designated as a route of intermodal significance because of its rail, port, highway, and pipeline accessibility. Figure 7.1 (see Maps Tab) shows goods movement system facilities countywide.

Freight Transfer (Transload) Facilities

Intermodal freight transfer facilities provide safe access, dedicated space, and sometimes storage for transferring (transloading) freight from one mode to another. Transloading also allows shippers to combine smaller shipments into a large one (consolidate), or, conversely, divide a large shipment into smaller ones (i.e. deconsolidate). There are currently several intermodal transfer facilities in the region; some are in use and some are not. Such freight transfer facilities include: the Schneider Dock on the Eureka Waterfront (port-truck transfer facility), Fairhaven Terminal, California Redwood

Chip Export Dock and the Sierra Pacific Terminal at 14th Street, on Humboldt Bay, and the Redwood Marine Terminal (#1 Redwood Dock, #2 Freshwater Dock) in Samoa.

HIGHWAY/TRUCK TRANSPORT

Surface transportation via truck is the most-used mode of moving freight in Humboldt County. Goods shipped by sea and by air are almost always transferred to trucks to be delivered to their final destinations. Thus, freight trucking provides a vital delivery link for international, domestic, and local markets and suppliers. Local trucking service represents the largest share of truck traffic in Humboldt.

Major Truck Routes

The highway system in Humboldt County includes routes designated Terminal Access, California Legal Network, and California Legal Advisory Routes. Terminal Access Truck Routes are portions of State routes or local roads that allow STAA trucks, which are commercial trucks that conform to the weight, width, and length standards allowed by the federal Surface Transportation Assistance Act (STAA). State Route 299 is free of STAA restrictions since Caltrans (District 2) completed reconstruction on Buckhorn Grade in Shasta County in 2017; it is now designated an STAA Terminal Access Route between Interstate 5 and U.S. Highway 101. State Route 299 is the only STAA route serving the Port of Humboldt Bay. U.S. Highway 101 is a Terminal Access Route in Humboldt County except for a five-mile stretch from the Humboldt/Mendocino County line to Richardson Grove State Park. To move freight through this five-mile stretch, haulers driving longer STAA-conforming trucks must unload the cargo and transfer it to shorter trucks that are allowed on this section of highway. (There are some size exemptions, such as for cattle trucks.) Transferring freight adds to transport costs.



Terminal
Access Route

Unlike STAA trucks, California Legal Trucks have access to the entire state highway system. In short, STAA trucks can be longer than “California Legal” trucks. The California Legal Network highways in Humboldt are:

- SR 299 (Arcata to Trinity County)
- SR 255 (Eureka to Arcata)
- SR 211 (Fernbridge to Ocean Avenue in Ferndale)
- SR 200 (McKinleyville to Blue Lake)
- SR 96 east of Junction Route 169 (Willow Creek to Yreka)
- SR 36 in Humboldt at its eastern end (near Alton) and western end (Van Duzen River Bridge near Dinsmore).

On trucking routes designated as California Legal Advisory Routes, the California DOT (Caltrans) advises that trucks should have semi-trailers shorter than the 40-foot kingpin-to-rear-axle (KPRA) distance that is allowed on the rest of the California Legal Network. KPRA advisories range from 30 to 38 feet. Routes are restricted primarily because they have narrow lanes or tight radius curves. The tight curves make it difficult for longer trucks to stay within their lane while going around tight curves.

Humboldt’s southern 5.1 miles of U.S. 101, at Richardson’s Grove State Park, is a California Legal Advisory Route. It has a KPRA Advisory of maximum 32 feet long (livestock trucks are exempt from this restriction), which effectively prohibits STAA trucks.

However, Caltrans (District 1) has designed a project for U.S. 101 through Richardson Grove State Park to give STAA trucks access northbound into Humboldt. The project proposes to reconstruct 1.1 miles of U.S. 101 to “realign and widen curves and obtain two-foot shoulders in the park where possible, and four-foot shoulders outside the park without removing or significantly impacting old growth redwood trees” (Caltrans 2011). When this southern segment of U.S. 101 is redesignated as a Terminal Access route, STAA trucks will have uninterrupted access on U.S. 101 from the Oregon border to the San Francisco Golden Gate Bridge.

Caltrans faced legal challenges on the project’s CEQA (State) and NEPA (federal) environmental reviews. Caltrans prevailed in the CEQA case (2012). In 2014, Caltrans voluntarily withdrew the Finding of No Significant Impact (FONSI) for its NEPA Environmental Assessment in order to analyze, per the State Appellate Court’s findings, certain aspects of the impacts to redwood tree roots. ~~Caltrans has not, at the time of writing, forecasted when the project will proceed to the construction phase.~~ As of (May) 2021, the project is still in litigation.

Transition to Zero-Emission Technology
Target: Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.
 – CA Sustainable Freight Action Plan 2016

The other California Legal Advisory Routes in Humboldt are:

- SR 254 (Phillipsville to Stafford) (30-feet-maximum KPRA Advisory);
- SR 169 (Klamath to Weitchpec) (30-feet-maximum KPRA Advisory);
- SR 96 (Willow Creek to Yreka) (36-feet-maximum KPRA Advisory); and
- SR 36 (Fortuna to Johnstonville) (30-feet-maximum KPRA Advisory).

MARITIME TRANSPORT

California has twelve deep-water seaports that accommodate transoceanic vessels. Eleven are publicly owned and one (Benicia) is privately owned. The Port of Humboldt Bay is the only deep-water shipping port between San Francisco, 225 nautical miles south, and Coos Bay, Oregon, 156 nautical miles north. It is a working port that can handle vessels with domestic or international cargoes, including mid-sized cargo ships (Panamax) vessels, which can transit the Panama Canal locks. However, the Port of Humboldt Bay is currently the major underutilized deep-water harbor in the State. It is the only California port without rail access to the national rail network. Since the railroad is not in service, commercial vessels calling on Humboldt Bay must transport their cargo loads (i.e. transload) to and from the harbor by truck. See the Maps Tab for harbor/marine facilities (Figures 7.2a and 7.2b).

Humboldt Bay imports more than 90% of the gasoline and diesel fuel used in Humboldt County, and approximately 70% used in Del Norte, Trinity and Mendocino Counties.

The Marine Highway Program was established by Congress, pursuant to the Energy Independence and Security Act of 2007 and was expanded with legislation in 2012 and 2016. The program’s primary goal is to reduce truck traffic on congested surface roads by diverting domestic freight (or passengers) to marine highway routes between U.S. ports. The marine highways are federally designated, and are named for the congested landside route it parallels, such as marine highways M-5 (parallel to Interstate 5) along the Pacific coast and M-580 (parallel to State Route 580) in California.

The Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) has tried to get funding for viability analyses and marketing for short-sea shipping from Humboldt Bay to the M-5 along the coasts of Washington, Oregon, and California. So far, however, the District has not been able to secure funding to cultivate potential markets to show that there is a demand for viable, sustained short-sea shipping.

Humboldt Bay Harbor, Recreation and Conservation District

The Harbor District, a countywide public local agency, manages Humboldt Bay to promote commerce, navigation, fisheries, recreation, and to protect natural resources. HCAOG consulted with the District’s Executive Director to update, review, and disseminate the Goods Movement Element, as well as other elements of the RTP update.

The Harbor District owns Kramer Dock and Redwood Marine Terminal on the Samoa Peninsula, and also owns and operates Woodley Island Marina facility, which is a full-service marina with 237 slips for commercial, recreational, research, and safety vessels. Woodley Island Marina has guest docking facilities, laundry and shower facilities, a restaurant, offices, and other facilities.

The Harbor District has been cleaning up and refurbishing Redwood Marine Terminal II (berth 2), which includes a 1,170-foot-long dock with deep-water access. Upon purchasing the site for \$1.00 in 2013, the Harbor District worked with the U.S. Environmental Protection Agency to clean up acids and pulping liquors that were left behind in 2008 by the previous owners, Evergreen Pulp. The District then invested \$3 million to upgrade warehouses and office facilities, and held a grand opening ceremony in October 2016. Tenants already operating at the site include businesses in mariculture (clam and oyster seeds), surface shipping, sea salt, and an electrical company.

Port Facilities

The Harbor District maintains six channels in Humboldt Bay, as follows:

Channel	Depth maintained, MLLW ¹
Bar channel	-48 feet
Entrance Channel	-48 feet
North Bay Channel	-38 feet
Eureka Channel - southerly segment	-35 feet
- northerly segment	16 feet
Samoa Channel and turning basin (north)	-38 feet
Fields Landing (Hookton) Channel	-26 feet

¹. Mean Lower Low Water (MLLW): the average of the lower low water height of each tidal day.

Humboldt Bay channels access seven operating docks and nine deep-water berths. All docks serve ocean-going dry cargo vessels; one dock also serves liquid bulk cargo vessels. The following docks and terminals have active cargo terminals:

- Eureka/Samoa: • Redwood Dock Site: Phillips Petroleum (formerly Tosco), Simpson-Samoa
 • Dock B/Balloon Track (a Foreign Trade Zone)
- Fields Landing: • Fields Landing Terminal Area (a Foreign Trade Zone)
 • Humboldt Bay Forest Products Terminal (Olson Dock)

Table *Goods-1* gives more information on active shipping terminals serving Humboldt Bay.

Table *Goods-1*. Active Shipping Terminals on Humboldt Bay

Location	Shipping Terminal	Ownership	Primary Use
SAMOA PENINSULA (North Bay Channel)	1. Redwood Marine Terminal (Berths 1 & 2)	HBHRCD* (publicly owned)	By mill operators, fishing vessels, cruise boat, land and public dock access, and mariculture
	2. California Redwood Chip Export Dock	California Redwood Co. & Simpson Lumber Co	Bulk woodchips
	3. Fairhaven Business Park Terminal	Security National Properties	Logs, cruise boat
EUREKA WATER- FRONT (North Bay Channel)	4. Pacific Affiliates Dock	Dave Schneider	Multi-purpose utility dock; intermittent berthing of non-cargo vessels including Coast Guard, cruise boat and marine environmental/ safety
	5. Sierra Pacific Industries, Eureka Dock	Sierra Pacific Industries	Multi-purpose forest products dock; inbound log barges, outbound woodchip barges, occasional inbound lumbar barges
	6. Chevron Oil Terminal	Chevron Oil	Bulk refined petroleum products; dedicated to ocean barge every 7 to 8 days
FIELDS LANDING (South Bay)	7. Humboldt Bay Forest Products Terminal	Humboldt Bay Forest Products	

*Humboldt Bay Harbor Recreation and Conservation District. Sources: HBHRCD 2007, www.humboldtbay.org (January 2017)

Other Harbor Areas

Trinidad Harbor is a small cove on the northern rim of Trinidad Bay, approximately seventeen miles north of the entrance to Humboldt Bay. The Trinidad Pier is the northern-most oceanfront pier in California. Trinidad Harbor is used by commercial and recreational fishing boats and not by cargo vessels. The Trinidad Rancheria purchased the six-acre harbor site and pier in 2001, and in 2012 completed reconstructing the pier.

Shelter Cove is approximately 60 ocean miles south of Humboldt Bay (adjacent to Whitethorn in Southern Humboldt). Boating access to the sea is managed by the Humboldt Bay Harbor Recreation & Conservation District. Boating activities are for fishing and recreation, not freight.

Port Cargo

Forest products continue to be the Port’s main cargo from deepwater ships. Imports and exports are predominantly wood products (logs, wood chips); however, forest products exports have been declining for decades. The Port’s other main cargo is petroleum products.

Commercial fishing is another main industry moving goods in the Humboldt Bay Harbor. Over 200 commercial vessels list Eureka as home port, and approximately 130 commercial fishing vessels berth at the Eureka Public Marina. Over 500 vessels from other West Coast ports use the Harbor facilities annually. The Olson Dock, operated by Humboldt Bay Forest Products, Inc., is also used for mooring commercial fishing vessels when it is not being used by commercial deep-draft vessels.

The Harbor District’s *2003 Harbor Revitalization Plan* identified the Port’s competitive advantages as being: waterfront industrial sites; large sites on the Samoa Peninsula with access to the 38-foot channel, relatively low-cost land, labor, and livability. The Plan notes that the most promising opportunities for the Port of Humboldt Bay Harbor include:

- marine-dependent industrial projects;
- niche dry and liquid bulk cargoes (e.g. bulk aggregates and rock to the Northern California construction market); and
- forest products.

Cargo objectives are also included in the Harbor District’s *2010 Strategic Plan* and *2007 Humboldt Bay Management Plan*.

FOREIGN TRADE ZONE

Foreign Trade Zones (F.T.Z.) are areas that are physically within the United States, but are considered outside of U.S. Customs’ jurisdiction. Thus, a company transporting goods in an F.T.Z. may be able to delay or reduce their duty payments on foreign merchandise, and/or may be exempt from state/local inventory taxes on foreign goods and domestic goods held for export. The Foreign-Trade Zones Board, which grants zone status, is comprised of the U.S. Secretary of Commerce and the U.S. Secretary of the Treasury.

Table Goods-2. Foreign Trade Zones in Humboldt County

F.T.Z. Site No.	Location/Description	Ownership
#1 Dock “B”	7-acre site at the public dock B in Eureka.	City of Eureka (inactive)
#2(A)	320-acre site on Samoa Peninsula; land set aside for industrial development.	City of Eureka
#2(B) Redwood Marine Terminal	66-acre site on Samoa Peninsula; existing facilities are predominantly wharves and piers for waterborne commerce.	HBHRCD

Site #3(A) Humboldt Bay Forest Products (Olson Dock)	62-acre site in Fields Landing.	Mr. Stanwood Murphy
Site #3(B) Fields Landing Terminal (Formerly Kramer Dock)	19-acre site in Fields Landing, south of Site #3(A).	HBHRCD
Site #4 Redwood Coast Airport	50 acres of activated F.T.Z. area (within a 247-acre site) at the Redwood Coast Airport.	County of Humboldt

Humboldt County has a designated Foreign Trade Zone (No. 248), which is sponsored by the City of Eureka. The zone is comprised of four designated sites, three around Humboldt Bay and one at the Redwood Coast Airport.

RAIL TRANSPORT

The Northwestern Pacific (NWP) Railroad was acquired by the North Coast Railroad Authority (NCRA) through State and federal funds. The NWP’s Eel River Division of rail lines north of Willits was purchased with State funds in 1992. The Russian River Division line south of Willits was purchased with federal funds in 1996. The NWP Railroad line, which formerly served Humboldt Bay, has been out of service since 1998, ~~and service is not expected to resume within the RTP’s 20-year planning horizon~~. In 1998, the NWP Eel River Division line washed out at several points in the Eel River Canyon. The Federal Railroad Administration ordered the NCRA to cease railroad operations on portions of the line until safety repairs were made (Emergency Order No. 21). Before operations ceased, the NWP provided freight service three days a week and occasional excursion passenger service on weekends and holidays. The service operated from Korblex south to Ignacio (Marin County) and east to Schellville (Sonoma County) and Lombard (Napa County).

[There have been significant changes regarding the NCRA, led by Senate Bill 1029 \(McGuire, 2018\). SB 1029 directed NCRA to transition its purpose to assessing the feasibility of preserving the railroad right-of-way into a 320-mile Great Redwood Trail. Companion legislation SB 69, which Senator McGuire introduced in December, 2020, if passed would officially dissolve the NCRA and turn it into the Great Redwood Trail Agency, while giving that agency the full suite of powers necessary to carry out construction and operation of the trail. In that same month, the CTC authorized the NCRA to transfer all real property, the freight contract, and the freight easement for all right-of-way south of MP 89 at the Sonoma-Mendocino County line, and to railbank all right-of-way north of MP 142.5 at Outpost \(just north of Willits\). The NCRA is now actively pursuing dissolution activities, with plans to be fully dissolved by the end of the 2021.](#)

~~To address issues related to the Emergency Order, the NCRA applied for funding from programs made available by Caltrans and the California Transportation Commission. The NCRA received \$60 million of Traffic Congestion Relief Program (TCRP) funds in 2000 (of which almost \$20 million was used right away for debt relief) and \$7.9 million in FEMA funds in 2005. Since 2006, the NCRA has received \$36.8 million to rehabilitate the Russian River Division, prepare an Environmental Impact Report for operations, and do some emergency work. In 2007-08 the NCRA applied \$690,000 of the TCRP funds to the Eel River Division, repairing 300 yards of the rail levee~~

near King Salmon. While these monies have improved the NCRA system, little of the money has been invested within HCAOG's planning area.

In May 2011, the Federal Railroad Administration ordered the partial lifting of Emergency Order No. 21. In July 2011, with the Northwestern Pacific Company (NWPCo) serving as the contract operator, the NCRA resumed freight rail operations on part of the Russian River Division, from Windsor south.

Resuming functioning freight rail service on the northern NWP line would enhance the region's intermodal goods movement, and thereby provide more economical shipping for Humboldt industries with heavy freight. Freight rail service, along with adequate transloading facilities, could potentially meet transport needs for freight such as lumber, flakeboard, municipal waste, and aggregate. However, it is uncertain whether port-rail intermodal service could generate enough freight loads to be viable long term. For example, a study commissioned by the Harbor District (HBHRC-2013b) shows that shipments of 10,000-30,000 carloads of aggregate every year may be necessary to sustain a profitable railroad. The study also noted problems with shipping containers or automobiles because of the Port's distance from population centers and markets, and the cost of trans-shipping goods (i.e. shipping freight to an intermediate destination, then to yet another destination [by the same mode or by a different mode]).

Vision for a Sustainable Freight Transport System
 Transporting freight reliably and efficiently by zero-emission equipment everywhere feasible, and near-zero emission equipment powered by clean, low-carbon renewable fuels everywhere else.
 – CA Sustainable Freight Action Plan 2016

AVIATION TRANSPORT

Because of its capacity for speed and distance, air transport significantly increases mobility for moving goods and passengers. Humboldt's regional aviation system provides services for scheduled commercial flights, freight and air couriers, air ambulance, air charter, private pilots, law enforcement, and emergency response/operations.

There are nine public use airports in Humboldt County. The County of Humboldt owns six of the public airports; the Aviation and Airport Division of the County Public Works Department manages all six:

- o Redwood Coast Airport (located in McKinleyville; also known as Arcata/Eureka Airport)
- o Dinsmore Airport
- o Garberville Airport
- o Kneeland Airport
- o Murray Field Airport (located in Eureka)
- o Rohnerville Airport

The other three airports are:

- o Samoa Field Airport (formerly called Eureka Municipal), owned and managed by the City of Eureka;
- o Hoopa Airport, owned and managed by the Hoopa Tribe; and

- o Shelter Cove Airport, owned and managed by the Resort Improvement District #1.



The Redwood Coast Airport is the region’s sole commercial airport, meaning it is the only airport that offers scheduled (daily) passenger flights. It is served by a commercial passenger airline, Skywest (operating United Express flights). Skywest/United Express offers flights to San Francisco. The airport is also used by cargo (package delivery) companies; current companies are Federal Express, United Parcel Service, AmeriFlight, and Union Flight. Murray Field, a general aviation airport, also serves air freight. Federal Express, United Parcel Service (UPS), and AmeriFlight have been operating at Murray Field for approximately fifteen years.

See the Aviation System Element for more information on Humboldt County public airports.

GOAL, OBJECTIVES, & POLICIES

The goal, policies, and objectives for the region’s goods-movement system align with the RTP’s overall goal and objectives. Furthermore, these goal and objectives are intended to also advance the vision to decarbonize California’s freight transport system. Governor Brown articulated the need, in Executive Order B-32-15, for California to accelerate actions to transition to a more efficient, more economically competitive and less polluting freight transport system. HCAOG shares the States goal for its statewide system for the regional system: to focus on making the *existing* freight system more efficient through technology and other means.

GOAL: Goods move in and out of Humboldt County efficiently and cost-effectively. The region’s maritime, aviation, road, and rail facilities are integrated into an intermodal transport system. The system moves passengers and goods in a manner that is economically sustainable and environmentally compatible.

OBJECTIVES: The policies listed in the Goods Movement Element will help meet the RTP’s main objectives (listed  in alphabetical order). [The tree symbol](#)  indicates objectives that are GHG performance measures (see Chapter 3 for all GHG performance measures and targets.)

OBJECTIVES:	GOODS MOVEMENT
Balanced Mode Share/ Complete Streets	<ul style="list-style-type: none"> ◆ <i>Improve goods mobility, reliability, and system efficiency in and out of Humboldt County. Connect road, sea, air, and rail transport modes and maximize the utility of each mode.</i> ◆ <i>Improve connectivity and balanced growth of the goods movement system.</i>
Economic Vitality	<ul style="list-style-type: none"> ◆ (TBD)
Efficient & Viable	<ul style="list-style-type: none"> ◆ <i>Invest in and maintain facilities and technologies to increase the efficiency and cost-effectiveness of the region’s goods movement system.</i>

<p>Transportation System</p>	<ul style="list-style-type: none"> ◆ <i>Use innovative technology and practices to operate, maintain, and optimize the efficiency of the freight transportation system while reducing its environmental and community impacts.</i> {California Freight Mobility Plan} ◆ <i>Improve the state of good repair of the freight transportation system.</i> {California Freight Mobility Plan} ◆ <u>(iii) EV Charging Infrastructure:</u> <ul style="list-style-type: none"> ▪ <u>Electric vehicle charging stations serving, by 2025, at least 25% of public, and commercial, industrial, and multi-family residential private parking spaces that accommodate parking for more than 4 hours, and by 2050 serving 50% of such parking spaces.</u> ▪ <u>Increase number of chargers per capita.</u> ◆ <u>In Humboldt County, by 2024 hydrogen fuel is available for public transit and long-haul commercial fleet vehicles, with green hydrogen fuel available as much and as soon as possible.</u> ◆ <u>In Humboldt County, by 2030 there is sufficient hydrogen fueling infrastructure and green hydrogen fuel available to enable inter-county travel of medium and heavy-duty fuel-cell EVs.</u> ◆ <u>ii) Each governmental agency starts converting fleet vehicles to zero-emission by 2022, with interim targets to meet the State's year-2035 goals:</u> <ul style="list-style-type: none"> ▪ <u>25% of public fleet passenger cars, SUVs, and forklifts are zero-emission by 2025, and 50% by 2030.</u> ▪ <u>30% of public fleet medium-duty and pick-up trucks are zero-emission by 2030.</u>
<p>Environmental Stewardship & Climate Protection</p>	<ul style="list-style-type: none"> ◆ <i>Reduce overall energy use in the goods movement system.</i> ◆ <i>Reduce air pollutant emissions and air quality impacts of the regional goods movement system.</i> ◆ <i>Invest strategically to accelerate the transition to zero- and near-zero-emission equipment powered by renewable energy sources, including investing in supportive infrastructure.</i> (California Sustainable Freight Action Plan 2016) ◆ <u>Reduce on-road transportation-related fossil fuel consumption in Humboldt County.</u>
<p>Equitable & Sustainable Use of Resources</p>	<ul style="list-style-type: none"> ◆ <i>Preserve harbor-related land uses that serve Humboldt Bay.</i>
<p>Safety & Health</p>	<ul style="list-style-type: none"> ◆ <i>Reduce the regional goods movement transportation system's number of accidents, injuries, unsafe conditions, and security threats.</i> ◆ <i>Improve the safety, security, and resilience of the freight transportation system.</i> {California Freight Mobility Plan}

The Goods Movement policies below are grouped according to the RTP's main objectives.¹ The objectives support and work in tandem with one another; thus, a policy can help meet more than one objective.

¹ Chapter 3 fully describes the six main objectives.

OBJECTIVE: BALANCED MODE SHARES/COMPLETE STREETS

Policy GM-1 (Intermodal) HCAOG shall fully consider goods movement needs and impacts in developing a multimodal transportation system, in partnership with other governmental entities, community organizations, shippers and carriers, and other interested parties. *{California Transportation Plan 2025 Strategy}*

Policy GM-2 (Intermodal) HCAOG shall promote multiple uses of transportation corridors and strategic use of intermodal transfer facilities.

Policy GM-3 (Intermodal) Encourage multimodal accessibility [at Humboldt’s public use](#) airports and seaports, ~~and freight rail facilities.~~ *{California Transportation Plan 2040 Short Range Recommendation}*

Policy GM-4 (Road/Trucking) HCAOG prioritizes projects to design and maintain truck routes consistent with Complete Streets goals whenever safe and feasible.

OBJECTIVE: ECONOMIC VITALITY

Policy GM-5 (Maritime) HCAOG will support the Humboldt Bay Harbor, Recreation and Conservation District’s efforts to develop a fully operational, sustainable, and environmentally compatible maritime transportation system as consistent with the Harbor District’s mission.

Policy GM-6 (Aviation) HCAOG shall help promote full utilization of air freight capabilities in Humboldt County, and shall support increasing regional aviation resources for intermodal goods movement, as compatible with multimodal and GHG emission-reduction goals. *{combined with Policy AS-5}*

Policy GM-7 (Rail) HCAOG encourages the highest and best use of rail facilities and right-of-way in Humboldt County, and supports ~~restoring freight or passenger rail service~~ [rail-banking and preserving the rail right-of-way](#) in Humboldt County ~~until it is if and when~~ economically viable and environmentally compatible [to restore freight or passenger rail service.](#)

OBJECTIVE: EFFICIENT & VIABLE TRANSPORTATION SYSTEM

Policy GM-8 (Road/Trucking) HCAOG supports the County’s use of commercial truck weight fees and timber taxes as sources to pay for maintaining local truck routes in a state of good repair. HCAOG shall support efforts to cooperatively develop and implement equitable cost-share fee programs for the trucking industry.

Policy GM-9 HCAOG shall promote projects and programs that increase energy efficiency, conserve energy, and use alternative (“clean”) energy sources to transition to a carbon-neutral transportation system and reduce the direct and indirect costs of freight and passenger transportation.

OBJECTIVE: ENVIRONMENTAL STEWARDSHIP

Policy GM-10 (Goods Movement) HCAOG shall support projects that improve intermodal freight access and reduce congestion, especially along freight corridors, including designated marine highways. *{California Transportation Plan 2040}*

Policy GM-11 (Goods Movement) HCAOG shall work with NCUAQMD and other stakeholders to develop and promote programs, technologies, and best practices to reduce the transportation sector’s air pollutant emissions (e.g., NOx, PM, SOx, sulfate, VOC) and to decarbonize California’s freight transport system. *{California Sustainable Freight Action Plan 2016}*

Policy GM-x (ZEV): [HCAOG will work with the freight industry to encourage and help accelerate the widespread transition to zero-emission technologies and infrastructure \(CAPTI 2021\).](#)

Vision for a sustainable freight transport system

Transporting freight reliably and efficiently by zero emission equipment everywhere feasible, and near-zero emission equipment powered by clean, low-carbon renewable fuels everywhere else.

– CA Sustainable Freight Action Plan 2016

OBJECTIVE: EQUITABLE & SUSTAINABLE USE OF RESOURCES

Policy GM-12 (Goods Movement) HCAOG shall promote applying innovative and green technology, along with accompanying infrastructure and applicable practices, to optimize the efficiency of the freight transportation system. *{California Sustainable Freight Action Plan 2016}*

Policy GM-13 (Maritime) HCAOG will assist local, regional, or state lead agencies in preserving coastal-dependent land uses as necessary for successfully operating the regional maritime transport system.

OBJECTIVE: SAFETY

Policy GM-14 (Goods Movement) HCAOG shall collaborate with State, local, and Tribal agencies to help reduce and eliminate health, safety, and quality-of-life impacts on communities that are disproportionately affected by operations at major freight corridors and facilities. This includes reducing toxic hot spots from freight sources and facilities, and ensuring continued net reductions in regional freight pollution. *{California Sustainable Freight Action Plan}*

NEEDS ASSESSMENT

INTERMODAL TRANSPORT NEEDS

In Humboldt County, all four “legs” of intermodal freight transport (highway, maritime, aviation, rail) face common challenges. Foremost among them is that Humboldt’s small population and












economic base generate small markets for imports or exports, which makes it hard to pay for maintaining costly infrastructure. Each mode also suffers from deteriorating infrastructure and equipment that needs modernizing. The region’s rugged terrain and remoteness add to infrastructure costs, as well as make it more expensive to transport goods in and out of Humboldt County than in and out of competing markets. Since Humboldt currently has no rail freight service, our optimal freight transport system will be based on connecting trucking, port, and aviation facilities.

The following discusses regional needs for developing a more intermodal, more efficient, and more cost-effective goods movement system in Humboldt County.

TRUCKING FLEET NEEDS

[The California Air Resources Board \(CARB\) passed the Advanced Clean Trucks Regulation² with the purpose to reduce air pollution and greenhouse gas \(GHG\) emissions from medium- and heavy-duty on-road vehicles. CARB is enacting strategies to accelerate a large-scale transition to zero-emission vehicle fleets. The regulation requires manufacturers to sell zero-emission trucks and buses as an increasing percentage of their annual California sales from 2024 to 2035. CARB’s timeline is to set regulation for medium and heavy-duty zero-emission fleets at the end of 2021.](#)

Vehicles Subject to the Advanced Clean Trucks Regulation

Class 2b-3	Class 4-8	Class 7-8 Tractors
   	   	  

Advanced Clean Trucks Regulation (CARB, February 12, 2021)

HIGHWAY TRANSPORT NEEDS

Because the highways and local roads currently accommodate all goods movement through Humboldt County, improving the State highway system is a primary need for improving goods movement in Humboldt County.

² [Advanced Clean Trucks Regulation, CCR Section 1963 \(June 2020\). ww3.arb.ca.gov/regact/2019/act2019/fro2.pdf](https://ww3.arb.ca.gov/regact/2019/act2019/fro2.pdf)

Truck restrictions (due to terrain) on U.S. 101 ~~and SR 299~~ make shipping by truck less competitive. This, in turn, makes the port less competitive, and in some cases makes aviation shipping less competitive, as well. The local trucking industry's competitive edge applies to the relatively small area south of Medford and Klamath Falls, Oregon, west of Redding, and north of Willits. Outside that area, truck shipping rates are generally lower to competing markets and ports (HBHCRD 2003).

The state's entire transportation system needs to strengthen its resilience and the freight system needs to be particularly adaptable so that emergency supplies can be transported and distributed when and where needed.

– California Freight Mobility Plan 2015

State Route 299

One need for making truck and port transport more competitive is to reduce truck travel times between the Humboldt Bay Area and Redding (in Shasta County). ~~The Harbor District believes that, if truck travel times on SR 299 were reduced, the Port of Humboldt Bay could export agricultural products and minerals competitively with the Port of Sacramento. Reducing truck travel times, and improving safety conditions, between Humboldt and Redding depends chiefly on improving driving conditions on the east side of Buckhorn Summit.~~

Buckhorn Grade Improvement Project

~~Caltrans Districts 1 and 2, and the Counties of Shasta, Trinity, and Humboldt partnered to implement~~ In November, 2016, Caltrans completed an inter-regional project to make the Buckhorn Grade portion of State Route 299 safer and more efficient travel for [people driving passenger cars](#), [recreational vehicles](#), and [commercial trucks](#). ~~travel. Another project objective was to remove the Advisory Route restrictions and thereby allow STAA trucks (semi-trucks longer than 48 feet) access from Interstate 5 at Redding to Highway 101 and the Port of Humboldt.~~

Caltrans widened and/or realigned 9.6 miles of SR 299 in Trinity and Shasta Counties to eliminate seven turns, realign hairpin turns, and add truck-passing lanes. ~~Caltrans completed the project in November, 2016. The length of Buckhorn Grade now has two westbound climbing lanes, one eastbound descending lane, a four-foot wide median, and broader shoulders.~~ Due to the [reconstruction](#), STAA trucks (semi-trucks longer than 48 feet) [can use SR 299 to connect](#) access from Interstate 5 at Redding to Highway 101 and the Port of Humboldt.

The total project cost approximately \$60 million; ~~Caltrans District 2 funded the majority of the project; HCAOG contributed \$5.6 million. Most~~ most of the funds came from Caltrans' State Highway Operation and Protection Program (SHOPP).

U.S. Highway 101

U.S. 101 is the backbone for [intercity and intercounty](#) goods movement throughout Humboldt County, as even sea cargo and air cargo rely on surface transportation via trucking. As discussed above, STAA trucks will be able to travel north-south to Humboldt when Caltrans District 1's Richardson Grove project is completed, and they will have east-west access to Interstate 5 once S.R. 299 is designated a Terminal Access route (possible now that Caltrans District 2's Buckhorn Grade is completed).

Overall, U.S. 101 within Humboldt functions well for goods movement; no segments suffer severe congestion. U.S. 101 is congested during peak travel hours in Eureka, where the highway functions as the city's main street. Due to this roadway's mixed use, freight trucks—particularly heavy timber industry trucks, can cause incompatible noise and vibration, as well as hazardous conditions for pedestrians and crossing traffic.

Environmental conditions are impacting current and future access and reliability on U.S. 101 both intra- and intercounty. U.S. 101 around Humboldt Bay is increasingly vulnerable to tidal inundation from sea-level rise and flooding, which poses potential threats to predictability and timely delivery of goods. ~~Environmental impacts both north and south disrupt intercounty transport by delaying or rerouting freight.~~ In Del Norte County, coastal erosion and geological movement along the four-mile segment of Last Chance Grade (between Klamath and Crescent City) has caused landslides and road failures for decades. Caltrans District 1's goal is to realign the route; however, building the alternative route is estimated to take 15 years for environmental studies, permitting, and design, and another five to eight years to construct (to year 2039).

To the south, U.S. 101 in Mendocino County is subject to landslides [and rockslides](#). The historic landslide at Confusion Hill finally compelled Caltrans to realign the highway (with two new bridges) to the other side of the South Fork Eel River (completed in 2009). ~~In April 2017, Rockslides at the junction with on~~ State Route 1 ~~closed and~~ U.S. 101 ~~from Leggett to fifteen miles south of Garberville,~~ [can](#) restrict [surface access](#) into/out of Humboldt County to State Routes 36 and 299. Traffic bottlenecks on 101 at Willits (Mendocino County) led Caltrans to build the Willits Bypass, which opened in November 2016.

TRUCKING INDUSTRY COST-SHARE

The heavier the vehicle, the more strain it will put on a roadway's structure. Freight trucks, loaded and unloaded, weigh more than other road vehicles; thus, they more rapidly and more severely deteriorate roadways. The heavy trucking weights and volumes in Humboldt are predominantly from timber, livestock, and quarry rock. Because truck transport is, and will continue to be, the primary method of goods movement in Humboldt County, stakeholders in the trucking industry are integral for proactively solving how to finance maintaining the region's truck routes in a state of good repair. Local jurisdictions are interested in having the trucking industry share equitably in the costs and benefits of road repair and maintenance.

Cooperative efforts are needed between the trucking industry, Humboldt County, and Caltrans to assess the impacts that trucks have on the roadway network, and to create regulatory guidelines for truck travel, including designated truck routes. Trucks should not be permitted on facilities that are not designed or constructed for heavy vehicles if there are alternatives.

Transporting heavy forest products causes the most wear and tear on the region's roadway system. Many county roads that provide access between the forest (point of harvest) and the state highway are not designed for heavy truckloads. Many existing roads and bridges require additional structural support to handle the heavy loads. The County and Cities expend significant transportation funds to repair and maintain roadways used by timber trucks. For example, the estimated cost to maintain and repair the roads used during a sustained logging operation was calculated at \$9,000 per mile annually in 2002 (Humboldt County 2002); with inflation, that cost would be approximately \$12,500 per mile today.

The U.S.D.A. Forest Service transfers some funds to the County from the sale of National Forest timber. The rest of the funds for road maintenance come primarily from a county road tax on property in unincorporated areas, in-lieu taxes, and traffic fines. Like jurisdictions throughout California, the County of Humboldt does not have enough funds annually to routinely maintain its roads. To make the costs and benefits of road maintenance more equitable, additional funds from increased weight fees and additional timber taxes are needed.

MARITIME TRANSPORT NEEDS

Humboldt Bay Harbor’s transportation competitiveness is limited by economic and geographic conditions that do not constrain competing ports. How well the Humboldt Bay Port competes with other port facilities for marine transport depends on:

- distance to the origin/destination of the shipped commodity
- port connections to freight trucking and freight rail
- sufficient cargo volumes to spread fixed shipping costs
- adequate dockside cargo facilities

To grow its cargo handling activities, the major competitive disadvantages the Port faces are that:

- the local market is small;
- the port is far from large metropolitan markets;
- the port’s connections to inland areas by truck transportation are limited ; and
- the odds are low for restoring NCRA freight rail north of Willits given the environmental constraints within Eel River Canyon in Mendocino County.

Other “port issues” are

- Economic impacts from non-indigenous species
- Navigation hazards due to sediment deposits (shoaling) from Eel River
- Shoaling, sedimentation, and deferred dredging constrain deepwater shipping
- Cargo handling facilities are in disrepair (Caltrans 2016)

The Harbor District developed the *Port of Humboldt Bay Harbor Revitalization Plan* “aimed at establishing a new and sustainable maritime focus for the community.” The Plan identifies “revitalization strategies” that would fit best with market demand and the Port’s competitive advantages. Under conditions with no rail, a strategy for goods movement activities is to develop coastal feeder barge service as an alternative to rail. Goods movement strategies recommended either with or without rail service are: niche bulk cargoes, forest products cargo handling, and marine-dependent industrial projects (HBHRC 2003).

The District’s Plan recommends sites on Humboldt Bay for the following freight-related markets:

Marine Use	Recommended Sites
<i>Bulk Aggregates/Rock</i>	– Fields Landing Terminal (southern origin) – Simpson Samoa Pulp Mill Dock (northern origin)
<i>Liquid Bulks</i>	– Simpson Samoa Pulp Mill Dock – Simpson Property/Fairhaven Terminal

	– Chevron Dock
<i>Coastal Lumber Barge Service</i>	– Eureka Forest Products/Sierra Pacific (open storage) – Fairhaven Terminal (covered storage) – Redwood Docks 1 & 2
<i>Forest Products Cargo Handling</i>	– Eureka Forest/Sierra Pacific (chips, logs lumber) – Fairhaven Terminal (pulp, plywood, veneer) – Humboldt Bay Forest Products (logs, lumber) – Samoa-Pacific Chip Export dock (chips) – Redwood Docks 1 & 2

The *Samoa Industrial Waterfront Preliminary Transportation Access Plan* (HBHRC 2013a) addresses needs and opportunities for the Harbor District regarding harbor-related activity on the Samoa Peninsula. The plan recommends a “Preferred Alternative Route,” by which the Harbor District could optimize intermodal goods movement between the bay and land. The plan identifies seven roadways in Samoa that are substandard for serving as intermodal freight routes (i.e., Major Collector roadway status). Three of the roadways are in the County’s jurisdiction:

- o New Navy Base Road – Bay Street to Highway 255;
- o Bay Street – New Navy Base Road to Vance Avenue; and
- o Samoa Pulp Lane (aka LP Drive) – New Navy Base Road to Vance Avenue.

The other four roads are currently privately-owned:

- o Vance Avenue – Bay Street to Samoa Pulp Lane;
- o Vance Avenue – Samoa Pulp Lane to north spur;
- o North Spur off Vance Avenue; and
- o South Spur off Vance Avenue.

To implement the “Preferred Alternative Route,” the plan advises the Harbor District to acquire rights-of-way or easements to the four privately-owned road segments. The plan also recommends adding the seven road segments, as well as the portion of Highway 255 from New Navy Base Road to Highway 101 in Eureka, to the National Highway System.

RAIL TRANSPORT NEEDS

Redwood Marine Terminal Business Plan

The “Redwood Marine Terminal Feasibility Study” (HBHRC 2008) concluded that the Redwood Marine Terminal has sufficient land acreage and waterfront property to support modern cargo terminal operations if the terminal’s infrastructure were modernized. The Harbor District Commissioners voted (February 2008) to proceed with the “Redwood Marine Terminal Business Plan for Development Option B,” with the ultimate goal of connecting with a restored rail system. Option B is contingent on a rail corridor connecting Humboldt Bay and the transcontinental rail system.

According to the “Redwood Marine Terminal Business Plan,” to compete effectively with other secondary ports and potential new port locations for investment, the Harbor District would need to pursue the following market strategy:

- Fully evaluate the rail corridor, including cost of construction to meet standards for intermodal rail service and environmental impacts.
- Commit to a sustained multi-year effort to market the Redwood Marine Terminal given that terminal projects, including competing for investment, can take upwards of 10 years from concept to completion.
- Raise the industry profile of Humboldt Bay amongst the cargo shipping industry (terminal operators, shipping lines, shippers, etc.).

~~NORTHWESTERN PACIFIC RAILROAD REOPENING EEL RIVER DIVISION~~

~~The NCRA “Strategic Plan and Progress Report” (February 2007) calls for eventually reopening the entire line from Lombard to Arcata/Samoa. The line from Willits south to Lombard reopened in July 2011. NCRA reopening the line north of Willits (Eel River Division) depends on funds being available, a number of agencies approving environmental permits, and being able to stabilize the railroad tracks through highly unstable geological materials throughout the Eel River Canyon. A considerable program of roadbed, track, bridge, tunnel and station upgrading will be necessary if operations and competitiveness are to be restarted and/or improved. To the question, “When and how will NCRA and NWP Co. resume service on the Eel River Division?” the NCRA responds:~~

~~Far Northern Portion (South Fork to Samoa)~~

~~To initiate service on a belt line from South Fork, around Humboldt Bay to Samoa:~~

- ~~• Funding for repairs must be secured. NWP Co. has estimated that \$30 million is needed to repair the 62-67 miles from South Fork to Samoa.~~
- ~~• Environmental clearance to initiate repairs is obtained.~~
- ~~• A rail-barge transfer would be desirable to successfully implement this service.~~

~~Canyon Portion~~

~~The NCRA will consider restoring service through the Eel River Canyon when:~~

- ~~• A Business Plan is developed by the Operator (NWP Co.) which identifies freight volume sufficient to justify the costs of repairs and maintenance of the NWP line through the Eel River Canyon;~~
- ~~• An Environmental Impact Report (EIR) is prepared and certified by the NCRA Board of Directors;~~
- ~~• A mapping survey, geotechnical study, and EIR for the Eel River Division have determined the cost for repairs;~~
- ~~• The funds necessary to repair the NWP line to at least Class II level (25 mph) through the Eel River Canyon have been identified (NCRA, 2010).~~

In 2006 when the NCRA was preparing the Environmental Impact Report (EIR) for the Russian River Division, it stated that it would later prepare a separate EIR for the Eel River Division. However, in April, 2013, the NCRA Board rescinded provisions of its Resolution No. 2011-02 (June 2011) which certified the EIR for the Russian River Division, adopted a Statement of Overriding Considerations, and approved a project resuming freight rail service from Willits to Lombard in the Russian River Division. The NCRA rescinded parts of Resolution 2011-02 “to clarify that the NCRA did not have before it a ‘project’ as that term is used in the California Environmental Quality Act (CEQA) and did not approve a project when it certified the EIR that was the subject of the Resolution” (NCRA Resolution No. 2013-04, NCRA 2013). The NCRA’s actions made it unclear if they would prepare an EIR for the Eel River Division project. The Friends of the Eel River subsequently filed a lawsuit against the NCRA, to which the California Supreme Court’s majority opinion found that CEQA does apply to NCRA’s projects to restore and resume freight service on the intrastate railroad line that the NCRA owns (*Friends of the Eel River v. North Coast Railroad Authority* (S222472), July 27, 2017).

“As developable land is scarce and sold at a premium, abandoned rail lines and adjacent right-of-way offer one way to accommodate the need for passenger rail service, nonmotorized transport, and recreational services.”

– California State Rail Plan 2013

In 2012 the NCRA created the ad hoc Humboldt Bay Rail Corridor Committee (see Trails Element for more discussion) to study rail infrastructure conditions, and opportunities for developing a trail and resurrecting rail service in the corridor. From that Committee’s report, the NCRA board adopted the following findings related to future rail freight or passenger service:

(Finding #1) The rail corridor infrastructure has suffered significant deterioration;

(Finding #2) Restoration of rail infrastructure to operating standards will require a significant expenditure of public funds;

(Finding #3) Interim repairs to prevent further deterioration of the NCRA rail prism in the corridor will require significant public funds;

(Finding #4) — Doing nothing will result in continuing deterioration of the rail infrastructure in the corridor, further diminishing the chances that rail service will be restored in the foreseeable future;

(Finding #7) — Local freight and passenger excursion service may be sufficient to cover operating and maintenance costs, but will capitalize only a relatively small portion of rail restoration costs; likewise, substantial public funding will be required for trail development. (NCRA 2012a)

The NCRA adopted the following related policies:

- NCRA will work with the Northwestern Pacific Railroad Co., the Timber Heritage Association and others to build interest in, and support for the restoration of local freight and passenger excursion service;
- NCRA will prioritize rail infrastructure restoration and trail development in the Eureka to Arcata corridor to more clearly align its timing and objectives with those of the Humboldt County Association of Governments’/Caltrans’ U.S. 101 Corridor Improvement Project.
- NCRA will also prioritize rail restoration in the Arcata to Samoa corridor in order to facilitate the restoration of passenger excursion service (NCRA 2012b).

Other Rail Corridors

To explore opportunities for connecting freight from Humboldt Bay to the national rail system, some private businesses have promoted the study of conceptual east-west rail routes. Two local jurisdictions, the City of Eureka and the County of Humboldt, entered into a Memorandum of Agreement in 2012 be part of the UpState RailConnect Committee, which also includes the County of Trinity, County of Tehama, the Northern California Tribal Chairmen’s Association, and the UpState California Economic Development Council. In June 2016, the Trinity County Transportation Commission (TCTC) was awarded a \$276,000 Sustainable Transportation Planning Grant from Caltrans to conduct the “Upstate California RailConnect

~~Feasibility Study.” The study was to assess the feasibility of designing and building a new rail line to connect the Humboldt Bay seaport with a national rail in the Sacramento Valley. However, the TCTC decided not to accept the grant at a special meeting held on March 9, 2017.~~

AVIATION TRANSPORT NEEDS

Businesses and individuals in our region want access to dependable, convenient, and affordable air transport, both for freight and commercial passenger airline service. Getting “more flights to more destinations” (RREDC 2013) is a need for improving mobility between our remote region and metropolitan areas. Expanding regional aviation service capacity would help build regional economic potential and would help maintain an important quality-of-life amenity in this rural area.

The County of Humboldt has expressed the need to expand airline services (commercial passenger and freight), for example, in the draft *General Plan Update* (Circulation Element Policy C-P44, and Economic Development Element Policy ED-P12, January 3, 2017) and in “Redwood Coast Targets of Opportunity 2012” (County of Humboldt, 2013). The County Board of Supervisors, in 2017, contracted Voltaire Aviation Consulting to perform an “Airport Governance and Sustainability Study.” Part of the study is to recommend marketing the commercial airport. The goal is to support economic growth by “(d)eveloping and sustaining a solid air transportation network that includes increased airline passenger and air cargo service, business/corporate aviation access, . . . and aviation-dependent industries . . .” (Humboldt County 2017). ~~The final strategic plan is scheduled to be complete in the fall of 2017.~~

The Redwood Coast Airport and Murray Field Airport move (i.e., enplane and deplane) the most tons of air cargo in the region. Murray Field is a relatively small airport that can only accommodate smaller planes, which means some air cargo volumes are moved less efficiently. If air freight facilities were expanded at the Redwood Coast Airport, larger cargo planes could potentially reduce airfreight costs through more efficient economies of scale. Expanding the airport’s airfreight capacity could potentially shift some of the region’s goods movement from trucking to air. For example, perishable products (e.g. aquaculture, high-value food, flowers) that are now trucked from Humboldt to the San Francisco International Airport could instead be flown out from the local airport. However, according to a feasibility study prepared for the Aviation and Airport Division of the County Public Works Department, under current conditions, expanding Redwood Coast Airport’s air freight facility would not be economically practical.

ACTION PLAN: PROPOSED PROJECTS

GOODS MOVEMENT

Table *Goods-3* lists projects or improvements that HCAOG supports to help achieve the RTP’s goals and objectives for the region’s goods movement transportation system.

New Navy Base Road

One additional project that will facilitate intermodal goods movement is Humboldt County's roadway project for New Navy Base Road. This project is listed in the RTP's Complete Streets Element (Table *Streets-5*, HCAOG Top Priority Regional Complete Streets Projects) and not below. The County's project is to reconstruct New Navy Base Road from State Route 255 to Bay Street. The project is long-term (implementation year is TBD), not funded, and estimated to cost \$1.5 million. This project will improve harbor-truck connections for marine terminals in Samoa. The Harbor District estimates that "minor physical changes to serve marine terminals" would cost \$416,000 (2017 dollars).

Table Goods-3. Regional Goods Movement Projects TO BE UPDATED BY JURISDICTIONS/AGENCIES

Lead Agency	Project Name	Short or Long Term ¹	Description	Funding Source	Implementation Year(s)	Estimated Cost (\$000)
Harbor District	Redwood Marine Terminal	LT	Establish a multipurpose, publicly-owned marine terminal.	Not funded	Unknown	\$43,000 (2014 Trans. Study)
Harbor District	Vance Avenue – Bay Street to Samoa Pulp Lane	ST	Acquire title to property; improve to Major Collector and National Highway System (NHS) standards to serve marine terminals.	Not funded	2018	\$2,336
Harbor District	Vance Avenue – Samoa Pulp Lane to North Spur	ST	Acquire title to property; improve to Major Collector and NHS standards to serve marine terminals.	Not funded	2018	\$1,094
Harbor District	North Spur off Vance Ave	ST	Acquire title to property; improve to Major Collector and NHS standards to serve marine terminals.	Not funded	2019	\$746
Harbor District	South Spur off Vance Ave	ST	Acquire title to property; improve to Major Collector and NHS standards to serve marine terminals.	Not funded	2019	\$1,033
Harbor District	Humboldt Bay Navigation Channel Shoaling Study	TBD	Project seeks to reduce shoaling in Humboldt Bay to insure year-round deep draft cargo shipping and bar safety for all users.	Not funded (50% cost share)	TBD	\$3,000
Harbor District	Coastal Rail Service from the Samoa Peninsula to Scotia	TBD	Project seeks to rehabilitate the coastal section for transporting freight (aggregate, dredge sediment, logs) and passengers.	Not funded	TBD	\$10,000
Humboldt County	Bay Street – New Navy Base Road to Vance Ave	LT	Improve to Major Collector and NHS standards to serve marine terminals.	Not funded	2018	\$978
Humboldt County	Samoa Pulp Lane – New Navy Base Road to Vance Ave	ST	Improve to Major Collector and NHS standards to serve marine terminals.	Not funded	2018	\$239

Lead Agency	Project Name	Short or Long Term ¹	Description	Funding Source	Implementation Year(s)	Estimated Cost (\$000)
Humboldt County	New Navy Base Road – State Route 255 to Bay St.	LT	Improve to NHS standards to serve marine terminals.	Not funded	Unknown	\$1,929
Caltrans District 1	Richardson Grove Operational Improvement Project	ST	Road widening	2011 SHOPP	2018/19	\$5,500

The following improvements have been identified in terms of goals and objectives for freight rail; no specific projects have been proposed.

Harbor District and NCRA	Northern Freight Corridor Restoration Project	LT	North-south rail corridor rehabilitation to reestablish service between Humboldt Bay and Willits (Mendocino County), California.	Not funded	Unknown	\$600,000 (2014 Trans. Study)
NCRA (NWP Co. secondary)	Northwestern Pacific Railroad Reopening Eel River and Humboldt Bay Divisions	N/A	Repair facilities and resume service on the Eel River and Humboldt Bay Divisions of the NWP Railroad (alternately referred to as the Canyon Portion and far Northern Portion).	Not funded	Not within next 20 years per NCRA	Unknown-TBD
					<i>Short-term Subtotal</i>	<i>-\$10,948</i>
					<i>Long-term Subtotal</i>	<i>-\$658,907</i>
					Regional Projects–Funded (constrained) Subtotal	-\$5,500
					Regional Projects–Not funded (unconstrained) Subtotal	\$664,355 +TBD
					REGIONAL GOODS MOVEMENT PROJECTS TOTAL	\$669,855 +TBD

¹ Short-term is 0-10 years; long-term is 11-20 years.

PERFORMANCE MEASURES

The table below lists performance measures for the region’s aviation system. The table groups performance measures by “goal,” which correspond to the RTP’s six main objectives/planning priorities.

Table Goods-4. Performance Measures for Regional Goods Movement System

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
Safety	<i>Collision rates</i>	Do rates of freight-transportation-related collisions exceed statewide averages? Have rates of freight-transportation-related crashes, fatalities, and injuries decreased?	<ul style="list-style-type: none"> • Collisions per vehicle (or passenger) miles traveled. • Highway crash rates per million vehicle miles for large trucks. • Severity of collisions and injuries. • Number of safety improvement projects implemented. 	Accident statistics collected by Caltrans District 1 Safety Division, CHP, local agencies.
	<i>Airport hazards</i>	Are airport tarmac areas and fueling facilities securely fenced? Are there secure boundaries for airport runways, taxiways, aprons?	<ul style="list-style-type: none"> • Area of unsecure fencing at airport perimeters, card access, gate monitoring system. 	
Balanced Mode Shares (Complete Streets)	<i>Mobility</i>	Have transportation projects increased multi-modal options in the region?	<ul style="list-style-type: none"> • Travel mode split (shares) for freight transport. • Peak hour congestion 	Goods movement industry.
	<i>Reliability</i>	Has road congestion decreased?		
	<i>Performance</i>	Has the speed and/or reliability of on-time delivery improved for goods movement?	<ul style="list-style-type: none"> • Percentage of on-time deliveries for commercial freight/passenger trips. 	
Efficient, Viable Transportation System	<i>System condition</i>	Are roads better maintained? Has condition of highways and major arterial roadways improved (weighted average countywide)?	<ul style="list-style-type: none"> • Pavement Condition Index (PCI) rating. • Condition of bridges, harbor and aviation facilities. 	Public Works Depts, Caltrans District 1, Harbor District, goods movement industry, StreetSaver or other pavement management software (PMS).
	<i>System preservation</i>		<ul style="list-style-type: none"> • Maintenance/rehabilitation funding shortfalls. 	
	<i>State of good repair</i>	Do road, aviation, and maritime facilities meet standards for state of good repair?		

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
	<i>Goods movement</i>	Are revenue yields (per shipment or per mile) sustainable for goods movement transportation (modes)?	<ul style="list-style-type: none"> Shipments per cargo truck/plane or truck/plane productivity. Out-of-route and loaded miles for freight. Loading and unloading times for freight. 	
	<i>Cost effectiveness of investments</i>	Are investments in RTIP projects helping achieve RTP goals?	Per one thousand dollars invested: <ul style="list-style-type: none"> Decreased collisions and fatalities. Decrease in system-operating cost. Decrease in air pollution emissions. Decrease in freight travel time. Decrease in freight/goods movement system maintenance costs. Increase in annual freight tons per mile or commercial passenger miles carried. 	Caltrans, California Air Resources Board (CARB), CHP, Public Works Depts, local and state environmental compliance reporting.
	<i>Benefits to costs ratio</i>	Have investments improved system efficiency and/or productivity? Have system operating and maintenance costs decreased? Are truck, harbor, aviation, or rail market shares increasing for commercial passenger/freight services?		
Environmental Stewardship & Climate Protection (CO₂ reduction)	<i>Fuel and energy use</i>	Has freight-transportation fuel consumption decreased?	<ul style="list-style-type: none"> Fuel consumption gallons per capita. Ratio of fossil fuel use to freight miles traveled. 	CARB, state reporting.
	<i>Air quality</i>	Have air pollutant emissions decreased from on-road mobile sources?	<ul style="list-style-type: none"> PM_{2.5}, PM₁₀ emissions. Air quality levels. Diesel exhaust emissions. 	CARB, local and state environmental and compliance reporting.
	<i>Adaptability and resilience to climate change impacts</i>	Have freight-transportation-related CO ₂ emissions decreased?	<ul style="list-style-type: none"> Total freight-related transportation CO₂ per capita and overall (countywide). 	CARB's EMissions FACTors model (EMFAC), environmental and compliance reporting.
Equitable & Sustainable Use of Resources	<i>Equity</i>	Have freight transportation investments advanced environmental justice (EJ) objectives?	<ul style="list-style-type: none"> Percentage of RTP/RTIP expenditures in environmental justice tracts. 	
	<i>Environmental justice</i>			
	<i>Transportation coordinated with land use</i>	Has new freight transportation infrastructure developed agricultural or natural resource land?	<ul style="list-style-type: none"> Acres of sensitive lands on which freight transportation infrastructure is built. 	General Plan updates, Airport Land Use

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
		Are land uses and development compatible for adjacent transportation facilities?	<ul style="list-style-type: none"> Acres of land adjacent to airports that are zoned compatibly for airport noise and height restrictions. Truck travel time to major corridors (for freight transport) 	Compatibility Plan, Airport Master Plans.
Economic Vitality	<i>Economic sustainability</i>	Have freight transportation investments contributed to economic growth?	<ul style="list-style-type: none"> Direct and indirect economic benefits from increased multi-modal options? 	
	<i>Goods movement</i>	Has freight network been enhanced? Are daily destinations increasing or decreasing for commercial freight or passenger service?	<ul style="list-style-type: none"> Freight capacity acreage (for port terminals, ports of entry) Freight capacity mileage (highway connectors to port terminals, highway truck routes) Increase in annual passengers and freight miles/tonnage per thousand dollars invested. Annual boating activity (e.g. number of boat launchings) at harbors in coastal region. Annual aviation ridership (boardings). Annual departures and arrivals of commercial flights (or average daily/year). 	

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