

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{[updated map to be inserted](#)}) 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). U.S. Highway 101, except for a five-mile stretch from the Humboldt/Mendocino County line to Richardson Grove State Park, is the only Terminal Access Route in Humboldt County. Therefore, it is the only route that allows STAA trucks.



Terminal Access
Route symbol

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. Since STAA trucks have become the national standard, communities without STAA access can be at an economic disadvantage. Truck freight must be unloaded and transferred from STAA trucks to shorter trucks, making goods movement more expensive for those communities.

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 (KPR) distance that is allowed on the rest of the California Legal Network. KPR 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.

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).

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

MARITIME TRANSPORT

California has twelve deep-water seaports that accommodate transoceanic vessels. Eleven are publically 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 to and from the harbor by truck. Figures 7.2a and 7.2b show harbor/marine facilities.

{Updated Figures 7.2a and 7.2b to be inserted}

Humboldt Bay Harbor, Recreation and Conservation District

The Humboldt Bay Harbor, Recreation and Conservation District (Harbor District), a countywide public local agency, manages Humboldt Bay to promote commerce, navigation, fisheries, recreation, and to protect natural resources. The Harbor District owns Kramer Dock and Redwood Marine

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.

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 deepwater 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	

*HBHRCD = Humboldt Bay Harbor Recreation and Conservation District. Sources: HBHRCD 2007 and www.humboldtby.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 unincorporated 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.

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.

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

...railroads carry the full burden of building and maintaining their own infrastructure, and are among the most capital intensive of all industries, with recent investment levels as a percentage of revenues devoted to capital in the range of 17 to 18 percent. By contrast, U.S. manufacturing industries spent an average of 3.5 percent, with the electric utility industry topping the group at 11.6 percent. And, with few exceptions, the rail industry must continue to make capital investments and maintain track, bridges, and locomotives across its network regardless of the business cycle. It cannot disinvest itself of mainline track or discontinue maintenance during recessions without ceasing revenue-generating service. This situation has also encouraged the railroads to be highly risk-averse.

– California State Rail Plan 2013

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).

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])).

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 know as Arcata/Eureka Airport)
- o Dinsmore Airport
- o Garberville Airport
- o Kneeland Airport
- o Murray Field Airport (located in Eureka)
- o Rohnerville Airport

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

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):

- ❖ Balanced Mode Share/Complete Streets
- ❖ Economic Vitality
- ❖ Efficient & Viable Transportation System (includes Preserving Assets)
- ❖ Environmental Stewardship
- ❖ Equitable & Sustainable Use of Resources
- ❖ Safety

The 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.

OBJECTIVE: BALANCED MODE SHARES/COMPLETE STREETS

Specific Goods Movement Objective:

- ◆ *Improve goods mobility, reliability, and system efficiency in and out of Humboldt County. Connect road, sea, air, and rail transport modes and maximize use of transportation corridors within the region.*
- ◆ *Improve connectivity and balanced growth of the goods movement system.*

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 airports, 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.

Policy GM-5 (Rail) HCAOG supports NCRA efforts to include their Humboldt County lines in the California State Rail Plan in order to be eligible for federal rehabilitation and new facility construction funds.

OBJECTIVE: ECONOMIC VITALITY

Policy GM-6 (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 and goals. (*Also supports objectives: Efficient & Viable Transportation System, Environmental Stewardship*)

Policy GM-7 (Aviation) HCAOG shall help promote full utilization of air freight capabilities in Humboldt County.

Policy GM-8 (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 in Humboldt County if and when economically viable and environmentally compatible. (*Also supports objectives: Balanced Mode Shares/Complete Streets, Efficient & Viable Transportation System.*)

¹ The Introduction (chapter 1) fully describes these six main planning objectives.

OBJECTIVE: EFFICIENT & VIABLE TRANSPORTATION SYSTEM

Specific Goods Movement Objective:

- ◆ *Invest in and maintain facilities and technologies to increase the efficiency and cost-effectiveness of the region's goods movement system.*
- ◆ *Use innovative technology and practices to operate, maintain, and optimize the efficiency of the freight transportation system while reducing its environmental and community impacts. {California Freight Mobility Plan (Dec 2015)}*
- ◆ *Improve the state of good repair of the freight transportation system. {California Freight Mobility Plan (Dec 2015)}*

Policy GM-9 (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. *(Also supports objective: Equitable & Sustainable Use of Resources)*

OBJECTIVE: ENVIRONMENTAL STEWARDSHIP

Specific Goods Movement Objective:

- ◆ *Reduce overall energy use in the goods movement system.*
- ◆ *Reduce air pollutant emissions and air quality impacts of the regional goods movement system.*
- ◆ *Invest strategically to accelerate the transition to zero and near-zero emission equipment powered by renewable energy sources, including supportive infrastructure. (California Sustainable Freight Action Plan 2016)*

Policy GM-10 (Goods Movement) HCAOG shall promote projects and programs that increase energy efficiency, conserve energy, and use alternative ("clean") energy sources to reduce the direct and indirect costs of freight and passenger transportation. *(Also supports objectives: Economic Vitality, Efficient & Viable Transportation System, Environmental Stewardship)*

Policy GM-11 (Goods Movement) HCAOG shall support projects that improve intermodal freight access and reduce congestion, especially along freight corridors. *{California Transportation Plan 2040}*

Policy GM-12 (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., NO_x, PM, SO_x, sulfate, VOC). *(Also supports objective: Environmental Stewardship)*

OBJECTIVE: EQUITABLE & SUSTAINABLE USE OF RESOURCES

Specific Goods Movement Objectives:

- ◆ *Preserve harbor-related land uses that serve Humboldt Bay.*

Policy GM-13 (Goods Movement) HCAOG shall work to identify environmental, community, and land use impacts of goods movement activities early in the planning and project development process and shall have projects include resources to help mitigate these impacts. {California Transportation Plan 2025 Strategy} *(Also supports objective: Environmental Stewardship)*

Policy GM-14 (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.

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: SAFETY

Specific Goods Movement Objective:

- ◆ *Reduce the regional goods movement transportation system's number of accidents, injuries, unsafe conditions, and security threats.*
- ◆ *Improve the safety, security, and resilience of the freight transportation system.* {California Freight Mobility Plan (Dec 2015)}

Policy GM-15 (Goods Movement) HCAOG shall support implementing cost-effective technologies and operational strategies (including Intelligent Transportation Systems (ITS) to improve safety, expedite goods movement, and minimize emissions and congestion related to goods movement transportation. {California Transportation Plan 2025 Strategy} *(Also supports objectives: Efficient & Viable Transportation System, Environmental Stewardship)*

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.

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.

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).

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 an inter-regional project to

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

make the Buckhorn Grade portion of State Route 299 safer and more efficient for passenger car, recreational vehicle, and commercial truck travel. Caltrans completed the project in November, 2016.

The project involved widening and/or realigning 9.6 miles of SR 299 in Trinity and Shasta Counties, including eliminating seven turns and realigning hairpin turns, and adding **truck-passing lanes**. The length of Buckhorn Grade now has two westbound climbing lanes, one eastbound descending lane, a four-foot-wide median and broader shoulders.

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.

The total project cost approximately \$60 million. Caltrans **District 2 funded the majority of the project; HCAOG contributed \$5.6 million. 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 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 once 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. 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 State Route 1 closed U.S. 101 from Leggett to fifteen miles south of Garberville, restricting travel 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 is \$9,000 per mile [to be updated] (Humboldt County 2002) annually.

The County receives approximately \$2,850 per road mile [to be updated] from annual State gas tax funds to maintain the county road system. 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 2016b)

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 (HBHRCD 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>	<ul style="list-style-type: none"> – Fields Landing Terminal (southern origin) – Simpson Samoa Pulp Mill Dock (northern origin)
<i>Liquid Bulks</i>	<ul style="list-style-type: none"> – Simpson Samoa Pulp Mill Dock – Simpson Property/Fairhaven Terminal – Chevron Dock
<i>Coastal Lumber Barge Service</i>	<ul style="list-style-type: none"> – Eureka Forest Products/Sierra Pacific (open storage) – Fairhaven Terminal (covered storage) – Redwood Docks 1 & 2
<i>Forest Products Cargo Handling</i>	<ul style="list-style-type: none"> – 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* (HBHRCD 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

“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

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).

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

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
<i>The following improvements have been identified in terms of goals and objectives for freight rail; no specific projects have been proposed.</i>						
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>\$5,448</i>
<i>Long-term Subtotal</i>						<i>\$658,907</i>
Regional Projects–Funded (constrained) Subtotal						\$ 0
Regional Projects–Not funded (unconstrained) Subtotal						\$664,355 +TBD
REGIONAL GOODS MOVEMENT PROJECTS TOTAL						\$664,355 +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. 	Airport Master Plans or safety reports, Caltrans Office of Aviation Planning, Division of Aeronautics
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. 	Goods movement industry.
	<i>Reliability</i>	Has road congestion decreased? Has travel time decreased for passengers, freight/goods trips?	<ul style="list-style-type: none"> • Annual average delay per mile of roadway segment (per passenger, automobile, freight truck trips). • Peak hour congestion 	
	<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. 	Goods movement industry studies.
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>State of good repair</i>	Do road, aviation, and maritime facilities meet standards for state of good repair?	<ul style="list-style-type: none"> • Maintenance/rehabilitation funding shortfalls. 	

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 per capita?	<ul style="list-style-type: none"> Total freight-related transportation CO₂ per capita. 	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. Acres of land adjacent to airports that are 	General Plan updates, Airport Land Use Compatibility Plan, Airport

GOALS	FACTORS	INDICATORS	PERFORMANCE MEASURES	DATA SOURCES
		Are land uses and development compatible for adjacent transportation facilities?	zoned compatibly for airport noise and height restrictions. • Truck travel time to major corridors (for freight transport)	Master Plans.
Economic Vitality	<i>Economic sustainability</i>	Have freight transportation investments contributed to economic growth?	• 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?	• 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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