CHAPTER 2.1

FREIGHT SYSTEM ASSETS

INTRODUCTION

California has the most extensive, complex, interconnected freight system in the nation. The system is the result of more than a century of innovative and cooperative private and public investment. With the opening of the first transcontinental railroad in 1869, California's economic connection with the rest of the nation was solidified. Since then, the connection has been strengthened to create an unparalleled freight system that, in 2012, transported approximately 155.1 million tons of freight valued at $684.5 billion, including international imports, to the rest of the United States. The current core freight system includes:

- Twelve deep water seaports (11 private and 1 public),
- Numerous private port and terminal facilities,
- Twelve airports with major cargo operations,
- Two Class I railroads and twenty-six short-line railroads operating over approximately 6,000 miles of railroad track,
- Approximately 5,800 center-line miles of high-traffic-volume interstate and state highways,
- Three existing and one future commercial land border ports of entry (POE) with Mexico,
- Intermodal transfer facilities,
- Approximately 19,370 miles of hazardous liquid (includes crude oil, refined petroleum products, and other highly volatile liquids) and natural gas pipelines,
- A vast warehousing and distribution sector, and
- Numerous local connector roads that complete the "last mile."

This extensive freight system requires an enormous and continuous investment to maintain and modernize. Ports and their navigation channels must be dredged for ever-larger ships; railroad track must be upgraded to handle heavier loads and faster trains; highway pavement must be strengthened to handle more trucks and more cargo; airports must balance passenger and air freight demands; and innovative technologies must be developed and applied across the entire

industry to improve efficiency and reduce costs. These daunting needs must be met at the same time that community and environmental impacts are reduced and, where possible, eliminated. Doing all of this, while maintaining California's international competiveness and retaining millions of freight-related jobs, is a challenge that must be met.

California's freight assets include an extensive inventory of infrastructure essential for supporting the multitude and diversity of the state's freight-dependent industries. The smooth functioning of the system depends on a series of interconnected facilities working in concert. Each component is typically owned and operated by a different public or private organization, often in competition with others. Seaports compete for domestic and international business. The Class I railroads that serve California are the nation's two largest railroads and are competitors; yet, they coordinate their operations and often share the same track. As with California's railroads, each trucking company competes with many others in the state, as well as with logistics firms and owner/operators. Yet, the system works remarkably well due to a network of cooperative relationships and partnerships. With the size and complexity of the state's freight system, there are many opportunities to improve efficiency and reduce community and environmental impacts.

MAP-21 AND THE NATIONAL AND PRIMARY FREIGHT NETWORKS

The Federal Highway Administration is in the process of establishing a National Freight Network (NFN) that consists of interstate highways, selected state highways, and specified local roads. It is not yet clear what the network will include. A less extensive Primary Freight Network (PFN) based on statutory criteria, is also being established (see Figure 19 and Appendix F) that will consist of approximately 30,000 centerline miles of the most critical freight roadways. In part, MAP-21 requires the designation of this network to "assist States in strategically directing resources toward improved system performance for efficient movement of freight on highways, including the national highway system, freight intermodal connectors, and aerotropolis transportation systems."

The NFN is described as a three-tiered network that includes:

1. The PFN, described as most critical to the movement of freight;
2. The portions of the interstate system not designated as part of the primary network; and
3. Critical rural freight corridors (CRFC), described as rural principal arterial roadways that have a minimum of 25 percent of the annual average daily traffic (AADT) of the road, measured in passenger-vehicle-equivalent units from trucks (FHWA Vehicle Class 8 to 13); that provide access to energy exploration, development, installation, or production areas; that connect to the primary freight network or Interstate System, and handle

more than 50,000 twenty--foot equivalent units (TEUs) per year or 500,000 tons of bulk commodities per year.

The NFN may also include critical urban freight corridors (CUFC) that are yet to be identified following pending guidance from FHWA. The NFN seeks to identify the priority freight infrastructure that is essential to supporting the nation's domestic movement of freight and provides connections for exports to and imports from world markets. The designation of this freight network is the first of its kind within the US and demonstrates the increasing national emphasis on freight transportation. Significant intermodal facilities, freight rail facilities, seaports, airports, and international land ports of entry have been acknowledged as key national facilities by FHWA; however, these facilities are not included in the PFN or the NFN. It is expected that future federal authorizations of the Surface Transportation Program will expand the network to not only include a corridor approach with more critical highway and local road freight corridors, but will also reflect the full multimodal nature of the freight system to include all relevant non-highway components such as rail, port, and intermodal facilities. The FHWA identified a potential PFN network of 41,000 centerline miles that includes intermodal connections to critical freight facilities and closes most of the network gaps identified within the 27,000 (ultimately 30,000) centerline mile network (see Figure 19 and Appendix F, Network Assets).

The PFN was designated based on the following statutory criteria:

- Origins and destinations of freight movement within the United States;
- Total freight tonnage and value of freight moved on highways;
- Percentage of annual average daily truck traffic (AADTT) in the average daily traffic on principal arterials;
- AADTT on principal arterials;
- Land and maritime ports of entry;
- Access to energy exploration, development, installation, or production areas;
- Population centers; and
- Network connectivity.

FIGURE 19. DRAFT NATIONAL HIGHWAY PRIMARY FREIGHT NETWORK – 27,000 MILES

CALIFORNIA'S PORTION OF THE NATIONAL FREIGHT NETWORK

California's Department of Transportation (Caltrans), as well as other state departments of transportation, promoted the inclusion of its significant freight roadway facilities into the NFN, specifically for inclusion into the PFN. It is unknown at this time how many centerline miles for California's freight facilities will be included in the final PFN or NFN. The NFN will include all of California's current interstate facilities, a subset of California's State Highway System (SHS), and some of California's critical rural freight corridors (CRFC). FHWA will leave the identification and designation of the CRFC to the states, based on established criteria. However, California and other states that have significant agricultural and extractive industries are seeking to expand the provisions of the CRFC designation to include consideration of routes with high seasonal peak truck traffic. California is also seeking the official designation of freight connections to Native American Trust Lands.

TABLE 7. FHWA PRIMARY FREIGHT NETWORK (PFN) ROUTES - DRAFT

Route	Centerline Miles	Route	Centerline Miles
State Highway/Interstate Routes			
I-10	234.74	SR 118	8.19
I-105	12.97	SR 120	5.59
I-110	17.4	SR 134	2.39
I-15	288.47	SR 14	23.45
I-205	12.96	SR 170	5.96
I-210	48.38	SR 22	9.88
I-215	41.1	SR 23	6.6
I-238	2.16	SR 4	3.37
I-305	2.95	SR 47	1.89
I-40	148.17	SR 55	9.32
I-405	70.73	SR 57	19.34
I-5	716.73	SR 58	101.45
I-580	32.24	SR 60	61.32
I-605	27.46	SR 71	3.63
I-680	27.4	SR 710	2.11
I-710	20.55	SR 78	1.24
I-8	13.96	SR 86	24.27
I-80	156.87	SR 91	58.74
I-805	26.67	SR 99	298.14
I-880	41.78	US 101	168.81
SR 111	12.55	US 50	12.53
Local Roads			
Miramar	5.15		

Totals	**Centerline Miles**
State Highway/Interstate	2,784.46
Local Road	5.15
California	2,789.61

Source: FHWA - Draft 27K PFN Table

In the draft PFN, California has approximately 2,790 centerline miles along all or some of 43 routes, (see Table 7 and Figures 21 through 24). This total includes 1,274 centerline miles located within 23 urban areas with populations of 200,000 or greater, and 1,515 centerline miles outside those urban areas (FHWA-27k PFN Tables). Due to the very large volume of freight transported on the state's highways and the State's large geographic extent, California received the nation's largest share of the draft PFN mileage –approximately 10 percent of the total. The draft PFN also recognizes two of California's commercial land border POEs – Otay Mesa in San Diego County and Calexico East in Imperial County, although they are not specifically included in the PFN.

The California freight facilities represented in the draft PFN include major south/north and west/east freight corridors traversing much of the state. While the draft PFN is expansive in California, it does not include all of the state's primary freight regions or major freight facilities, there are numerous gaps throughout the state. Specifically, the network is absent from the North Coast, Central Coast, and the Eastern Sierra (see Figure 21). The draft PFN also stops short of including many of California's major freight facilities, including the POEs in San Diego and Imperial Counties. Freight facilities located in California's primary freight regions that are absent from the draft PFN, as well as gaps statewide, are represented in the Highway Freight Network.

FIGURE 20. I-710, LEAVING THE PORTS OF LOS ANGELES AND LONG BEACH

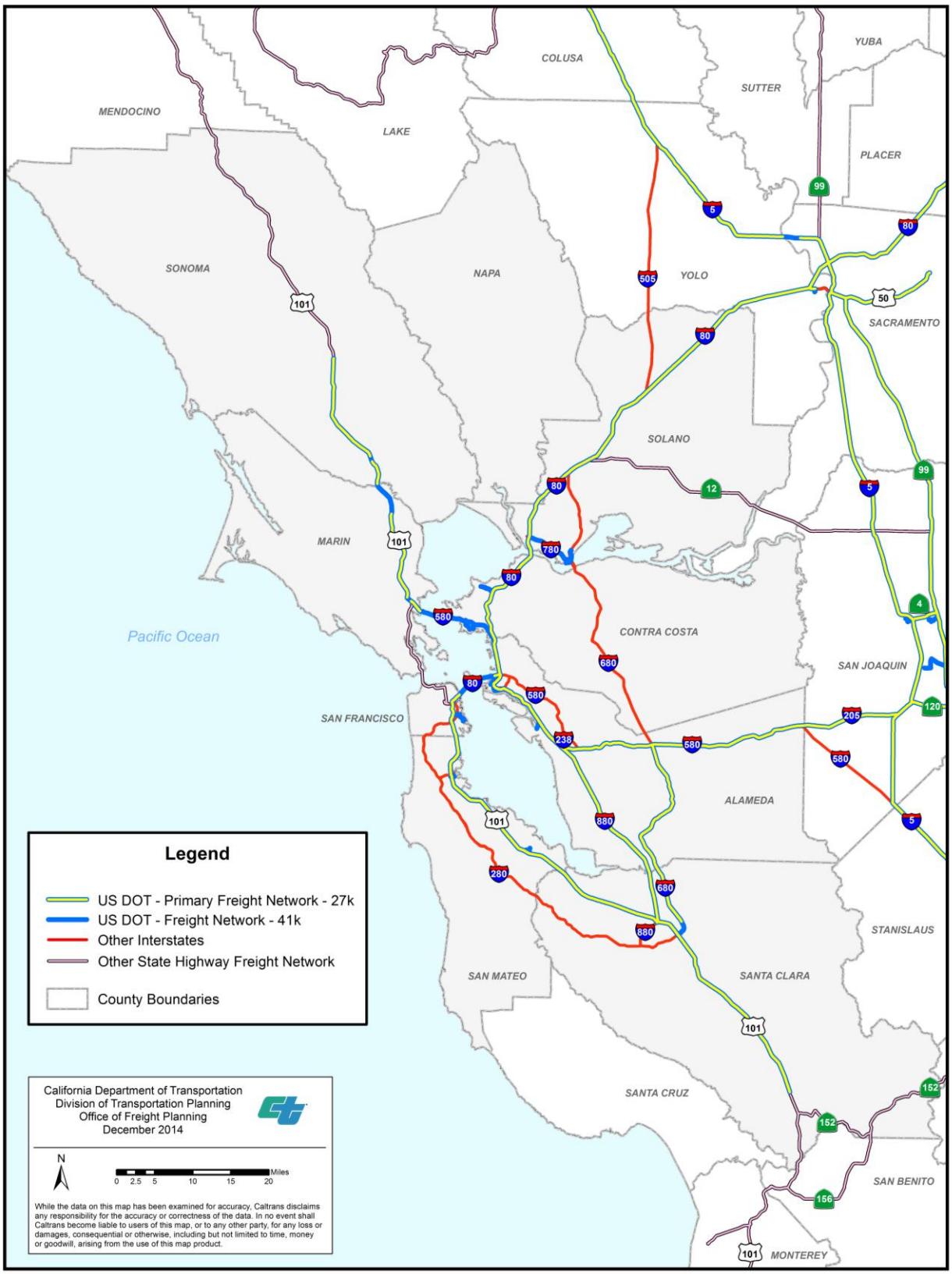
Source: Caltrans

The short-term benefit of inclusion of California's freight infrastructure in the national network is an increase in federal funding to 90 percent for any project included in the CFMP and certified by the Secretary of Transportation to improve the efficient movement of freight, and to 95 percent for such projects that also are on the Interstate system. The anticipated long-term benefit of including California's freight infrastructure in the national network is that it makes a strong case for freight transportation improvements on these routes if future federal surface transportation authorizations include federal funds for freight. Also, these higher-volume freight facilities could be given higher priority for environmental mitigation programs, such as new engine and fuel technologies and operational strategies.

FIGURE 21. HIGHWAY FREIGHT NETWORK

Source: Caltrans, Division of Transportation Planning (DOTP)

FIGURE 22. HIGHWAY FREIGHT NETWORK – SAN FRANCISCO BAY AREA AND DELTA REGION

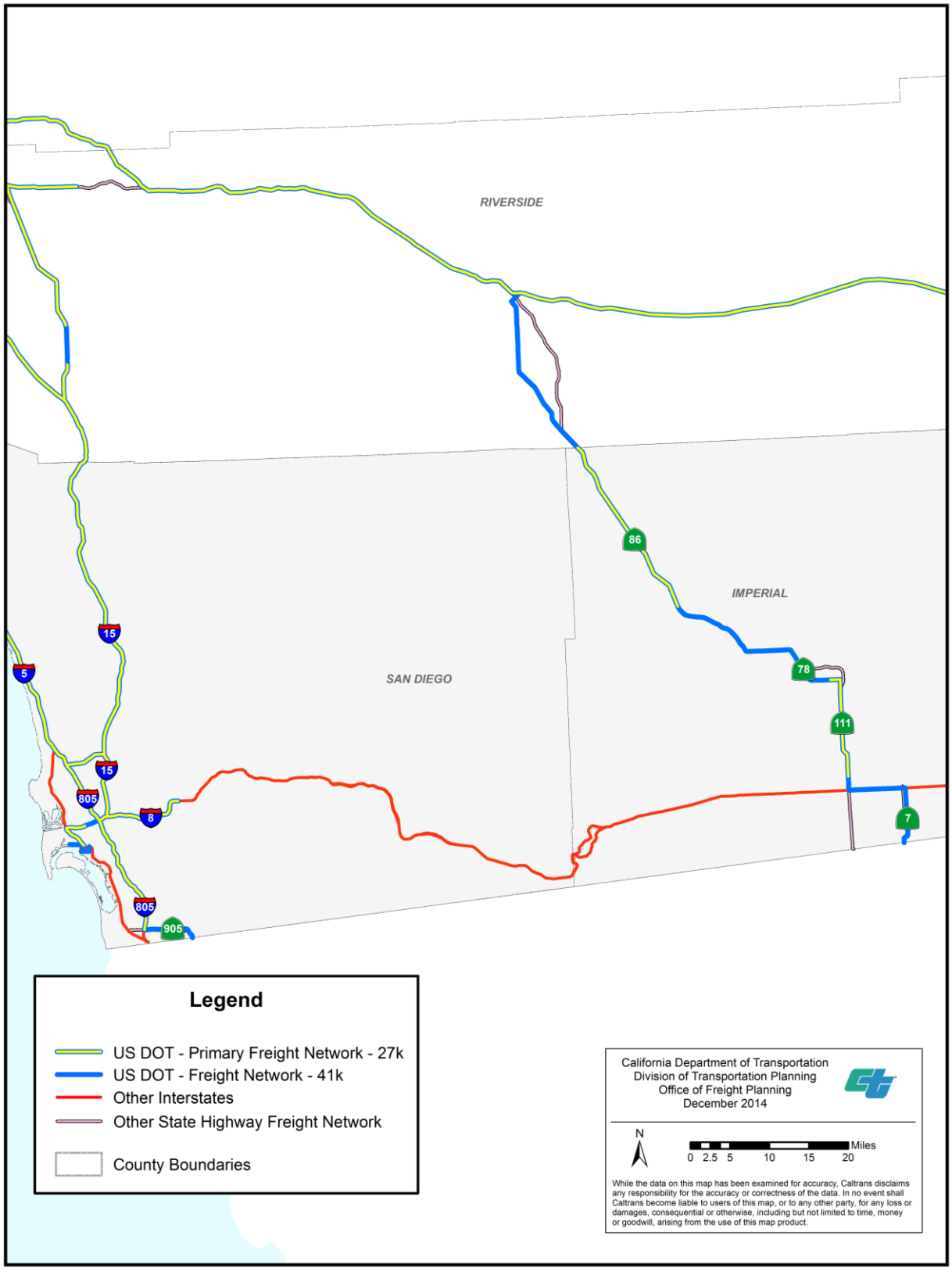


Source: Caltrans, Division of Transportation Planning (DOTP)

FIGURE 23. HIGHWAY FREIGHT NETWORK – SOUTHERN CALIFORNIA

Source: Caltrans, Division of Transportation Planning (DOTP)

FIGURE 24. HIGHWAY FREIGHT NETWORK – BORDER REGION



Source: Caltrans, Division of Transportation Planning (DOTP)

CALIFORNIA'S MULTIMODAL STATE FREIGHT SYSTEM

TABLE 8. HIGHWAY FREIGHT NETWORK ROUTES

Route	Centerline Miles	Route	Centerline Miles
Highway/Interstate Routes			
I-10	238.30	**SR 152**	83.68
I-105	17.55	**SR 156**	24.15
I-110	20.63	**SR 170**	6.09
I-15	288.47	**SR 198**	47.71
I-205	14.33	**SR 20**	155.95
I-210	74.50	**SR 22**	10.00
I-215	54.98	**SR 23**	6.83
I-238	2.23	**SR 29**	30.86
I-280	57.51	**SR 299**	138.19
I-380	2.06	**SR 36**	10.16
I-40	154.63	**SR 4**	4.12
I-405	72.52	**SR 41**	81.33
I-5	796.23	**SR 44**	106.73
I-505	32.98	**SR 46**	63.63
I-580	76.46	**SR 47**	2.24
I-605	27.64	**SR 49**	22.66
I-680	70.50	**SR 53**	7.45
I-710/SR 710	24.81	**SR 55**	11.87
I-780	6.88	**SR 57**	24.12
I-8	170.07	**SR 58**	141.50
I-80	204.08	**SR 60**	71.39
I-805	28.73	**SR 66**	0.74
I-880	45.87	**SR 7**	7.36
I-980	2.03	**SR 70**	52.54
SR 1	1.04	**SR 71**	3.69
SR 103	1.59	**SR 78**	6.30
SR 111	21.89	**SR 86**	69.97
SR 118	8.19	**SR 905**	8.54
SR 112	48.97	**SR 91**	59.46
SR 120	6.38	**SR 99**	359.77
SR 134	2.61	**US 101**	807.99
SR 14	117.96	**US 395**	556.83
SR 149	5.54	**US 50/I-305**	18.15
Local Roads			
Miramar Road	5.15	**Figueroa Street**	0.17
Dillon Road	1.51	**W. Willow Street**	0.89
Intermodal Connectors			
Intermodal Connector Mileage*			64.01

Totals	Centerline Miles
Highway/Interstate	**5,700.15**
Local Road	**7.72**
Intermodal Connectors	**64.01**
California	**5,771.88**

**For specific routes see Intermodal Connections section*

Source: Caltrans DOTP, FHWA Draft 27K and 41K Tables

HIGHWAY FREIGHT NETWORK

In 2013, California's State Highway System (SHS) included approximately 15,133 centerline highway miles, of which 2,453 are Interstate and 12,680 non-Interstate, for a total of 50,486 lane miles. The Highway Freight Network is a subset of the SHS that includes all of California's existing Interstate facilities (excluding those where trucks are not permitted, such as a portion of I-580 in Alameda County), the Interregional Transportation Strategic Plan (ITSP) "Focus Routes," and a subset of the SHS that receives Average Annual Daily Truck Traffic (AADTT) – traffic from trucks with 3 to 5+ axles – of 3,000+.

The Highway Freight Network also includes highway corridors that serve agricultural regions with high seasonal truck traffic that do not, when averaged throughout the year, reach the 3,000 AADTT thresholds. However, during the agricultural season, these corridors typically experience truck traffic that exceeds the 3,000+ threshold on a daily basis. The network includes rural routes that connect to the PFN for the interregional movement of freight; serve mining and timber production areas; or provide access to energy exploration, development, installation, or production areas. Taken collectively, the Highway Freight Network represents the routes of most critical importance to the movement of freight within and through the state.

The California Highway Freight Network incorporates all of the freight facilities that FHWA has determined to have significance for freight movement at the national level, including the draft 27,000 PFN, as well as other highway and non-highway facilities that are significant to the movement of freight within the State and facilities that provide connectivity to locations outside the State such as gateways. The network includes a total of approximately 5,772 centerline highway miles along all or some of 68 Interstate and SHS routes, significant local roadways, and intermodal connectors (see Table 8 and Figures 21 through 24). For the SHS, these facilities represent the freight network that is able, or at build-out would be able, to accommodate 3-to-5+-axle trucks consistent with the configurations outlined within the Federal Surface Transportation Assistance Act of 1982 (STAA).

Federal Surface Transportation Assistance Act

The Federal Surface Transportation Assistance Act of 1982 (STAA) authorized the establishment of a national network of highways designated for use by large trucks. On these highways, Federal width and length limits apply. The National Network (NN) includes almost all of the Interstate Highway System and other, specified non-Interstate highways. The network comprises more than 200,000 miles of highways. In 1983, California passed Assembly Bill 866 to implement the STAA provisions. AB 866 also increased the "California Legal" vehicle length from 60 to 65 feet, and its width from 8.0 to 8.5 feet. Caltrans then evaluated State highways, and designated as "Terminal Access" those with geometric standards high enough to accommodate STAA trucks.

In 1986, California passed Senate Bill (SB) 2232, which increased the maximum kingpin-to-rear-axle (KPRA) length from 38 feet to 40 feet for trailers with two or more axles. SB 2232 also directed Caltrans to determine which State highways could not safely accommodate trucks with a 40-foot KPRA length. In December 1989, Caltrans completed the report to the Legislature, "Truck Kingpin-To-Rear Axle Length State Highway System Evaluation." The report states that, of the 15,166 miles comprising the State Highway System, 3,364 miles cannot accommodate a 40-foot KPRA length, and 3,185 miles cannot accommodate a 38-foot KPRA length. Those route segments that cannot accommodate a 40-foot KPRA were designated "Advisory." In California, STAA truck routes and associated terminal access routes are the only roads that can operate the largest combination of tractor-trailer trucks without a special permit.

In addition to the nationally identified freight network, the State has identified a set of high priority US Highway and State Routes that are critical to the interregional movement of freight. Portions of those routes, such as Routes 58 and 99, have been included in the proposed PFN, but many other routes that the State views as a priority for freight investment are not included in the PFN. Those routes have been added to the highway freight network as depicted in Figures 21 – 24 and listed in Table 8. Many of these additional routes are included in the State's Interregional Transportation Strategic Plan that identifies a sub-set of 93 interregional State Routes that are particularly important for interregional freight movement.

FIGURE 25. TRUCK WITH OVERSIZED LOAD

Source: Caltrans, DOTP, Geographic Information Systems (GIS)

While not specifically outlined in this section, California's State Freight System also includes significant local arterials and intermodal connectors that are essential to connecting intermodal freight facilities with the State's Highway Freight and Freight Rail. In creating the NFN, the FHWA has solicited advice from States on how to designate these urban freight routes. The

urban freight routes will be added to this plan via an amendment once the federal designation process is completed.

Trucking is the most commonly used mode for California's freight transportation and almost all freight is transported by truck during some point within the supply chain. For this reason the trucking industry is one of California's most valuable freight assets, particularly for the "first and last mile" of a trip. California must continue to develop, maintain, and operate a safe, efficient, and reliable freight transportation network to accommodate the truck volumes necessary to move freight within the state. (For additional information, please see Appendix B-2 California Trucking Factsheet.)

Freight Rail Network

The freight railroad system in California is comprised of two Class I railroads and 26 short-line railroads. This freight rail network supports the operations of industries throughout the state and links California with domestic and interregional markets. The system is depicted in Figures 29 through 31. Railroads are grouped into three classes – Class I, Class II, and Class III – based on their annual operating revenue. Class I railroads generate in excess of $433.2 million in annual operating revenues. There are no Class II railroads operating in California at this time. Class III railroads are commonly referred to as "short-line" railroads. Class III railroads generate less than $31.9 million in operating revenue.

FIGURE 26. CAJON SUMMIT

Source: Courtesy BNSF Railway Company

The two Class I railroads operating in California are the Union Pacific Railroad (UPRR) and the BNSF Railway Company (BNSF). UPRR is the largest railroad in California in number of employees, payroll, and track miles operated. UPRR operates an expansive network of rail lines that serves diverse regions of California, including the agriculturally rich San Joaquin Valley, the Port of Oakland, the San Francisco Bay Area, and the Los Angeles metropolitan area. UPRR also provides strategic freight rail movement to California's Central Coast, as it parallels the US 101 highway corridor. For its carload services, UPRR operates two system classification yards at West Colton in Southern California and Roseville in Northern California, three regional yards in Lathrop (San Joaquin County), Commerce (Los Angeles County), and Yermo (San Bernardino County), and a railport in Oakland (Alameda County). UPRR also has shared use with BNSF of the on-dock rail terminals at the Port of Los Angeles (POLA) and Port of Long Beach (POLB). UPRR operates nearly 3,288 miles of track within California. In 2011, it handled nearly three million carloads in California. Table 9 includes the key operating statistics. For additional information please see the California Railroad Factsheet located in Appendix B-1.

The BNSF Railway Company is the largest intermodal carrier in the US and is the product of mergers and acquisitions of nearly 400 railroad lines, including two major railroads (Burlington Northern Railroad and the Atchison, Topeka, and Santa Fe Railway). Within California, BNSF operates on more than 2,000 track miles. In 2011, over 1.6 million BNSF carloads originated, and another 1.6 million terminated, in the state. Major BNSF freight hubs include 11 carload yards (including its major facility at Barstow), five dedicated intermodal terminals, and the shared on-dock rail facilities at the POLA and POLB. Along with the on-dock terminals, significant BNSF intermodal facilities in California include off-dock terminals at the Hobart Yard near downtown Los Angeles, the San Bernardino Intermodal Yard, and the Oakland International Gateway near-dock terminal in Oakland. California serves as a gateway to the railroad's transcontinental corridor, which links the POLA and POLB with Chicago.

TABLE 9. CLASS I RAILROAD OPERATING CHARACTERISTICS IN CALIFORNIA

Name	Employees	Payroll (Millions of Dollars)	Track Miles Owned	Track Miles w/Trackage Rights	Total Miles Operated	Originating Carloads	Terminating Carloads
BNSF	2,983	$210	1,155	975	2,130	1,636,623	1,669,449
UPRR	4,741	$400	2,773	515	3,288	1,423,857	1,510,030

Source: 2013 California State Rail Plan

To shippers, the ability to use short-line railroads means lower transportation costs, more flexible local service options, and a greatly expanded market reach for local products through their Class I railroad partners. Without short-line railroads, businesses would be forced into more expensive truck transloads (freight transfer between modes or from smaller to larger

trailers), which typically take place in large cities and add more trucks on an already congested metropolitan highway system. Short-line railroad direct access to industrial, mining, commercial, and agricultural processing facilities enables shipment of loads that are too heavy for trucks to transport over the highway. For many companies, access to short-line railroads is critical to the viability of their business.

California has 26 active short line railroads (two of which are primarily operating passenger trains). This includes 18 short line and 8 switching and terminal railroads operating over 823 route-miles (CSRP 131). Figures 29 through 31 depict California's freight rail network, including the short line railroads that currently provide freight service in California. For additional information please see the California Short Line Railroad Factsheet located in Appendix B-1.

In addition to freight trains, the freight rail network also accommodates the operation of passenger trains throughout the State. In the past, the main freight rail lines had excess capacity to allow the use of passenger trains with little impact to freight services. In recent years, the number of passenger service train trips along many of these shared-use rail corridors has substantially increased. This increase, along with increased numbers and length of freight trains has resulted in a primary railroad network that is operating with far less slack capacity. The majority of current shared-track operations involve passenger services operation over tracks owned by BNSF and UPRR. These operations include all three State-supported routes (portions of the *Pacific Surfliner*, *San Joaquin* and *Capitol Corridor*) and the four Amtrak long-distance trains operating in the state, as well as several commuter services, such as Metrolink, Caltrain, and the Altamont Commuter Express.

FIGURE 27. INTERMODAL RAIL ACTIVITY

Source: Caltrans DOTP

On-dock and near-dock rail facilities play an integral role in the movement of cargo from the dock to rail yards. On-dock facilities are located within a marine port terminal, allowing containers to be moved directly from the dock to the railcar. On-dock terminals handle a significant number of containers (1.84 million lifts in 2010), with volumes projected to reach 6.3 million lifts by 2035. Through its elimination of truck drayage, on-dock rail intermodal transfer is perhaps the most efficient way to handle trainloads of international intermodal containers. Near-dock terminals (facilities that are within a five-mile radius of the port terminal) are essential for providing additional container handling capacity that minimizes long-distance drayage trips. Off-dock intermodal facilities are rail yards located more than five miles from port terminals. They provide substantial capacity for handling port-related (international) containers as well as domestic containers (both transloaded international cargo and pure domestic cargo) and trailers. Containers that are transferred from ships to train via truck drayage are almost all routed to out-of-state locations. There is a concerted effort in California to reduce drayage trips to rail yards and to move the activity as close to the ports as possible.

The freight rail network in California includes a number of significant intermodal rail terminals. Intermodal rail terminals are established to facilitate transfer of containers and trailers between modes (ship to rail, truck to rail, and vice versa). In California, the majority of intermodal rail traffic is associated with the Port of Oakland, POLA, and POLB. A sizeable, but smaller volume, is related entirely to North American Free Trade Agreement (NAFTA) traffic. Intermodal service is typically described as either container-on-flat car or trailer-on-flat car (TOFC). In California, all primary intermodal corridors have sufficient vertical clearances for double-stack service. Double-stacking is not possible with TOFC due to the lack of structural strength in truck trailers and height restrictions along rail corridors due to tunnels and bridges. Table 10 identifies the facility characteristics for the intermodal terminals within California.

TABLE 10. INTERMODAL RAIL FACILITY CHARACTERISTICS

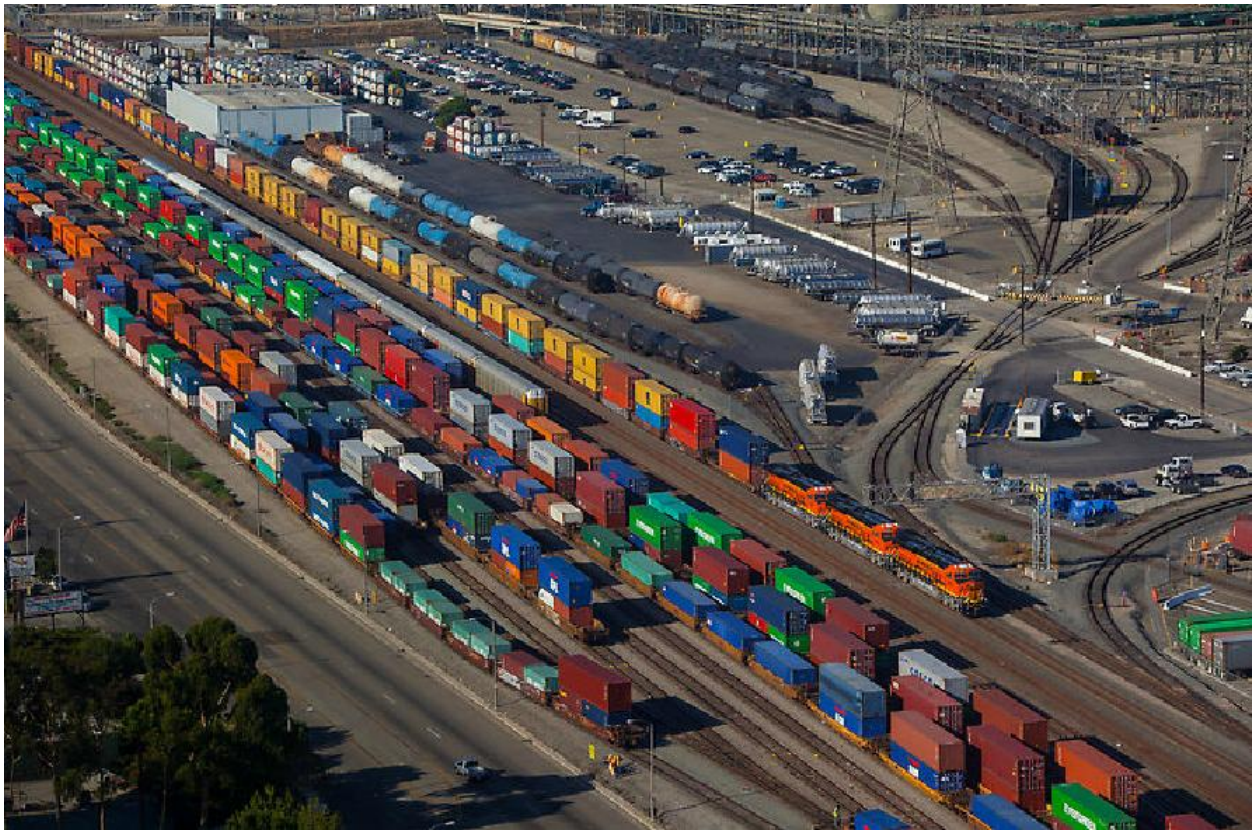
Name	Facility Type	Railroad	Data Year	Existing Yard Capacity (Lifts)	Future Proposed/ Planned Capacity (Lifts)
Southern California					
City of Industry	Off-Dock	UPRR	2010	232,000	1,000,000
East Los Angeles	Off-Dock	UPRR	2010	650,000	1,250,000
Hobart	Off-Dock	BNSF	2010	1,700,000	3,000,000
Intermodal Container Transfer Facility (ICTF)	Near-Dock	UPRR	2010	822,200	1,500,000
Los Angeles Transportation Center (LATC)	Off-Dock	UPRR	2010	340,000	900,000
POLA/POLB On-Dock Intermodal Facilities	30 feet	BNSF/UPRR	N/A	N/A	
San Bernardino	Off-Dock	BNSF	2010	660,000	660,000
Northern California					
Fresno (FRESCA)	Inland	BNSF	N/A	N/A	

Lathrop	Inland	UPRR	Design Capacity	730,000
Oakland International Gateway (OIG)	Near-Dock	BNSF	Current	300,000
Railport-Oakland	Near-Dock	UPRR	Current	450,000
Stockton/Mariposa	Inland	BNSF	Design Capacity	300,000

Source: 2013 California State Rail Plan

Positive train control (PTC) is an advanced technology designed to automatically stop or slow a train to avoid collisions and other incidents. The Rail Safety Improvement Act of 2008 (RSIA) set a major infrastructure safety mandate for the installation of PTC rail technology on Class I railroads that handle poisonous-inhalation hazardous (PIH) materials, as well as on main lines where commuter rail or intercity passenger services are regularly provided (USDOT – FRA). The deadline for the RSIA I December 2015, but due to the complexity of installing PTC, rail operators are seeking an extension. Further discussion of PTC is provided in Chapter 3.5.

FIGURE 28. RAIL ACTIVITY



Source: Port of Long Beach

FIGURE 29. MAJOR FREIGHT FACILITIES – STATEWIDE

Airports with Major Cargo Operations
Bob Hope (Burbank) Airport (BUR)
Fresno Yosemite International Airport (FAT)
John Wayne / Orange County Airport (SNA)
LA/Ontario International Airport (ONT)
Long Beach Municipal Airport (LGB)
Los Angeles International Airport (LAX)
Norman Y. Mineta San Jose International Airport (SJC)
Oakland International Airport (OAK)
Sacramento International Airport (SMF)
Sacramento Mather Airport (MHR)
San Diego International Airport (SAN)
San Francisco International Airport (SFO)

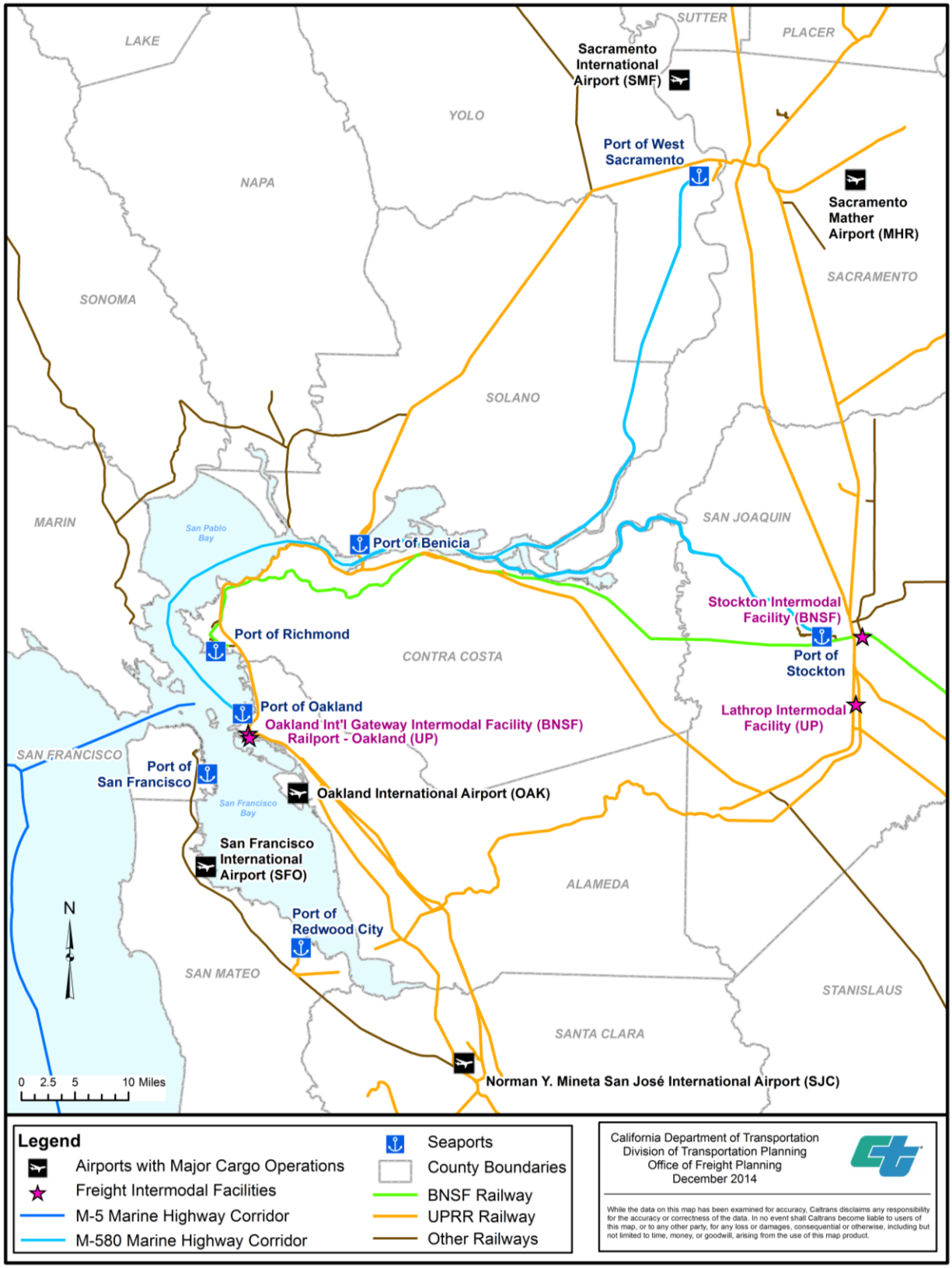
Ports of Entry	Route	County
Calexico East	7	Imperial
Otay Mesa	905	San Diego
Otay Mesa East (future)	11 (unconstructed)	San Diego
Tecate	188	San Diego

Freight Intermodal Facilities	City	County
City of Industry Intermodal Facility (UP)	City of Industry	Los Angeles
Fresno Intermodal Facility	Fresno	Fresno
Hobart Yard (BNSF)	Los Angeles	Los Angeles
Lathrop Intermodal Facility	French Camp	San Joaquin
Los Angeles Intermodal Facility (UP)	City of Commerce	Los Angeles
Los Angeles Transportation Center (UP)	Los Angeles	Los Angeles
Oakland International Gateway Intermodal Facility (BNSF)	Oakland	Alameda
On-Dock Intermodal Facility (PHL)	Wilmington	Los Angeles
Railport - Oakland (UP)	Oakland	Alameda
San Bernardino Intermodal Facility (BNSF)	San Bernardino	San Bernardino
Stockton Intermodal Facility	Stockton	San Joaquin
UP Long Beach ICTF	Long Beach	Los Angeles

Seaports
Port of Benicia
Port of Hueneme
Port of Humbolt Bay
Port of Long Beach
Port of Los Angeles
Port of Oakland
Port of Redwood City
Port of Richmond
Port of San Diego
Port of San Francisco
Port of Stockton
Port of West Sacramento

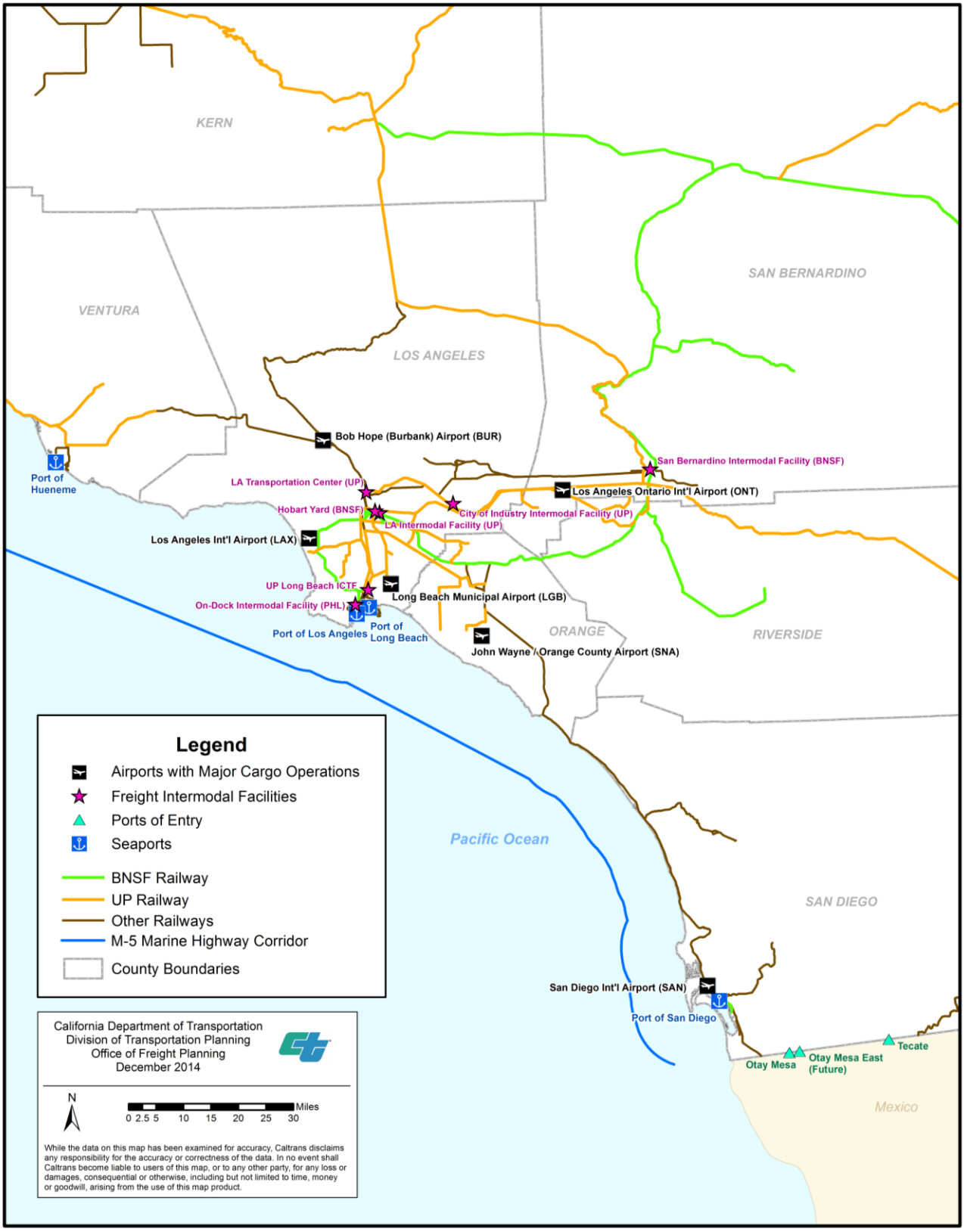
Source: Caltrans, Division of Transportation Planning (DOTP)

FIGURE 30. MAJOR FREIGHT FACILITIES – SAN FRANCISCO BAY AREA AND DELTA REGION



Source: Caltrans, Division of Transportation Planning (DOTP)

FIGURE 31. MAJOR FREIGHT FACILITIES – SOUTHERN CALIFORNIA



Source: Caltrans, Division of Transportation Planning (DOTP)

SEAPORTS

Seaports are the linchpin of California's international trade. They are California's freight gateways to the world. The Multimodal State Freight System includes 12 deep water seaports that can accommodate transoceanic vessels. Eleven of these are publically owned and one, the Port of Benicia, is privately owned. The deep water seaports include two inland ports with access to the ocean via the Sacramento/San Joaquin Delta: the Ports of Stockton and West Sacramento (see Table 11 below and Figures 29 though 31). The ports have different navigable channels and berth depths, therefore, there is variance in the sizes of ships and ship draft they can accommodate. All of the ports, with the exception of the Humboldt, utilize on-dock or near-dock rail infrastructure in conjunction with their terminal operations to connect with the national rail network. A factsheet for each port can be found in Appendix B-4.

TABLE 11. PUBLIC AND PRIVATE DEEP WATER SEAPORTS

Seaport	Acres	Rail Access	Highest Value Exports	Highest Value Imports
San Diego	6,000*	On-Dock	Machinery, Metals, Autos/Parts, Heavy Equipment, Food Products	Vehicles, Perishables, Construction Materials, Heavy Equipment
Long Beach (POLB)	3,200	On-Dock	Petroleum Coke and Bulk, Waste Paper, Chemicals, Scrap Metal	Crude Oil, Electronics, Plastics, Furniture, Clothing
Los Angeles (POLA)	4,200	On-Dock	Wastepaper, Animal Feeds, Scrap Metal, Cotton, Resins	Furniture, Apparel, Automobile Parts, Electronic Products
Hueneme	375	Near-Dock	Autos, Produce, General Cargo	Autos, Produce, Liquid Fertilizer, Bulk Liquid
Redwood City	120	On-Dock	Iron Scrap	Aggregates, Sand, Gypsum
San Francisco	1,000+	Near-Dock	Tallow, Vegetable Oil	Steel Products, Boats/Yachts, Wind Turbines, Project Cargo, Aggregate, Sand
Oakland	1,210	Near-Dock	Fruits and Nuts, Meats, Machinery, Wine and Spirits	Machinery, Electronics, Apparel, Wine and Spirits, Furniture
Richmond	200	Near-Dock	Vegetable Oils, Scrap Metal, Coke, Coal, Aggregate, Zinc, Lead	Autos, Petroleum (crude/refined), Bauxite, Magnetite, Vegetable Oils
Stockton	2,000	On-Dock	Iron Ore, Sulfur, Beet Pellets, Coal, Wheat	Liquid Fertilizer, Molasses, Bulk Fertilizer, Cement, Steel Products, Ammonia
Benicia	645	On-Dock	Petroleum Coke	Automobiles
West Sacramento	480	On-Dock	Agricultural and Industrial Products	Agricultural and Industrial Products
Humboldt Bay	-----	N/A	Logs, Wood Chips	Logs, Petroleum, Wood Chips

**Acreage includes land and water.*

Source: SCAG Regional Goods Movement Plan

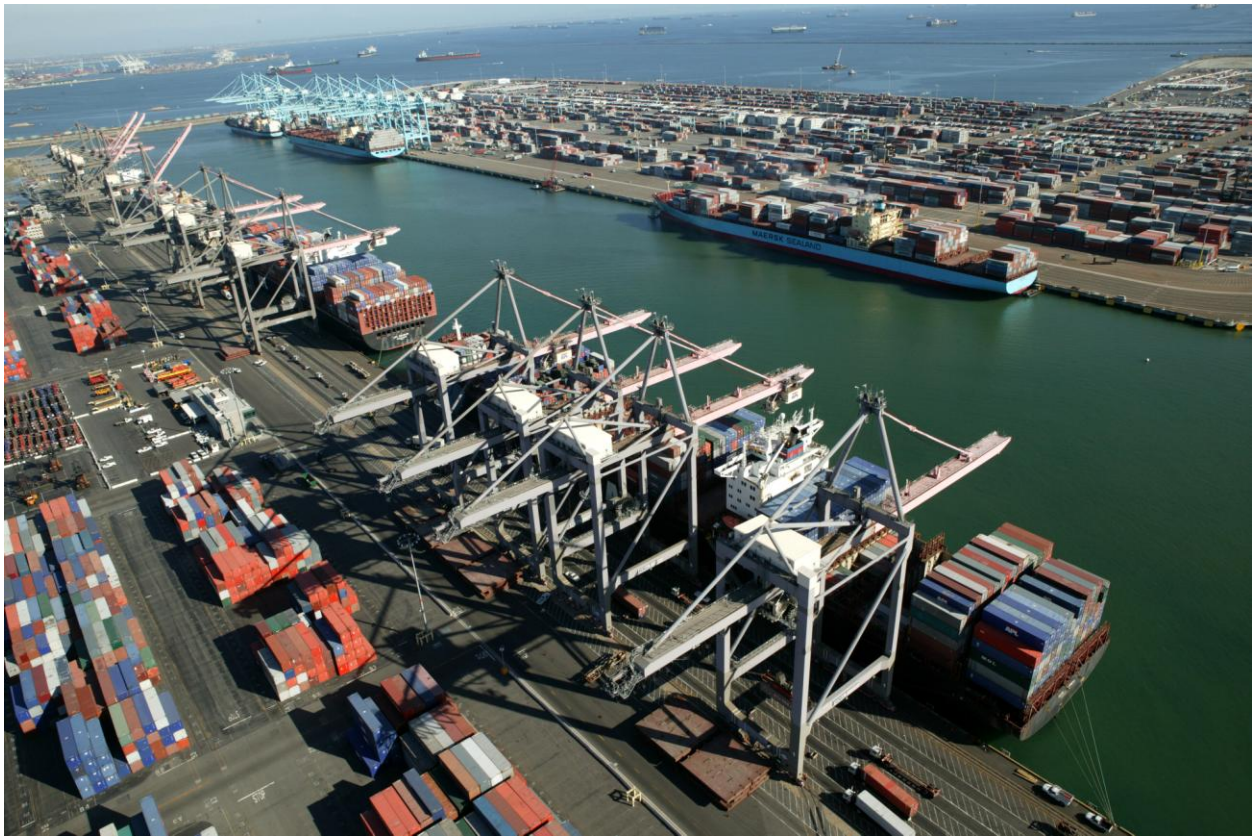
The four largest deep water seaports in California are Los Angeles, Long Beach, Oakland, and San Diego. All four are included within the top 50 US Containership Ports in 2013 (see Table 12 on the next page). In addition to containerized freight, these seaports handle a variety of cargo including petroleum coke, crude oil, break bulk, bulk, heavy equipment, machinery, roll-on/roll-off cargoes, and many others (see Table 11 above).

TABLE 12. CALIFORNIA'S FOUR TOP RANKING CONTAINERSHIP PORTS FOR NORTH AMERICA 2011 (THOUSANDS OF TEUS)

Port	Rank	Total	Export	Import
Los Angeles	1	6,011	1,954	4,057
Long Beach	2	4,318	1,294	3,024
Oakland	5	1,539	799	740
San Diego	26	52	2	49
Total Top-4		11,920	4,049	7,870

Source: Research and Innovative Technology Administration, U.S. D.O.T. Freight Statistics 2013

FIGURE 32. CONTAINER SHIPS AT PORT



Source: Port of Los Angeles

The Port of Los Angeles, number one in national container volume, and the Port of Long Beach, number two in national container volume, together make up the largest container port complex in the US. They are often referred to as the San Pedro Bay Ports. In 2010, these two ports,

combined were the world's eighth busiest port complex by container volume (SCAG 3-17). The San Pedro Bay Ports along with the Port of Oakland, California's third largest seaport and the nation's eighth largest container port, have sufficient depths to accommodate the largest vessels currently in operation and even larger vessels that are being developed. The remaining seven deep water seaports are smaller in size and scale, specializing in the transport of specific types of cargo, such as dry bulk, break bulk, liquid bulk, construction materials, fresh fruit and produce, automobiles, and other commodities. Table 11 contains some key characteristics of each seaport.

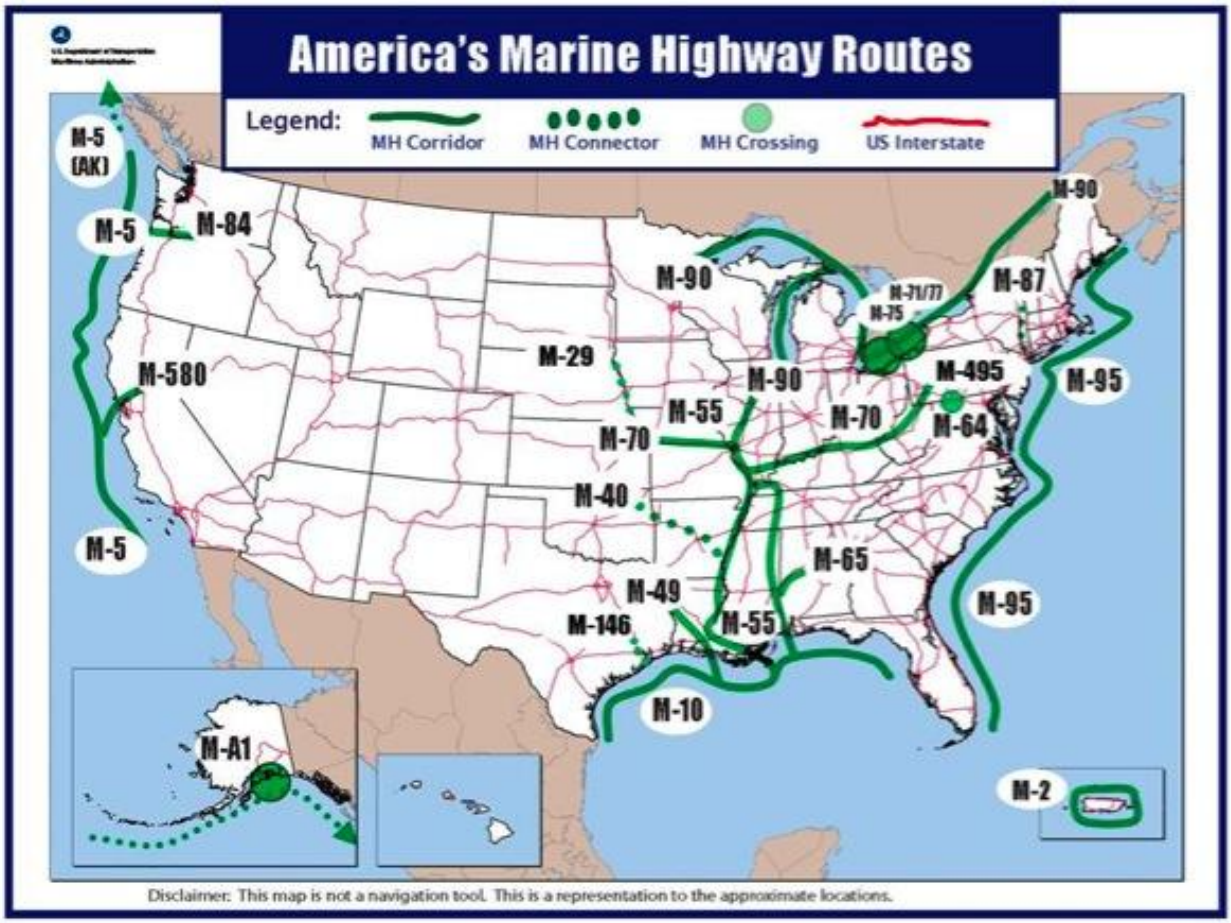
FIGURE 33. PORTS OF LOS ANGELES AND LONG BEACH

California's seaports are extraordinary multimodal facilities that have a tremendous mix of public and private entities, each with its own set of industry responsibilities. This requires efficient interaction between the public and private sectors to meet the needs of the port as a whole. The strength of California's seaports depends on a complex public-private partnership approach for investment in both capital and operational improvements within the seaport complex, including compliance with environmental and safety regulations. Generally, California's seaports are owned by public port authorities that develop port facilities which are then leased to private marine terminal operators and stevedoring companies. Marine terminals load and unload cargo from ships at berth and then receive or discharge that cargo to and from landside trucking and rail operations. This requires a tremendous amount of coordination among all of the parties involved, and all parties must work together toward improvements in efficiency and productivity to minimize delays in the supply chain, stay competitive in both the national and global economies, and reduce or eliminate environmental and community impacts of freight.

In addition to the eleven publically owned deep water seaports, California has one private deep water seaport, the Port of Benicia, and a multitude of privately owned and operated port and terminal facilities, both small- and large-scale, which help to facilitate maritime freight movement along California's coast and to and from interstate and international markets. These private freight facilities handle a variety of cargo that include dry bulk materials, metals, bulk liquids, construction materials, vehicles, electronics, crude oil, petroleum products, and many others.

Consistent with the America's Marine Highway Program developed by the US Department of Transportation Maritime Administration (MARAD), California has been exploring the use of "Marine Highways" that allow freight to be shipped between ports and harbors using navigable waterways instead of landside and highway and rail facilities. Marine Highways can free-up rail capacity and will ultimately reduce truck traffic on already congested parallel highways and further reduce freight-related greenhouse gas (GHG) emissions. Within California, there are two Marine Highways, the M-580 and the M-5 (see Figure 34). The M-580 Marine Highway Corridor is currently suspended due to insufficient demand. When in operation, it carries shipments of containers and bulk goods between the Ports of Oakland and Stockton. The Port of West Sacramento is a partner in the M-580 corridor but has not yet developed container transport services. MARAD is working with California, Oregon, and Washington, to explore development of the M-5 Marine Highway Corridor to help alleviate freight related congestion and garner other benefits along Interstate 5 from the California–Mexico border region in San Diego to the US–Canada border north of Seattle, Washington.

FIGURE 34. MARINE HIGHWAY CORRIDOR



Source: US DOT, Maritime Administration

AIRPORTS

More than 200 airports participate in the movement of air freight in the state of California. Air cargo is shipped both domestically and internationally. Air cargo is usually high in value and particularly time sensitive. The volume and value of freight transported differs dramatically for each airport. The California Multimodal State Freight system includes the 12 busiest major cargo airports, by volume, as detailed in Table 13 (below) and depicted in Figures 29 through 31.

TABLE 13. LEADING AIRPORTS WITH MAJOR CARGO OPERATIONS BY VOLUME (METRIC TONS)

Code	Airport	City	Total Cargo Tonnage 2011	Total Cargo Tonnage 2010	Percent Change
LAX	Los Angeles International Airport	Los Angeles, CA	1,688,351	1,819,344	-7.2%
OAK	Oakland International Airport	Oakland, CA	499,365	510,598	-2.2%
SFO	San Francisco International Airport	San Francisco, CA	381,887	432,488	-11.7%

ONT	Ontario International Airport	Ontario, CA	378,727	379,486	-0.2%
SAN	San Diego International Airport	San Diego, CA	128,282	120,453	6.5%
SMF	Sacramento International Airport	Sacramento, CA	65,326	66,659	-2.0%
BUR	Burbank (Bob Hope) Airport	Burbank, CA	46,259	45,131	2.5%
SJC	Mineta San Jose International Airport	San Jose, CA	39,946	44,783	-10.8%
MHR	Sacramento Mather Airport	Sacramento, CA	37,331	37,481	-0.4%
LGB	Long Beach Airport	Long Beach, CA	25,609	25,816	-0.8%
SNA	Santa Ana (John Wayne) Airport	Santa Ana, CA	14,296	13,474	6.1%
FAT	Fresno Yosemite International Airport	Fresno, CA	10,000	8,749	14.3%
	Total - Top 12		**3,315,379**	**3,504,462**	**-5.4%**

Source: California Air Cargo Groundside Needs Study (2013) and listed sources

FIGURE 35. LOADING OF AIR CARGO

Source: Caltrans DOTP

As indicated in Table 13 above, many of California's largest airports with major cargo operations saw negative growth from 2010 to 2011. The exceptions were SAN, BUR, SNA, and FAT. The total cargo tonnage transported by the top 12 cargo airports declined by 5.4 percent overall. The key challenges facing California's air cargo include modal shifts to trucking, addressing the air freight leakage to other states, the shifting of manufacturing from Asia back to North America (and Europe), and the Panama Canal expansion. Four of California's busiest airports are listed in the top 30 cargo airports for North America. Table 14 on the next page identifies these airports and their rankings.

TABLE 14. CALIFORNIA'S FOUR TOP RANKING AIRPORTS WITH MAJOR CARGO OPERATIONS FOR NORTH AMERICA 2011

Airport	Rank	Airport Code	City	Total Cargo (tons)
Los Angeles International Airport	5	LAX	Los Angeles, CA	1,681,611
Oakland International Airport	13	OAK	Oakland, CA	483,375
San Francisco International Airport	17	SFO	San Francisco, CA	382,019
LA/Ontario International Airport	18	ONT	Ontario, CA	378,782

Source: California Air Cargo Groundside Needs Study(2013) and listed sources

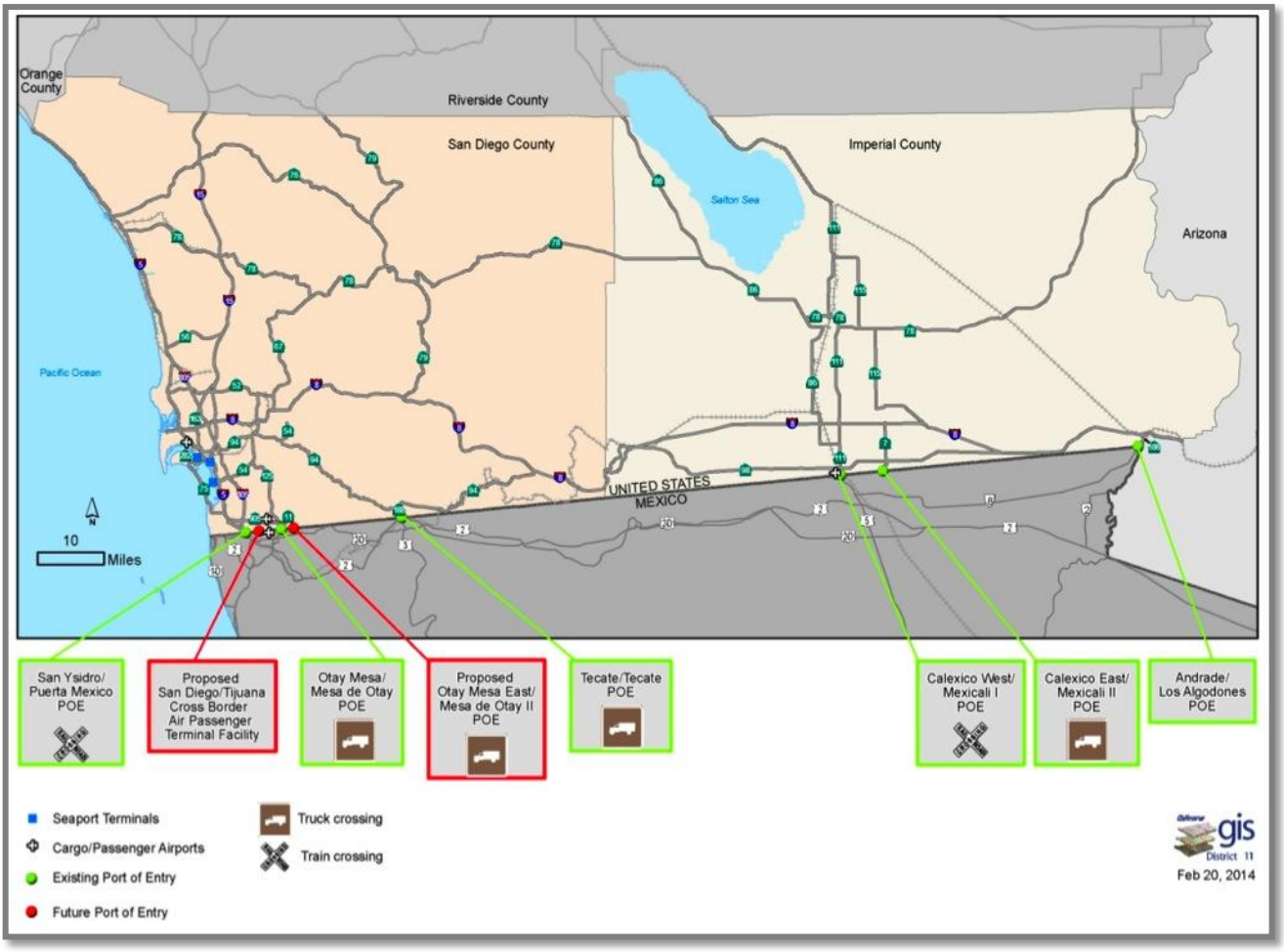
The California Air Cargo Goundside Needs Study (2013) found that the 12 airports at which cargo activities are currently focused should have the individual capacity to address their own future cargo growth. Although some new development or redevelopment will eventually be needed, there are no specific projects currently identified by the airports as critical to accommodating long-term cargo growth.

While California's largest cargo airports appear to have the capacity to handle modest increases in freight movement in the near term, the importance of ground transport of freight to and from cargo airports is a key consideration. Access to airport cargo facilities and transportation to nearby cargo handling and transloading facilities takes place over local roads. Many of these roads are located in dense, high-traffic areas and were not designed to accommodate 53-foot trailers. It is expected that the most critical of these access roads will be included in the critical urban freight corridors (CUFC) pending FHWA guidance, but it is not clear yet what the designation will entail or how it may help address landside congestion issues.[23]

INTERNATIONAL BORDER CROSSINGS

California and Mexico share over 130 miles of international border consisting of the southernmost portions of San Diego and Imperial Counties. According to the US Census Bureau, Mexico was California's top trading partner in 2013 and the third largest trading partner of the US. The commercial land border points of entry (POEs) are the main arteries for freight movement between the two nations. California's multimodal state freight system includes all of the existing and proposed commercial land border POEs between California and Mexico, which include Otay Mesa (SR 905), Otay Mesa East (SR 11) – a future commercial land border POE that is under development, Tecate (SR 188 and SR 94) in San Diego County, and Calexico East (SR 7) in Imperial County.

FIGURE 36. CALIFORNIA – MEXICO LAND BORDER PORTS OF ENTRY



Source: Caltrans District 11 GIS

The Otay Mesa POE in San Diego County and the Calexico East POE in Imperial County are the two main California-Mexico freight gateways. The Otay Mesa POE is the third busiest commercial land-border POE on the US-Mexico border by trade value, and the busiest commercial land port in California. Some of the commodities transported between the California and Mexico through the POE include pulp, paper, and allied products; electrical machinery, equipment, and supplies; automobiles and light-duty trucks; and food and farm products. The future Otay Mesa East POE will be accessed on the California side by a tolled highway (SR 11) and is scheduled to open in 2017. This new POE will help reduce freight and passenger traffic congestion at the Say Ysidro, Otay Mesa, and Tecate POEs, as well as provide additional capacity for future growth by offering freight operators traversing the California-Mexico border a new alternative. These commercial land-border POEs are discussed in more detail in Chapter 3.7, California-Mexico Border.

INTERMODAL CONNECTIONS

Intermodal connections are an essential consideration in the discussion of freight movement within California. These connections provide access to facilities that allow efficient transloading freight from one mode to another. Intermodal connectors are generally associated with airports, seaports, rail yards, and warehousing facilities where transfer of freight is completed on-site. Access to and from these facilities is typically located along local roadways that connect to Interstate and State Highway freight corridors and serve as the "last mile" for freight movement.

Often, these local arterials and roadways have not been designed to accommodate the largest combination vehicles and are not designated STAA routes, nor are they engineered to accommodate the amount of AADTT that exists on the roadway. Some of the roadways have among the highest AADTTs in the state. Many of the environmental and community impacts from freight can be most prevalent along these local intermodal connectors (see Chapter 3-5). There are approximately 29 freight intermodal connectors included in the Multimodal State Freight System (see Table 15). A table of the federally recognized National Highway System (NHS) intermodal connectors (including non-freight) within California is included in Appendix F, Network Assets.

TABLE 15. FREIGHT INTERMODAL CONNECTORS

ID	Facility Name	Description	Centerline Miles
CA1A	Burbank - Glendale Airport	Thornton Ave. (Airport to Buena Vista), Buena Vista St. (Thornton to I-5)	0.88
CA29P	Port of Long Beach	Ocean Blvd. (Port to SR-710), 9th/10th St. (Santa Fe to Pico), Pico Ave. (9th/10th to Ocean Blvd.), Santa Fe (Anaheim to 9th), Anaheim St. (Santa Fe to Alameda)	3.38
CA30P	Port of Los Angeles	Seaside Ave./Rte. 47: LB City limits e/o Navy Way to beginning of Rte. 47. N. Front St.: Rte. 47 to John S Gibson Blvd. Harry Bridges Blvd. ('B' St.): Figueroa St. to Alameda St.; Alameda St.: Harry Bridges Blvd. ('B' St.) to Anaheim St.	2.85
CA31P	Port of San Francisco	Cargo Way (Jennings to 3rd), 3rd St. (Cargo Way to Cesar Chavez), Cesar Chavez St. (3rd St. to Rte. 101) - (Cargo Way proposed)	2.10
CA32P	Port of Oakland	Maritime St. (7th to W Grand Ave), W Grand Ave. (Maritime to I-880), 7th St. (Maritime to I-880)	1.96
CA33P	Port of Richmond	Harbor Way (Terminal to I-580). Canal Blvd. (Terminal to I-580)	1.85
CA34P	Port of West Sacramento	Enterprise Blvd. (Industrial Rd. to I-80), Industrial Blvd. (Enterprise Blvd. to Harbor Blvd.), Harbor Blvd. (Industrial Blvd. to US50)	0.40
CA35P	Port of Redwood City	Seaport Blvd. (Port to Rte. 101). Bloomquist St. (Seaport Blvd. to Maple), Maple St. (Bloomquist to Facility)	1.26
CA36P	Port Hueneme	Hueneme Rd. (Port to Los Pasos), Los Pasos (Hueneme to US 101). Ventura Rd. (Hueneme to Channel Island), Channel Island Blvd. (Ventura to Victoria), Victoria Ave. (Channel Island to US 101)	20.45
CA37P	Port of San Diego	Pacific Hwy. (Laurel to NSC Compound), Grape St. (Pacific Hwy. to I-5), Hawthorne St. (Pacific Hwy. to I-5), Broadway (Pacific Hwy. to 11th), 11th St. (Broadway to I-5)	3.13
CA39P	Channel Islands Harbor	Victoria Ave. (Terminal to Rte. 101) mileage include in CA36P	1.02

ID	Facility Name	Description	Centerline Miles
CA3A	Los Angeles Intl. Airport	Century Blvd. (Sepulveda to I-405), Aviation Blvd. (Century Blvd. to I-105), La Cienega Blvd. (Century to I-105), Imperial Hwy. (La Cienega to Sepulveda), Sepulveda Blvd. (Century to I-105), 104th St.	1.02
CA40P	Port of Benicia	Bayshore Rd. (Port to Park), Park Rd. (Bayshore to Industrial), Industrial Way (Park to I-680)	2.30
CA41P	Port of Stockton	Harbor St. (Terminal to Fresno), Fresno Ave. (Harbor to Navy), Navy Dr. (W. Washington to Charter Way), Charter Way (Navy to I-5), @ Washington St. (Navy to Fresno)	1.28
CA4A	Oakland International Airport	Airport Dr. (Hegenberger to Doolittle), Hegenberger Dr. (Doolittle to I-880), 98th Ave. (Airport Dr. to I-880)	1.04
CA5A	Ontario International Airport	Archibald Ave. (Airport to Rte. 10), Vineyard Ave. (Airport to Rte. 10)	1.06
CA60R	Fresno TOPC Rail Yard	North Ave. (Facility to Rte.99)	0.50
CA61R	Long Beach (Carson) Rail Yard	Sepulveda Blvd. (Facility to Rte. 47)	0.70
CA62R	Oakland Rail Yard	Middle Harbor Rd. (7th St. to I-880)	1.18
CA63R	Lathrop Rail Yard	E. Roth Rd. (Lathrop Rail Yard IFC Airport Way to I-5), Airport Way (E. Roth Rd. to French Camp Rd.), French Camp Rd. (Airport Way to Rte. 99)	4.21
CA64R	LA (Nr. Union Station)	Lamar St. (Station to N Main), N. Main St. (Lamar to Daly), Daly St. (N. Main to N. Mission), Mission Rd. (Daly to I-5). Ave 20 (N. Main to N. Broadway), N. Broadway (Ave. 20 to I-5)	1.54
CA65R	Richmond Rail Yard	Canal Blvd. (Facility to Rte. 580)	0.18
CA66R	LA ATSF Rail Yard	Washington Blvd. (Hobart Yard to I-710). Shelia St. (Arrowmile to Atlantic), Atlantic Blvd. (Shelia to Bandini), Bandini Blvd. (S. Downey to I-710) - Connector 2 is proposed)	1.41
CA67R	Stockton Rail Yard	Anderson St. (Facility to Diamond St), Diamond St. (Anderson to Mariposa Rd), Mariposa Rd. (Diamond St to Rte 99), Charter Way (Diamond St to Rte 99)	1.59
CA68R	San Bernardino Rail Yard	2nd St. (I-215 to Mt Vernon), Mount Vermont (4th St to Rialto), 4th St. (Mt Vernon to 5th), Rialto Ave. (Mt Vernon to Sidewinder Mountain Rd.)	1.73
CA69R	City of Industry Rail Yard	Azusa Ave. (Anaheim-Puente Rd. to SR 60), (Anaheim - Puneta Rd. to Arenth Ave.). Fullerton Rd. (Arenth Ave. to SR 60)	0.99
CA78R	UPS - Richmond Terminal	Atlas Rd. (Facility to Richmond Pkwy.), Richmond Pkwy. (Atlas to I-80)	1.83
CA7A	Lindbergh Field - San Diego	N. Harbor Dr. (Terminal to W. Laurel St.), W. Laurel St. (N. Harbor Dr to I-5)	1.56
CA8A	San Francisco Intl. Airport	San Bruno Ave. (US 101 to Airport Entrance)	0.61
Totals			
Intermodal Connectors		Centerline Miles	
28		64.01	

Source: FHWA 41K PFN Intermodal Connectors Table

Native American Roadway Network

The 2010 US Census reported 723,225 American Indians residing in California (includes Alaska Natives). This includes notable populations in every county within the State. There are 110 federally recognized Native American Tribal Governments in California. These are sovereign nations with jurisdiction over their respective Tribal lands. The Indian Reservation Roads (IRR) program established in 1928 funds maintenance, construction, and improvement of IRR routes that do not receive state funding through federal-aid funding (CA IRR Tech Report).

Currently, FHWA is assigned oversight of the IRR program and is responsible for determining available funding to allocate to the Bureau of Indian Affairs (BIA) for projects on the IRR system (CA IRR Tech Report). Many of California's Tribal lands are accessed from, or served directly by, the SHS—including routes identified within the State Highway Freight Network. Future study is needed to: 1) determine what role the IRR system plays in the movement of freight to and from the tribal lands of California, 2) identify which IRR routes, or portions of routes, are already on California State Freight Highway Network, 3) collect goods movement data on the IRR system, and 4) determine how the IRR system supports freight movement within the state as a whole. For more information regarding the Tribal freight issues please see Chapter 3.1.

Pipeline Network

The US Energy Information Administration (EIA) reported in June 2014 that California is one of the Nation's top producers of crude oil and ranks third in petroleum refining capacity, accounting for approximately one-tenth of the US production and refining capacity. California's crude oil and refined petroleum network consists of crude oil and petroleum product pipelines, refineries, terminals, and petroleum ports (see Figure 37). The crude oil pipelines connect California's production areas to refining centers in Los Angeles, the Central Valley, and the San Francisco Bay Area. These refineries are then connected through petroleum product pipelines to refineries and terminals throughout the US. Most of the gasoline imported into California enters by ship via the San Pedro Bay Ports and the San Francisco Bay Area Ports.

According to the EIA, California is second in the nation in the use of natural gas. California's natural gas is largely delivered through the Western Region Natural Gas Pipeline Network (see Figure 38). The main conduits of natural gas to California are the El Paso Natural Gas Company system and Transwestern Pipeline Company system in the southern regions of the State, and the Gas Transmission Northwest Company's interstate system in the northern regions of the state. The southern region systems originate in Texas and parallel each other as they traverse New Mexico and Arizona to deliver large portions of their capacity to California's largest natural gas companies at the state's eastern border. The northern region system delivers Canadian natural gas through Washington and Oregon to California's northern border. California's natural

gas network consists of pipelines, along with the processing plants, terminals, and storage facilities that support the transportation of this important energy resource. In 2012, the estimated natural gas gathering and transmission pipeline in California totaled approximately 11,996 miles (PHMSA). The intrastate transportation and distribution of natural gas in California is dominated by three providers: the California Gas Transmission Company (PG&E) (3,477 miles), the Southern California Gas Company (SoCal) (1,887 miles), and the San Diego Gas and Electric Company (EIA).

Future study is needed to determine which elements of the pipeline network should be included in the California Multimodal State Freight System. Figures 37 and 38 depict California's crude oil and petroleum pipelines and facilities, and the natural gas pipelines and facilities.

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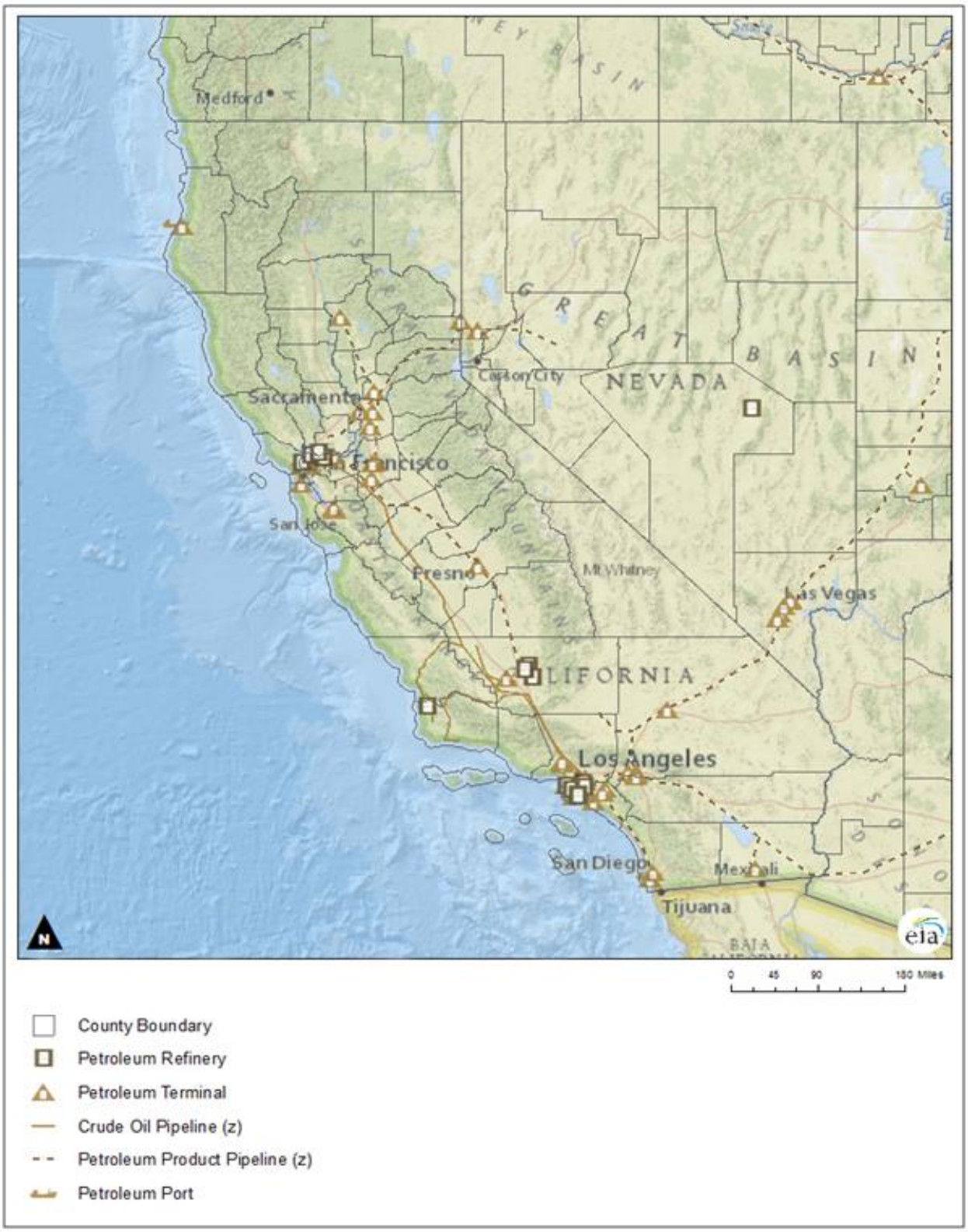
FIGURE 37. OIL AND PETROLEUM PIPELINES AND FACILITIES



Source: EIA Interactive GIS Mapping

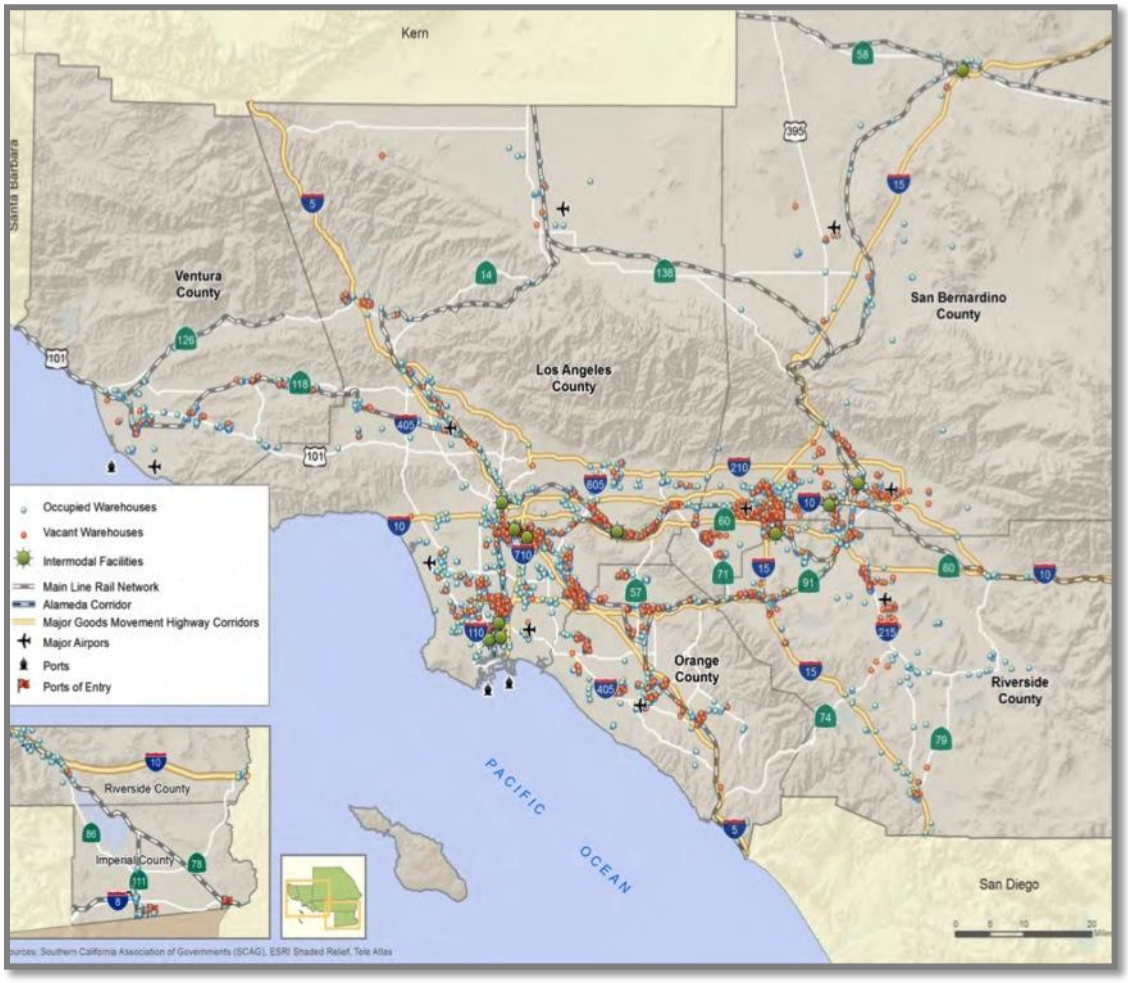
FIGURE 39. NATURAL GAS PIPELINES AND FACILITIES

Source: EIA Interactive GIS Mapping

Warehousing and Distribution Facilities

According to the February 2013 report, "On the Move, Southern California Delivers the Goods" by Southern California Association of Governments (SCAG), "Warehousing and distribution facilities have become an increasingly important component of the global supply chain infrastructure and the integration of these facilities with the rest of the goods movement infrastructure is critical to supply chain performance." The warehousing and distribution sector is particularly important to freight movement in Southern California. The region contains a comprehensive warehousing and distribution network that, based on 2008 SCAG data, comprises approximately 1.02 billion square feet of warehousing land (79.6 percent occupied and 20.4 percent available) and approximately 836 million square feet of warehousing facilities (82.9 percent occupied and 17.1 percent available). Figure 39 depicts the occupied and available warehousing in the Southern California Association of Governments (SCAG) Region.

FIGURE 39. OCCUPIED AND AVAILABLE WAREHOUSE IN THE SCAG REGION



Source: SCAG Regional Goods Movement Study

These facilities provide a variety of functions, including cargo storage, cross-docking, and value-added services (such as sorting, labeling, tagging, etc.). While the lion's share of California's warehousing and distribution activities occur in Southern California, significant facilities exist in other parts of the State as well, particularly the northern San Joaquin Valley.

The California Multimodal State Freight System does not include specific warehousing and distribution regions or centers. Because the warehousing and distribution sector is essential to supporting the efficient movement of freight within and through the State, and the success of these sectors directly impacts the economic competitiveness of the state and the nation, **the CFMP recommends that a statewide assessment of warehousing capacity and distribution be conducted and its findings included in the next state freight plan or as an amendment to this Plan.**

MULTISTATE CORRIDOR COORDINATION

California is participating in key multistate, multimodal corridor initiatives that include planning and implementation of corridor management and operational strategies aimed at facilitating effective and efficient movement of freight and passengers. These coordination activities seek to plan for, manage, rehabilitate, and operate these corridors collaboratively, while aiding in identification of funding for capital and operational improvements. These efforts consist of the Interstate 15 (I-15) Mobility Alliance, the West Coast Corridor Coalition, the M-5 Marine Highway Corridor, and the Interstate 80 (I-80) Corridor Coalition, and the I-80 Winter Operations Coalition.

Interstate 15 Mobility Alliance

The Interstate 15 (I-15) Mobility Alliance is a multistate cooperative alliance between California, Nevada, Arizona and Utah that has developed a long-range multimodal corridor master plan to address current and future mobility needs along the I-15 corridor. The alliance includes public and private entities seeking to find multimodal solutions for improving the movement of people and freight along the corridor. The I-15 corridor is important for goods movement within California, and for transporting freight from Southern California's international gateways to the eastern US. The I-15 Corridor System Master Plan (I-15 CSMP) identifies emerging technologies and integrated corridor management approaches that allow the partnering states to work collaboratively and enhance communications between traffic management centers and traffic operation centers to benefit the entire corridor. The I-15 Mobility Alliance received funding under the Multistate Corridor Operations and Management (MCOM) program to help execute the I-15 Dynamic Mobility Project (I-15 DMP), which "seeks to obtain, exchange, and disseminate real-time data on all segments of I-15 and all modes, to create a seamless ITS backbone from San Diego to the Utah/Idaho Border".[24] This project is currently in the second phase of implementation.

FIGURE 41. I-15 DYNAMIC MOBILITY PROJECT

Source: Multistate I-15 Dynamic Mobility Project Webpage

Marine 5 Highway Corridor

The Marine 5 (M-5) Highway Corridor is a multistate partnership between California, Oregon, and Washington. The partnership works with seaports, harbors, and a variety of freight stakeholders in all three states to further explore development of a Marine Highway corridor that will help alleviate freight congestion along Interstate 5 from the California–Mexico border to the Washington–Canada border. Additional discussion on the M-5 Highway Corridor is located in the Seaports section of this Plan, page 97.

Interstate 80 Corridor Coalition

Interstate 80 (I-80) is an east/west transcontinental route that traverses the entire nation, from San Francisco, California, to Teaneck, New Jersey. The Coalition began as a multistate partnership between California, Nevada, Utah, and Wyoming, extending from San Francisco to Cheyenne, Wyoming. It has expanded to include Nebraska. The Coalition is developing the I-80 Corridor System Management Plan (I-80 CSMP) that seeks to identify current and future mobility and operational solutions to transportation deficiencies and to enhance livability throughout the corridor. The effort includes a Freight and Logistics working group that seeks to investigate all issues relevant to the topic of freight mobility and the I-80 corridor. The Corridor Coalition, through the I-80 CSMP, is working collaboratively with the I-80 Winter Operations

Coalition to coordinate operations on the I-80 corridor in the Western US. The coordination includes the use of emerging technologies and integrated corridor management approaches to enhance communications between Traffic Management Centers and Traffic Operation Centers, and improve capabilities to deploy real-time weather information for freight transportation operators.

The I-80 Corridor Coalition was awarded funding under the Multistate Corridor Operations and Management (MCOM) program to help execute an operations platform to allow multiple states access to real-time and operational winter travel information, distribute multistate road impact information to truckers, and enhance corridor coalition partnering and activities. The Coalition is leveraging current technology investments within the corridor and synergize with other multistate efforts, such as the I-15 Mobility Alliance (I-80 MCOM application).

FIGURE 42. I-80 CORRIDOR MASTER PLAN EXTENT

Source: I-80 MCOM Grant Application