

# APPENDIX B-6-6: LOS ANGELES BASIN

## INTRODUCTION

The “Southern California Region” is defined as the area covered by the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The region is located south of the Central Coast and the San Joaquin Valley/Sierra regions and north of the San Diego/Border Region. In the Caltrans organization, the Southern California Region corresponds to districts 7, 8, and 12.

### Southern California Region Counties by Caltrans District

District	Counties
7	Los Angeles, Ventura
8	San Bernardino, Riverside
12	Orange

The Southern California Region extends from the Pacific Ocean and the Los Angeles Metropolitan Area across the state to the “Inland Empire” – i.e., the area directly east of Los Angeles, including the Riverside-San Bernardino-Ontario Metropolitan Area – and the state border with the states of Nevada and Arizona. It is a highly diverse area in terms of geography, population distribution, and land use. On the Pacific Coast, greater Los Angeles is the largest, most densely populated metropolitan area in the state; on the east side, the Mojave Desert area is one of the least inhabited.

In total, the region covers approximately 33,955 square miles and has a total population (2010) of 17,877,006. With about 22 percent of the total California land area, the Southern California Region is home to approximately 48 percent of the state’s total population. The population is ethnically diverse and growing. As shown in the following table, the population density is much greater in Los Angeles and Orange counties than elsewhere in the region.

### Southern California Region Population Distribution by County (2010)<sup>1</sup>

County	Population		Land Area		Persons per
	Number	% of region	Sq. mi.	% of region	sq. mi.
Los Angeles	9,958,091	54%	4,057.88	12%	2,455
Orange	3,081,804	17%	790.57	2%	3,898
Riverside	2,255,059	12%	7,206.48	21%	312
San Bernardino	2,076,274	12%	20,056.94	59%	103
Ventura	835,436	5%	1,843.13	5%	453
Region Total	18,208,677	100.00%	33,955.00	100%	540

The Southern California Region is a major gateway for international, national, state, and regional trade. Goods movement and freight transportation are essential to support the Southern California Region’s economy. In 2010, over 1.15 billion tons of cargo valued at almost \$2 trillion moved across the region’s system.<sup>2</sup> According to *On the Move: Southern California Delivers the Goods*, “goods movement-dependent industries employed over 2.9 million people in Southern California.”<sup>3</sup> Particularly important to regional freight movement are the ports of Los Angeles and Long Beach,

<sup>1</sup> California Department of Finance, Cities, Counties and the State Population Estimates with Annual Percentage Change – January 1, 2012 and 2013. <http://www.dof.ca.gov/research/demographic/reports/estimates/e-1/view.php>. Retrieved 04/22/14.

<sup>2</sup> Southern California Association of Governments (SCAG) 2011: 2012 Regional Transportation Plan

<sup>3</sup> Ibid.

collectively known as the Ports of San Pedro Bay, the largest container port complex in North America. The two ports combined move more than \$350 billion worth of goods and materials annually and sustain hundreds of thousands of jobs in Southern California.

The region also has one of the busiest freight rail systems in the country, with long-haul mainlines connecting the ports to the rest of the country via the Midwest and South rail lines. The air cargo system in the region is the busiest in the State and the second busiest in the United States (U.S.). The region hosts one of the largest clusters of logistics activity in North America, including warehouses and distribution facilities.<sup>4</sup>

Many active or former military installations are also located in the Southern California Region, including Naval Base Ventura County, Edwards Air Force Base, the Los Angeles Air Force Base, Twentynine Palms Marine Corps Air Ground Combat Center, Fort Irwin National Training Center, and the China Lake Naval Weapons Center.

## REGIONAL TRANSPORTATION PLANNING

In terms of regional transportation planning, the five counties of the Southern California Region are represented by Southern California Association of Governments (SCAG), the nation's largest Metropolitan Planning Organization (MPO), representing 191 cities and 18 million residents. The six-county SCAG region also includes Imperial County (included in these Regional Summaries as part of the California-Mexico Border Region, Caltrans District 11). Within the SCAG region are six Transportation Commissions (five of which are in the Southern California Region), which provide transportation planning services at the county level, as identified below:

### Southern California Regional Planning Agencies

- Southern California Association of Governments (SCAG)
- Los Angeles County Metropolitan Transportation Authority (LA Metro)
- Ventura County Transportation Commission (VCTC)
- Riverside County Transportation Commission (RCTC)
- San Bernardino Associated Governments (SANBAG )
- Orange County Transportation Authority (OCTA)

\* Imperial County Transportation Commission is also in the SCAG region, but not covered in this Summary.

Air quality regulatory compliance rules in the Southern California Region are administered in four air basins by four air quality districts. The greater Los Angeles metropolitan area is in the South Coast Air Basin, which includes portions of Los Angeles, San Bernardino, Riverside, and Orange counties. While ambient levels of air pollutants in Southern California are improving, the region continues to have the worst air quality in the nation. Air pollution contributes to thousands of premature deaths every year, as well as other serious adverse health conditions. The South Coast Air Quality Management District (AQMD) estimates the monetary cost of air pollution in Southern California to be at least \$14.6 billion annually.<sup>5</sup>

### Southern California Regional Air Quality Management Districts

Air Basin	Districts	Counties
South Central Coast Air Basin	7	Ventura, Los Angeles
South Coast Air Basin	7, 8, 12	Los Angeles, San Bernardino, Riverside, Orange
Mojave Desert Air Basin	8	San Bernardino, Los Angeles, Riverside
Salton Sea Air Basin	8	Riverside

Transportation planning in the Southern California Region has been, and continues to be, an ongoing, cooperative effort of many state, regional, and local agencies, as well as special districts and authorities. Freight transportation is typically

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

a component of comprehensive transportation plans, as well as the subject of many technical studies by government and academia. Transportation planning documents are required by state and federal laws; many additional planning reports and studies are conducted by federal, state, and regional agencies, air management districts, the major seaports, and other organizations.

## GOODS MOVEMENT GATEWAYS, CORRIDORS, HUBS, AND FLOWS

Goods movement in Southern California is a large-scale, complex, decentralized network of systems with interconnected infrastructure components, involving many entities in the public and private sectors. This infrastructure and logistics framework serves international, national, and regional markets, moving goods by ship, rail, truck, and airplane from manufacturers and suppliers to destinations and consumers in California and across the country. Where and how freight moves in the region is subject to many factors in terms of the transportation infrastructure, supply and demand, and countless decisions made daily by suppliers, shippers, carriers, and consumers.

### Major System Components

The major components of the Southern California Region goods movement systems consist of the following major elements.

#### Highways and Other Roads

In total for all highways, state routes, and other public roadways, the Southern California Region contains about 50,114 total road miles, most of which are the responsibility of the cities and counties. Road miles by functional classification by county are presented below. Major truck routes in the region are presented by Caltrans district and county in the table labeled “Major Freight Roadways in the Southern California Region by District and County.”

#### Road Miles by Functional Classification by County (2010)

County	Interstate	Principal Arterial Other Freeways & Expressways	Principal Arterial Other	Minor Arterial	Major Collector	Minor Collector	Local	Total
Los Angeles	316.67	192.73	1,995.28	2,837.17	2,783.85	442.51	13,178.38	21,746.59
Orange	69.77	133.42	713.89	688.82	393.00		4,572.75	6,571.65
Riverside	244.81	50.79	300.94	948.25	1,345.09	135.90	5,178.69	8,204.47
San Bernardino	400.59	43.59	560.23	1,397.90	1,858.67	148.55	6,101.31	10,510.84
Ventura		73.13	236.51	334.31	348.91	35.20	2,052.88	3,080.94
<b>Total</b>	1,031.84	493.66	3,806.85	6,206.45	6,729.52	762.16	31,084.01	50,114.49

Source: Caltrans; Division of Transportation System Information: 2010 California Public Road Data – Statistical Information derived from the Highway Performance Monitoring System

#### Major Freight Roadways in the Southern California Region by District and County

District	County	Highways
7	Los Angeles Ventura	Interstates: 5, 10, 105, 110, 210, 405, 605, 710 State Routes: 47, 57, 60, 91, 170 U.S. Highways: 101
8	San Bernardino Riverside	Interstates: 10, 15, 40, 215 State Routes: 58, 60, 86, 91, 210 U.S. Highways: 395
12	Orange	Interstates: 5, 405 State Routes: 55, 57, 73, 90, 91, 133, 241, 261

Several routes in the Southern California Region are designated under the Interregional Transportation Strategy Plan (ITSP) as “high-emphasis” routes or “focus routes.” The High Emphasis category represents routes that have high interregional importance from a statewide perspective. This makes them a top priority to be programmed and constructed to at least the minimum facility standard. The Focus Routes, a subset of the High Emphasis routes, represent corridors that are of the highest priority for completion to at least minimum facility standards over the next 20 years.

High Emphasis Routes in the Southern California Region include Interstates 5, 10, 15, 40, 210, and 215; US Routes 95, 101, and 395; and State Routes 58 and 395. Of these, the Focus Routes are US 101 and 395, and State Routes 14, 58, and 86.

**Southern California Region Interregional High Emphasis Routes and Focus Routes**

County	High Emphasis & <i>Focus</i> Routes	District
Los Angeles	Interstates 5, 215 State Routes 138, <b>14</b>	7
Ventura	US <b>101</b> State Route 126	7
Riverside	Interstate 10, 15, 215 US 95 State Route <b>86</b>	8
San Bernardino	Interstates 15, 40, 215 US 95, <b>395</b> State Routes 18, <b>58</b>	8
Orange	Interstate 5	12

In addition, some routes in the Southern California Region are designated as part of the federal Strategic Highway Network (STRAHNET). The STRAHNET – a nationwide system of highways within the National Highway System (NHS) that may be used to transport personnel and equipment in emergencies – was created and is administered by the U.S. Department of Defense. Highways and State Routes in the Southern California Region in the STRAHNET system include: Interstates 5, 10, 15, 110, 115, 210, 215, 405, 605, and 710; US 101 and 395; and State Routes 56, 62, and 91.

Sections of I-710, I-605, SR-60, and SR-91 carry the highest volumes of truck traffic in the region, averaging over 25,000 trucks per day in 2008. Other major components of the regional highway network that serve significant numbers of trucks include I-5, I-10, I-15, I-40, and I-210, with some sections carrying over 20,000 trucks per day. These highways carry local destination, domestic trade, as well as some longer haul international cargoes. The arterial roadway system also plays a critical role providing “last mile” connections to regional ports, manufacturing facilities, intermodal terminals and warehouses, and distribution centers.

Truck traffic in the region is generated by a variety of market segments, not just trade at the ports. In addition to port-related traffic, truck traffic in the region is associated with domestic warehousing and manufacturing, which includes both inter-regional and intra-regional traffic, and with local goods movement, construction, and service trucking.

### Seaports

Three seaports are located in the Southern California Region: the Port of Los Angeles, Port of Long Beach, and the Port of Hueneme.

The ports of Los Angeles and Long Beach comprise the San Pedro Bay Port Complex, the principal international, water-trade gateway in California. In 2013, the ports ranked third (\$40.9 trillion) and fifth (\$39.5 trillion) by cargo valued, respectively, valued at over \$80.4 billion. The two ports combined handle approximately 33 percent of all U.S.

containerized waterborne imports. Sixty percent of imports or more are shipped to destinations outside California.<sup>6</sup> Nationally, the ports support approximately 4.7 million jobs across the U.S.

The third port, the Port of Hueneme is located in Ventura County. Hueneme is the sixth largest port in California by cargo volume,<sup>7</sup> moving over \$7 billion in cargo value each year and supporting approximately 4,500 jobs in Ventura County.<sup>8</sup> The Port of Hueneme specializes in automobiles, fresh fruit, and produce. It is one of the nation's busiest banana-importing ports and among the nation's top ten automobile-importing ports. Hueneme also serves as a major support facility for the Southern California offshore oil industry.

### **Air Cargo**

The Southern California Region is a major hub of air cargo activity. Particularly significant is Los Angeles International Airport (LAX), which is the busiest air cargo airport in the State, with more than 1,000 cargo flights departing and arriving daily. LAX reported 1,773,073 tons of air cargo in 2012 of which 41% was domestic and 59% was international.<sup>9</sup> Approximately 79 percent of the region's air cargo is handled through LAX. More than 400 freight forwarders and over 100 customs house brokers are available in the vicinity of LAX.

Another busy airport is Ontario International Airport (ONT) in San Bernardino County, which reported 412,440 tons of air cargo in 2012 of which 92% was domestic and 8% was international.<sup>10</sup> Other regional airports with air cargo services in the region include Bob Hope (formerly Burbank) Airport, John Wayne Airport (Orange County), Long Beach, March Air Reserve Base, and Palm Springs International.

Relatively high-value commodities tend to go by air transportation and typically move in relatively small lot sizes. By weight, the top exported air commodities are vegetables, fruit, and nuts, comprising 15.1 percent of the total tonnage. Apparel is the top imported air cargo commodity, followed by computer equipment, audio and video media, and fish.<sup>11</sup>

In the past decade, regional growth in air cargo has been steadily declining, compared to the previous decade. Reasons for the decline include the economic recession and the increased diversion of domestic air cargo to electronic and ground transport modes.<sup>12</sup> The decline has affected domestic air cargo primarily; international air cargo is expected to continue to grow in the future.

### **Freight Rail**

Two Class I railroads – Burlington Northern Santa Fe Railway (BNSF) and Union Pacific (UP) – operate in the Southern California Region. These two major freight lines carry international and domestic cargo to and from Southern California as part of an extensive, private, nationwide system of freight rail transportation. Both lines connect the region – and particularly the San Pedro Bay Ports – with markets in the Midwest, South, and the rest of the U.S. BNSF uses the Transcon Route out of California to points east and UP uses the Sunset Route to El Paso and Houston to points east. The rail system serving the Ports facilitates the transport of approximately 40 percent of the nation's container cargo from

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<sup>6</sup> American Association of Port Authorities (AAPA), North American Container Traffic (1990-2010), cited in SCAG. 2012-2035 RTP: Goods Movement Supplemental Report.

<sup>7</sup> U.S. Army Corps of Engineers, Waterborne Commerce Statistics Center, cited by the American Association of Port Authorities: U.S. Port Ranking by Cargo Volume 2010 (Short Tons).  
<http://aapa.files.cms-plus.com/Statistics/2010%20U.S.%20PORT%20RANKINGS%20BY%20CARGO%20TONNAGE.pdf>.

<sup>8</sup> Port of Hueneme: <http://www.portofhueneme.org/home.php>

<sup>9</sup> California Air Cargo Groundside Need Study, July 2013, System Metrics Group Incorporated and Landrum and Brown, prepared for Caltrans, Division of Transportation Planning, [http://www.dot.ca.gov/hq/tpp/offices/ogm/air\\_cargo.html](http://www.dot.ca.gov/hq/tpp/offices/ogm/air_cargo.html)

<sup>10</sup> Ibid.

<sup>11</sup> Caltrans; 2013. Freight Planning Fact Sheet for LAX.

<sup>12</sup> SCAG. 2012-2035 RTP: Aviation and Airport Ground Access Supplementary Report.

the Ports to inland destinations.<sup>13</sup> Currently, this intermodal cargo is transferred to and from the rail system through on dock, near-dock, and off-dock terminals, rail yards, and intermodal facilities.

BNSF operates on the Transcontinental (TRANSCON) Route; UP operates on the Sunset Route. Both railroads operate on the Alameda Corridor, a dedicated 20-mile rail corridor, completed in 2002, which connects the San Pedro Bay Ports to the Class I mainlines. The dedicated freight rail corridor is being extended east under the administration of the Alameda Corridor East (ACE) Construction Authority.

The ACE Project consists of multiple construction projects including safety upgrades and approximately 20 grade separations along the UP and BNSF lines in Los Angeles, Riverside, and San Bernardino counties. One project underway is the ACE San Gabriel Trench Project,<sup>14</sup> which will eliminate four at-grade rail crossings along a 2.2-mile segment of the UP line in the cities of Alhambra and San Gabriel, providing a grade-separated freight train corridor lowered in a trench. The ACE Project connects to the end of the Alameda Corridor at the Los Angeles Redondo Junction.

Short line railroads operating in the region provide short-haul and switching services. In the vicinity of the San Pedro Bay Ports is the Pacific Harbor Line, one of the shortest railroads in the nation, operating on 18 route miles entirely inside the ports. In the vicinity of the Port of Hueneme is the Ventura County Railroad, a short line subsidiary of Genesee and Wyoming, connecting UP and the port.

The freight rail lines operate in conjunction with intermodal terminals and rail yards, including on-dock rail terminals and several other major intermodal terminals (yards) operated by BNSF and UP. These yards, listed below, are critical to the movement of intermodal cargo.

#### Southern California Intermodal Terminals

Terminal	Railroad Company	Location	Description
Hobart Yard	BNSF	Los Angeles Intermodal Facility. Commerce, CA; near the junction of I-710 and SR-60	Largest intermodal rail yard in the U.S., with 1 million containers and over 40,000 locomotives a year; 60% or all containers are international.
Southern California International Gateway (SCIG)	BNSF	Proposed new intermodal near-dock yard to be located on Port of LA property adjacent to the Alameda Corridor, approximately 4 miles north of the San Pedro Bay Ports, with access from Terminal Island Freeway	Would increase use of the Alameda Corridor, reducing the need for trucks to haul containers on the I-710 to the Hobart Yard.
San Bernardino Yard	BNSF	San Bernardino, CA	Inland Empire intermodal facility.
Commerce Yard	UP	North of BNSF's Hobart Yard, in Commerce, CA	Primarily used for cargo handling. Processes over 350,000 containers per year.
City of Industry Yard	UP	Intermodal facility in the City of Industry, CA.	Intermodal cargo handling.
Intermodal Container Transfer Facility (ICTF)	UP	Near-dock facility adjacent to the Alameda Corridor approximately 5 miles north of the San Pedro Bay Ports, with access from SR 47/103	Intermodal facility moving containers from the ports onto the Alameda Corridor to reduce truck trips to the Commerce and Industry yards.
Dolores Yard	UP	Adjacent to the ICTF	Switching and locomotive servicing facility.

<sup>13</sup> Los Angeles Harbor Department. Draft Environmental Impact Report (EIR) for the Southern California International Gateway (SCIG) Project; 2011.

<sup>14</sup> Information about the project is available at: <http://www.theaceproject.org/sangabrieltrench.htm>.

## Warehouse and Distribution Centers

The region had about 837 million square feet of warehousing space in 2008; an additional 185 million square feet of area was estimated to be available on developable land.<sup>15</sup> An estimated 15 percent of the occupied warehouse space served port-related uses, while the remaining 85 percent supported domestic shippers. Many of these warehouses are clustered along key goods movement corridors, such as SR-60, I-10, SR-91, and I-210.<sup>16</sup> Generally, a substantial amount of port-related warehousing is concentrated in the Gateway Cities subregion, while national and regional distribution facilities tend to be located further away in the Inland Empire.

## Freight Movement

Freight transportation systems in the Southern California Region connect to the north with the Central Coast Region and the San Joaquin Valley/Sierra Region, and they connect to the south with the San Diego/Border Region. Important connections beyond the region include I-5 (and 495) to the Central Valley Region / SR-99 agricultural freight corridor; I-5 and other major highways also serve many major distribution centers in neighboring counties. Rail lines also provide important connections, such as the Railx refrigerated unit trains servicing the Delano distribution center in Kern County. Further, in some cases, these connections extend across California and beyond state borders to other parts of the nation. These corridors and connections are illustrated in Figure 1 (*To Be Developed*).

### Major Freight Corridors

At some level, goods movement happens nearly everywhere in the Southern California Region. As is true elsewhere in the state, the primary mode of freight movement is by commercial vehicles, and nearly all major highways in the region experience high truck traffic; however, substantial volumes of freight in the region also move by container ship, freight rail, and air cargo aircraft.

For planning purposes, multimodal corridors can be identified with high volumes of freight moving on highways and rail lines, and where there are close connections to airports and other locations and facilities that generate freight traffic, such as warehouse areas, distribution centers, rail yards, and intermodal facilities. These multimodal corridors are useful for highlighting certain corridors in the region and beyond where surface movement of freight is substantial, infrastructure is in heavy use, and needs are likely to be greatest. Also within these corridors are opportunities for multimodal connections and shifts between modes to help facilitate freight mobility. These higher volume routes are also typically connected to gateways – i.e., seaports, land ports of entry, and airports.

**Alameda Freight Corridor.** This corridor runs north-south between the San Pedro Bay Ports and central Los Angeles. Specifically, the “Alameda Corridor” refers to the 20-mile dedicated freight rail facility that connects the ports with the nation-wide rail network. This rail cargo expressway is owned by the Alameda Corridor Transportation Authority (ACTA) and shared by the BNSF Railway and Union Pacific Railroad. The mid-corridor trench portion of the project is a 10-mile below-ground, triple-tracked segment. The near-dock ICTF and the Dolores Yard are located toward the southern end of the Alameda Corridor.

In a broader sense, this north-south corridor also includes facilities in the State Highway System, particularly the major Interstates 110 and 710, which are located west and east of the rail line, respectively, and carry heavy truck traffic serving the ports and warehouses in the Gateway Cities area.

**East-West Freight Corridors.** Several highways and major rail lines connect the Los Angeles Metropolitan Area with the Inland Empire in the vicinity of I-210, I-10, and SR 60. On the north is I-210, which extends east-west between I-5 and I-15.

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<sup>15</sup> Data developed by SCAG under the *Comprehensive Regional Goods Movement Plan and Implementation Strategy*, cited in the 2012 SCAG RTP/SCS.

<sup>16</sup> Based on work by Cambridge Systematics for the 2012 SCAG RTP/SCS.

Two other, major east-west routes, I-10 and SR-60, are further south, extending east from central Los Angeles. In the general vicinity of I-10 and SR-60 are the Union Pacific Railroad's Los Angeles Subdivision and Alhambra Subdivision, which run east to West Colton and the Yuma Subdivision (to El Paso, Texas). A major air cargo hub, the Ontario International Airport, is also located along this corridor. Further south, is another major east-west truck route, SR-91, which connects with I-110 and I-710. This part of the east-west corridor includes BNSF's San Bernardino Subdivision.

This corridor area is also under study by SCAG for a dedicated East-West Freight Corridor.<sup>17</sup> A number of alternative alignments are under consideration, with the goal to optimize the benefits in terms of truck mobility, warehousing access, rights-of-way, and impacts to communities.

This sub-regional area is also the location for the Alameda Corridor East Project, a series of grade separation projects along Union Pacific Railroad's Alhambra Subdivision and the Los Angeles Subdivision. Included as part of the Alameda Corridor East project is San Gabriel Trench in the City of San Gabriel. This project is being funded in part through the Trade Corridor Improvement Fund (TCIF) bond program, with additional funds from the Los Angeles County Metropolitan Transportation Authority

North and west of Los Angeles is another multimodal east-west Corridor, which connects inland areas to the Port of Hueneme. U.S. Highway 101 connects the Oxnard area with the Los Angeles area, and the UP Pacific line connects near the port with the Ventura County Railroad.

***International Connections.*** Corridors can also be identified that lead from the Southern California Region to the Border Region. Both I-5 and I-15 are important freight movement routes to and from the international border area. The corridor includes the BNSF along the Los Angeles/San Diego rail corridor (LOSSAN) running north/south from the BNSF line through Orange County, in the vicinity and direction of I-5.

The Interstate 5 Corridor extends from the California-Mexico border to Canada for a total length of more than 1,350 miles, with approximately 550 miles traversing through urban areas. Approximately 797 miles of I-5 are located in California. Average daily truck traffic on I-5 is near 10,000, with a maximum over 35,000. Along the urban segments, over 65 percent of the route operates under heavy congestion. The projected daily traffic in year 2035 is over 150,000, which includes over 22,000 trucks. The Southern California Region is particularly congested, with 2007 annual average daily traffic (AADT) volumes more than 200,000 across the entire area. By 2035, over 95 percent of the urban segments will operate under congestion, and congestion for non-urban segments will increase from the current 31 percent to over 85 percent.

The Interstate 10 Corridor stretches through eight states from California to Florida, with a total length of more than 2,400 miles. For approximately 700 miles of the total length, the route traverses through urban areas. Average daily truck traffic is over 8,000, with a maximum over 55,000. Along the urban segments, over 53 percent of the corridor operates under heavy congestion. The projected daily traffic in year is over 85,000, which includes over 20,000 trucks. By 2035, 96 percent of the urban segments will operate under heavy congestion, and congestion for non-urban segments will increase from the current 4 percent to over 45 percent.

A coalition of transportation agencies in the eight states conducted a joint planning study (over several years between 2002 and 2008) for this corridor called the I-10 National Freight Corridor Study.<sup>18</sup> The study, which focused on reducing bottlenecks and improving mobility, provided recommendations for intelligent transportation system (ITS) operational improvements and infrastructure improvements to create efficient long-distance freight movement. The study included possible dedicated truck lane separation in the Los Angeles area, as well as in other major metropolitan areas. The study found that, with over 60,000 trucks a day, the I-710/I-10/SR 60 corridor linking the San Pedro Bay Ports and the Inland Empire is one of the highest use trade corridors in the nation.

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<sup>17</sup> 2012 SCAG RTP/SCS

<sup>18</sup> Information available online at <http://www.i10freightstudy.org/>.



The Interstate 15 Corridor passes through the states of California, Arizona, Nevada, and Utah for a total length of over 840 miles, with approximately 220 miles traversing through urban areas. Average daily truck traffic is over 9,000 with a maximum over 60,000. Along the urban segments, over 60 percent operates under heavy congestion. The projected 2035 average daily traffic is over 150,000, which includes over 27,000 trucks. By 2035, 98 percent of the urban segments will operate under heavy congestion, and congestion for non-urban segments will increase from 21 percent to over 85 percent.

## **MODAL AND SYSTEM PERFORMANCE**

System performance can be assessed by mode or in terms of the overall multimodal transportation network. A number of factors affect performance, as may be indicated by key trends.

### **Goods Movement Trends and Drivers**

A number of key trends are anticipated to have major impacts on the goods movement system.<sup>19</sup> These trends, which are likely to also be true in other regions of the state, include the following.

#### **Population and General Economic Growth**

Despite the economic downturn, population and employment in the Southern California region are expected to grow by approximately 24 percent and 22 percent by 2035, respectively.<sup>20</sup> This growth will create increased consumer demand for products with an associated increase in demand for goods movement systems. The increased demand will drive growth in freight traffic on highway and rail facilities. Truck traffic on I-710 and I-110 from the Ports of San Pedro Bay is expected to increase.<sup>21</sup> Truck traffic on key east-west corridors is anticipated to grow by 70 to 100 percent. Without an increase in capacity, truck and auto delay will increase substantially, truck-involved accidents will be more frequent, and the levels of harmful emissions will rise. Growing demand for commuter rail services on rail lines owned by the freight railroads will create needs for expanded capacity on these facilities.

#### **Recovery and Expansion of International Trade**

Regional transportation plans generally anticipate that international trade will recover, with renewed demand for both import and export capabilities. Despite increasing competition with other North American ports and the expansion of the Panama Canal, the San Pedro Bay Ports anticipate cargo volumes will grow to 43 million containers annually by 2035 – more than tripling from today’s levels.<sup>22</sup> This growth will create the need to expand marine terminal facilities, improve highway connections (particularly those connecting to the San Pedro Bay Ports, like I-110, I-710, and SR-47), and address on-dock and off-dock intermodal terminal capacities. If port-related rail traffic and commuter demand are to be satisfied, additional mainline capacity improvements will be required. Mitigating the impacts of increased diesel-powered freight traffic on local communities will continue to be a considerable challenge.

#### **Continued Expansion of Warehouse and Logistics Activity**

Regional transportation plans also predict that the Southern California Region will likely see continuation of expanded distribution and logistics activity. Demand for port-related warehouse space is projected to grow at a faster pace than demand for domestic warehousing. E-commerce is also a significant driver of warehouse development and expansion. As space near the San Pedro Bay Ports reaches capacity, port warehousing will push out to the Inland Empire. Expansion in national and regional distribution facilities is also likely to occur in the Inland Empire, resulting in substantial congestion problems due to the increased truck volumes on regional highways. By 2035, the region may experience a shortfall of more than 228 million square feet in warehouse space relative to demand.<sup>23</sup>

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<sup>19</sup> Derived in major part from SCAG RTP/SCS.

<sup>20</sup> Ibid.

<sup>21</sup> For information on the I-710 Corridor Project see Metro: <http://www.metro.net/projects/i-710-corridor-project/>

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

## **Air Quality Issues**

Air quality is closely tied to transportation planning and funding, and the region will need to continue to make substantial efforts to reduce emissions. Much of the SCAG region does not meet federal ozone and fine particulate (PM2.5) air quality standards. Goods movement is a major source of emissions that contribute to these regional air pollution problems (NOX and PM2.5). While emissions from goods movement are being reduced through efforts such as the San Pedro Bay Ports Clean Air Action Plan, these reductions are unlikely to be sufficient to meet regional air quality goals. Efforts to date have successfully reduced emissions; however, further reductions are becoming more difficult to attain. In coming years, assuming that the predicted growth occurs, meeting air quality standards will become increasingly difficult without changes in technology and consumer behavior.

## **FREIGHT INFRASTRUCTURE NEEDS**

Based on these general performance goals and indicators, there are major planning issues and challenges in the Southern California Region. Many regional plans and studies are quick to point to the region's (and the State's) aging infrastructure. The transportation systems are approaching capacity. Funding shortfalls have resulted in a need for an infusion of funds to preserve the State Highway System. In addition, as shown in the discussion of the major freight corridors, there is a need to facilitate the mobility of goods movement within and through the state. As freight infrastructure improvements are made, they will have implications in terms of land use, community effects, and the environment. These needs are generally characterized under the following headings.

### **Dedicated Freight Transportation Systems**

Regional transportation plans and studies suggest a growing need for separate, dedicated freight transportation facilities, such as grade separations for highway-rail crossings (e.g., the ACE Project) and rail-to-rail crossings (i.e., Colton Crossing). Dedicated freight highway lanes also are increasing. Over the past decade, Caltrans and regional transportation agencies and authorities have increasingly considered dedicated rail and truck infrastructure in freight planning, such as the following examples:

- The I-710 Corridor Project, where alternatives under current consideration for the proposed 10-lane facility include designated zero-emission lanes.
- The proposed East-West Freight Corridor, one of a number of goods movement strategies in the 2012 SCAG RTP; the dedicated freight corridor would generally follow a yet-to-be-determined alignment in the vicinity of the I-10, the UP Railroad, and SR-60 or as far south as SR-91.
- The Alameda Corridor-East Project, a dedicated rail corridor involving a series of rail-roadway grade separation projects, extending of the Alameda Corridor rail cargo expressway.

### **Correcting Multimodal System Deficiencies and Gaps**

In addition to the above, there is an ongoing need to correct multimodal system deficiencies and gaps, with the goal to optimize performance. Through the state and regional transportation planning processes, projects are routinely identified, prioritized, and programmed under regional, state, and federal Transportation Improvement Programs.

These processes are routinely used for projects to address deficiencies, relieve bottlenecks, eliminate gaps, improve safety, and otherwise deliver projects that maintain and preserve the multimodal system. In addition to regional, statewide, and national planning perspectives, continuous, cooperative, and comprehensive transportation planning requires participation from private sector stakeholders, including the Class I railroads. For example, types of projects may include:

- Projects that develop more capacity for on-dock and off-dock transloading of container freight.
- Designing and construction a transportation solution for the existing gap in I-710 between currently under study

- Developing transportation solutions that address the truck delay due to congestion occurring on all the major highways, including Interstates 605, 710, 5, and 10 and State Routes 60, 57, and 91. Major highway intersections can be bottlenecks, such as intersections at I-110/I-105, I-105/I-110, I-10/I-15, I-15/SR-91.

## TRADE CORRIDORS IMPROVEMENT FUND (TCIF)

The Highway Safety, Traffic Reduction, Air Quality and Port Security Bond of 2006, approved by the voters of California as Proposition 1B in 2006, made \$2 billion available for infrastructure improvements along federally designated “Trade Corridors of National Significance” in California or along other corridors within California that have a high volume of freight movement. The funds were made available to the California Transportation Commission upon appropriation in the annual budget bill by legislature and subject to such conditions and criteria as the Legislature provided by statute. (For more up-to-date information about the program, go to <http://www.catc.ca.gov/programs/tcif.htm>)

## RESOURCES AND ADDITIONAL INFORMATION

The following selected Internet websites provide additional information pertaining to the Southern California Region, including regional transportation planning agencies, Caltrans offices, seaports, and other organizations that deal with freight-related matters.

### Regional Transportation Planning Goods Movement Sites

Southern California Association of Governments (SCAG): <http://www.scag.ca.gov/goodsmove/>

Ventura County Transportation Commission (VCTC): <http://www.goventura.org/>

Los Angeles County Metropolitan Transportation Authority (LA Metro): <http://www.metro.net/>

I-710 Project: <http://www.metro.net/projects/i-710-corridor-project/>

San Bernardino Associated Governments (SANBAG): <http://sanbag.ca.gov/>

Orange County Transportation Authority (OCTA): [http://www.octa.net/goods\\_movement.aspx](http://www.octa.net/goods_movement.aspx)

Riverside County Transportation Commission (RCTC): <http://rctc.org/>

### State Government Sites

Caltrans Office of Truck Services: <http://www.dot.ca.gov/hq/traffops/trucks/>

Caltrans Office of System, Freight and Rail Planning: <http://www.dot.ca.gov/hq/tpp/offices/ogm/index.html>

California Corridor Mobility (System Planning documents): <http://www.dot.ca.gov/hq/tpp/corridor-mobility/>

Caltrans District 7: <http://www.dot.ca.gov/dist07/>

Caltrans District 8: <http://www.dot.ca.gov/dist8/>

Caltrans District 11: <http://www.dot.ca.gov/dist11/>

Caltrans District 12: <http://www.dot.ca.gov/dist12/>

### Seaports

Port of Long Beach: <http://www.polb.com/>

Port of Los Angeles: <http://www.portoflosangeles.org/>

Port of Hueneme: <http://www.portofhueneme.org/home.php>

### Other Organizations

Alameda Corridor Transportation Authority: <http://www.acta.org/>

Alameda Corridor East Construction Authority: <http://www.theaceproject.org/>

I-10 National Freight Corridor: <http://www.i10freightstudy.org/>

East Yard Communities for Environmental Justice: <http://eycej.org/about>