1.0 PROPOSED PROJECT

1.1 INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), the Gateway Cities Council of Governments (GCCOG), the Southern California Association of Governments (SCAG), the Ports of Los Angeles (POLA) and Long Beach (POLB) (collectively referred to as the Ports), and the Interstate 5 Joint Powers Authority (I-5 JPA) (collectively referred to as the I-710 Funding Partners), proposes to improve Interstate 710 (I-710, also referred to as the Long Beach Freeway) in Los Angeles County between Ocean Blvd. and State Route 60 (SR-60). The proposed project is referred to as the I-710 Corridor Project. I-710 is a major north-south interstate freeway connecting the city of Long Beach to central Los Angeles and beyond. Within the I-710 Corridor Project Study Area (Study Area), I-710 is a significant goods movement artery for the region and serves as the principal transportation connection for goods movement between POLA and POLB, located at the southern terminus of I-710, and the Burlington Northern Santa Fe (BNSF)/Union Pacific (UP) Railroad intermodal rail yards in the cities of Commerce and Vernon, as well as intermodal warehouses along I-710. The I-710 Corridor is part of the Interstate Highway System and is used as a major local and regional truck route. I-710 is listed as a “high priority corridor” on the National Highway System (NHS), serving interregional vehicular traffic in the north-south direction from its terminus in the city of Long Beach to Interstate 10 (I-10). The existing I-710 freeway mainline generally consists of eight general purpose lanes north of Interstate 405 (I-405) and six general purpose lanes south of I-405. South of Pacific Coast Hwy. (State Route 1 [SR-1]), the facility is designated as State Route 710, whereas north of Pacific Coast Hwy., the facility is designated as I-710. Figure 1.1-1 shows the regional location.

The Study Area includes the portion of the I-710 Corridor from Ocean Blvd. in Long Beach to SR-60, a distance of approximately 18 miles and includes all or portions of the Ports, the cities of Bell, Bell Gardens, Carson, Commerce, Compton, Cudahy, Downey, Huntington Park, Lakewood, Long Beach, Lynwood, Maywood, Paramount, Signal Hill, South Gate, and Vernon, as well as unincorporated areas of Los Angeles County, including the communities of East Los Angeles, Boyle Heights, Wilmington, and San Pedro (see Figure 1.1-2). At the freeway-to-freeway interchanges, the Study Area extends one mile east and west of the I-710 mainline for the I-405, State Route 91 (SR-91), Interstate 105 (I-105), and I-5 interchanges. This is the general Study Area for the I-710 Corridor Project. Specific study areas have been established for individual environmental analyses (e.g., health risk assessment zone of influence and community impact assessment focus area).

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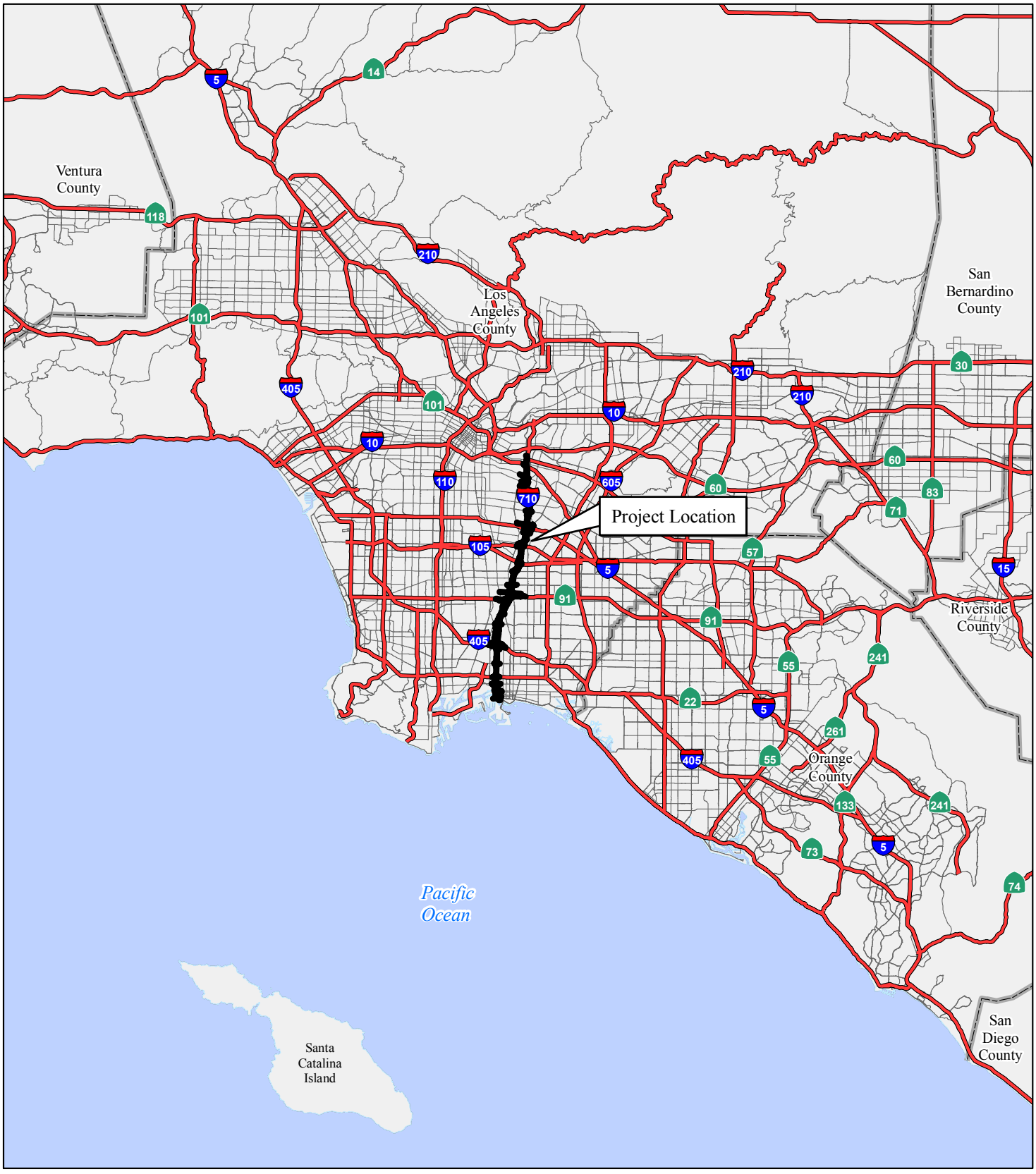

LEGEND

Project Location

FIGURE 1.1-1

N

0 5 10

Miles

SOURCE: TBM (2008)

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I-710 Corridor Project EIR/EIS

Regional Location

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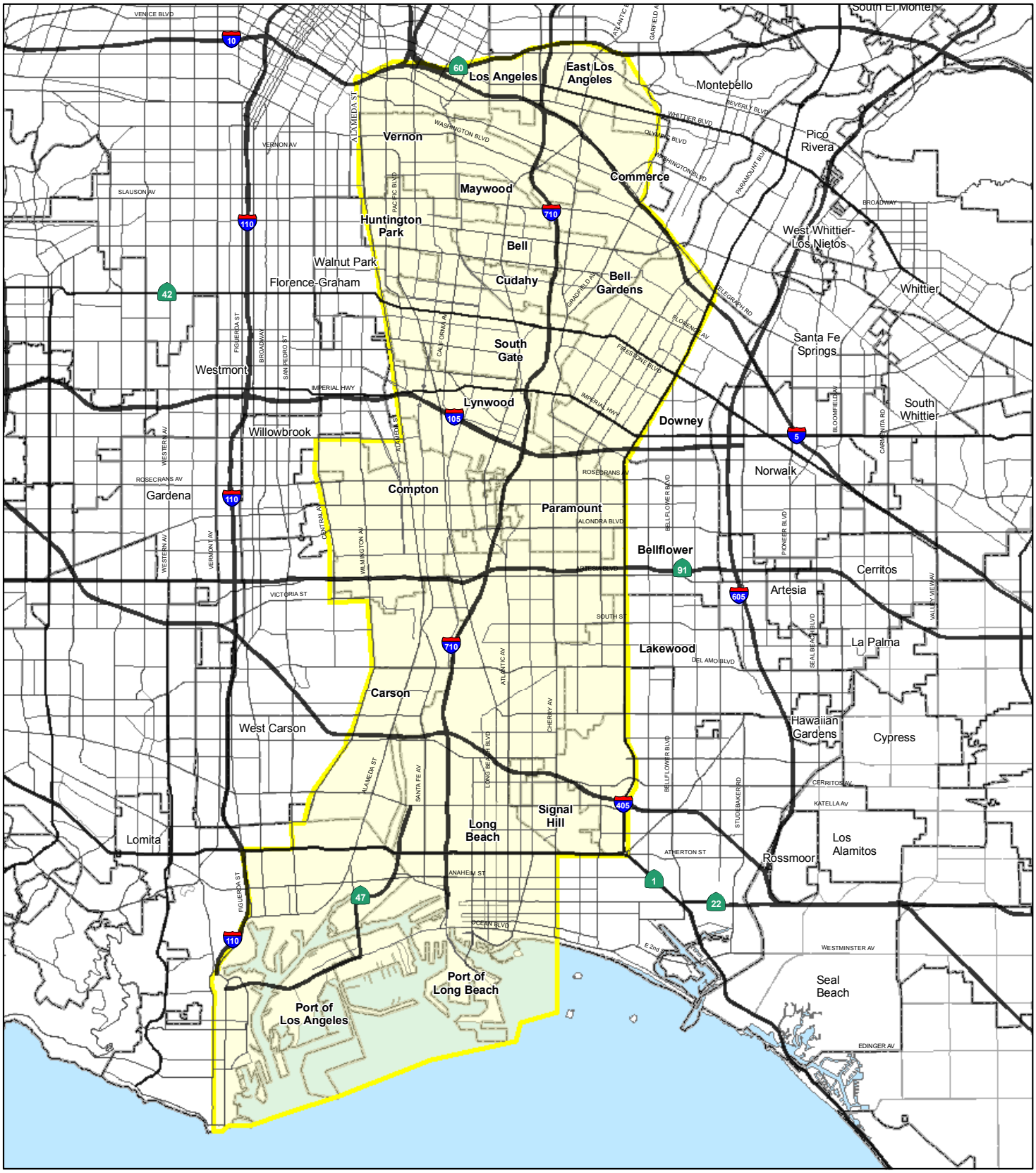

FIGURE 1.1-2

LEGEND

I-710 Study Area

N

0 1.5 3

Miles

SOURCE: TBM (2007)

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I-710 Corridor Project EIR/EIS

I-710 Project Study Area

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The existing I-710 Corridor has elevated levels of traffic congestion, elevated truck volumes, elevated accident rates, and many design features in need of modernization (the original freeway was built in the 1950s and 1960s). Because of this, the *I-710 Major Corridor Study* (MCS; March 2005) was undertaken to address the I-710 Corridor's mobility and safety needs and to explore possible solutions for transportation improvements. This study was completed in March 2005 and identified a community-based Locally Preferred Strategy (LPS) consisting of ten general purpose lanes next to four separated freight movement lanes. In total, three reports have previously been completed on the I-710 Corridor: (1) the *Tier 2 Community Advisory Committee Report* (August 2004); (2) the I-710 MCS (March 2005); and (3) the *I-5/I-710 Interchange Mini-Study* (April 2006). Subsequent to the MCS, the I-710 Funding Partners entered into cooperative agreements with Metro and are now collectively funding the preparation of preliminary engineering and environmental documentation for the I-710 Corridor Project. The project development support, right-of-way, and construction costs for this project are anticipated to be funded through various local, State, and Federal agencies. Current project development activities are jointly funded by the I-710 Funding Partners using a combination of local, State and Federal funds.

A project to reconstruct the I-710 interchanges at I-105, SR-91, I-405, and I-5 as part of the I-710 Corridor Project is included in the SCAG-adopted 2011 Federal Transportation Improvement Program (FTIP) (Project ID No. LA0B952). The project is also included in the list of financially constrained projects in the SCAG 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (Project ID No. LAOB952). The project is also included in the Metro Final 2009 Long-Range Transportation Plan (LRTP) as a Funded Freeway Improvement. The list of financially constrained projects in the 2012 RTP/SCS also includes the full I-710 Corridor Project (Project ID No. ICO401) and is described as follows:

> I-710 Corridor User-Fee Backed Capacity Enhancement – Widen to five mixed flow + two dedicated lanes for clean technology trucks (each direction) and interchange improvements, from Ocean Blvd. in Long Beach to the intermodal railroad yards in Commerce/Vernon.

This description is consistent with the description of Alternatives 6B and 6C provided in Chapter 2 of this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The 2011 FTIP and 2012 RTP/SCS project listings are provided in Appendix I of this Draft EIR/EIS.

Caltrans is the lead agency under the National Environmental Policy Act (NEPA). Caltrans is the lead agency under the California Environmental Quality Act (CEQA).

1.2 NEED AND PURPOSE

1.2.1 NEED FOR THE I-710 CORRIDOR PROJECT

The I-710 Corridor is a vital transportation artery not only for the communities along the corridor, but also because it links POLA and POLB to southern California and the rest of the nation via connections to other Interstate and State highways. An essential component of the regional, statewide, and national transportation system, it serves both passenger and goods movement vehicles. As a result of population growth, growth in international cargo being shipped through the Ports, increasing traffic volumes, and aging infrastructure, the I-710 Corridor experiences serious congestion and safety issues. Population in the Gateway Cities Subregion is expected to grow from 2,124,000 in 2008 to 2,364,000 in 2035, an increase of approximately 11 percent. Employment in this Subregion is expected to grow from 756,000 in 2008 to 818,000 in 2035, an increase of approximately 8 percent. There are no currently funded transportation improvements that will address the projected future transportation demand within the I-710 Corridor. The I-710 Corridor Project proposes to address the needs described below in Sections 1.2.1.1 through 1.2.1.5.

1.2.1.1 AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has designated the South Coast Air Basin, which includes the Study Area, as an extreme ozone non-attainment area and a non-attainment area for small airborne particulate matter less than 10 and 2.5 microns (PM_{10} and $PM_{2.5}$). Exposure to ozone, PM_{10}, and $PM_{2.5}$ levels above the Federal health standards is associated with many adverse health effects—including decreased lung function, aggravated asthma, increased lung and heart diseases symptoms, and chronic bronchitis—that can result in increased morbidity and premature mortality. Studies have shown that elevated levels of nitrogen dioxide (NO_2) and ultrafine particulates (UFPs) occur very near roadways; these elevated levels are also associated with adverse health effects. In addition, the South Coast Air Quality Management District (SCAQMD) has conducted Multiple Air Toxic Exposure Studies (MATES), the latest being MATES III from 2004 to 2007. The highest levels of calculated cancer risk (approximately 1,200 to 2,000 in a million) in 2005 (the study analysis year), occur in the Study Area, particularly near the Ports, rail yards, and along the I-710 freeway. These studies show that diesel particulate matter (DPM) is the greatest contributor to air-quality-related cancer risk in the South Coast Air Basin and that approximately half of the DPM is emitted by diesel trucks using the freeway and roadway systems.

1.2.1.2 CAPACITY, TRANSPORTATION DEMAND, AND SAFETY

FREEWAY CAPACITY. The need for the I-710 Corridor Project is based on an assessment of the existing and future transportation demand in the Study Area compared to the available capacity. Based on the examination of existing travel conditions and projected future traffic (2035), the

I-710 Corridor currently experiences, and will continue to experience, capacity and operational problems due to a number of interrelated factors. With the exception of the I-710/I-105 interchange, no major design improvements have been undertaken on I-710 since it was built in the 1950s and 1960s. Extensive population growth occurred after 1960 and before containerization of oceangoing freight and the significant growth in international trade. The increase in regional traffic and heavy-duty truck traffic carrying cargo containers to and from the Ports has contributed to traffic volumes that exceed the existing design capacity of the I-710 Corridor, particularly at the interchanges. Table 1.2-1 shows average daily weekday automobile and truck volumes on I-710.

Current and predicted future freeway operating conditions (traffic flow) within the I-710 Corridor is characterized by level of service (LOS). LOS is based on the comparison of traffic volume to the design capacity of the freeway, which is based on several factors including the number and width of travel lanes, steepness of the grades, and average speeds for which the freeway was designed. LOS is expressed as a range from LOS A (free traffic flow with low volumes and high speeds) to LOS F (traffic volumes that exceed capacity and result in forced-flow operations at low speeds). See Figure 1.2-1 for LOS criteria for freeway facilities. Increasing traffic on the I-710 Corridor has seriously degraded the freeway LOS, particularly during commuter peak hours.

Figure 1.2-2 shows the existing LOS for the various segments of the I-710 mainline and ramps. As these figures illustrate, many segments operate at LOS E or F throughout the day, creating traffic congestion chokepoints that cause congestion on adjacent segments of I-710. Please see the Traffic Operations Analysis Report (November 2011) for more detail regarding LOS throughout the Study Area.

A specific factor affecting the traffic operational performance of the I-710 Corridor is the large number of heavy-duty trucks that use the I-710 Corridor to travel between the Ports and the rail freight intermodal yards located near I-5, and to warehousing and cargo distribution points scattered throughout the southern California region. Table 1.2-2 shows the Average Annual Daily Truck Traffic (AADTT) for five segments of I-710.

The amount of congestion and traffic delay currently experienced on the I-710 Corridor is not only disruptive to local residents and commuters, but also to port operations that must accommodate “just-in-time” goods delivery and inventory processes, which affects trucking, manufacturing, and other commercial interests within the SCAG region as shipments are delayed while trucks idle in traffic.

Table 1.2-1 I-710 Average Daily (2-Way) Traffic Volumes

Mainline Segment		YEAR 2008			YEAR 2035 (No Build)			% Truck of Total Volume		2008–2035 Percent Change in Volume		
		Auto	Truck	Total	Auto	Truck	Total	2008	2035	Auto	Truck	Total
SR-60	I-5	168,100	17,600	185,700	189,500	23,200	212,700	9%	11%	13%	32%	15%
I-5	Washington Blvd.	195,200	20,100	215,300	208,100	25,300	233,400	9%	11%	7%	26%	8%
Washington Blvd.	Atlantic Blvd.	187,500	19,400	206,900	208,000	27,800	235,800	9%	12%	11%	43%	14%
Atlantic Blvd.	Florence Ave.	168,000	28,600	196,600	186,800	37,800	224,600	15%	17%	11%	32%	14%
Florence Ave.	Firestone Blvd.	168,000	28,600	196,600	186,800	37,800	224,600	15%	17%	11%	32%	14%
Firestone Blvd.	Imperial Hwy.	175,200	30,400	205,600	192,500	39,700	232,200	15%	17%	10%	31%	13%
Imperial Hwy.	I-105	175,100	31,500	206,600	194,400	43,200	237,600	15%	18%	11%	37%	15%
I-105	Rosecrans Ave.	181,400	31,700	213,100	198,600	43,400	242,000	15%	18%	9%	37%	14%
Rosecrans Ave.	Alondra Blvd.	109,200	26,300	135,500	131,900	38,500	170,400	19%	23%	21%	46%	26%
Alondra Blvd.	SR-91	177,100	36,700	213,800	207,800	59,300	267,100	17%	22%	17%	62%	25%
SR-91	Long Beach Blvd.	177,200	37,000	214,200	204,000	60,100	264,100	17%	23%	15%	62%	23%
Long Beach Blvd.	Del Amo Blvd.	146,000	42,100	188,100	164,100	74,100	238,200	22%	31%	12%	76%	27%
Del Amo Blvd.	I-405	137,800	42,000	179,800	153,300	74,300	227,600	23%	33%	11%	77%	27%
I-405	Wardlow Rd.	138,000	41,600	179,600	153,100	74,400	227,500	23%	33%	11%	79%	27%
Wardlow Rd.	Willow St.	119,500	41,200	160,700	131,100	71,600	202,700	26%	35%	10%	74%	26%
Willow St.	Pacific Coast Hwy.	108,600	41,400	150,000	114,200	71,800	186,000	28%	39%	5%	73%	24%
Pacific Coast Hwy.	Anaheim St.	97,900	33,900	131,800	110,000	60,100	170,100	26%	35%	12%	77%	29%
Anaheim St.	9th St.	26,000	26,000	52,000	29,500	46,600	76,100	50%	61%	13%	79%	46%
9th St.	Ocean Blvd.	11,900	10,300	22,200	12,000	20,100	32,100	46%	63%	1%	95%	45%

Source: *I-710 Corridor Project Freeway Traffic Operations Analysis Report*, December 2011.
I-5 = Interstate 5
I-710 = Interstate 710
I-405 = Interstate 405
SR-60 = State Route 60
I-105 = Interstate 105

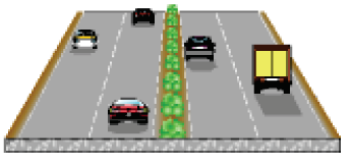
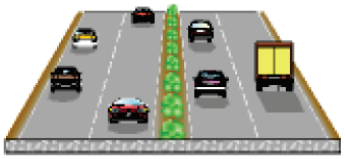
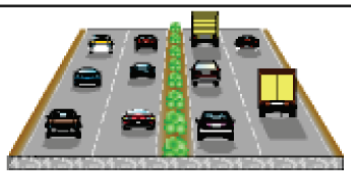
Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

FIGURE 1.2-1

I-710 Corridor Project EIR/EIS

Level of Service Criteria for Basic Freeway Segments

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SOURCE: California Department of Transportation

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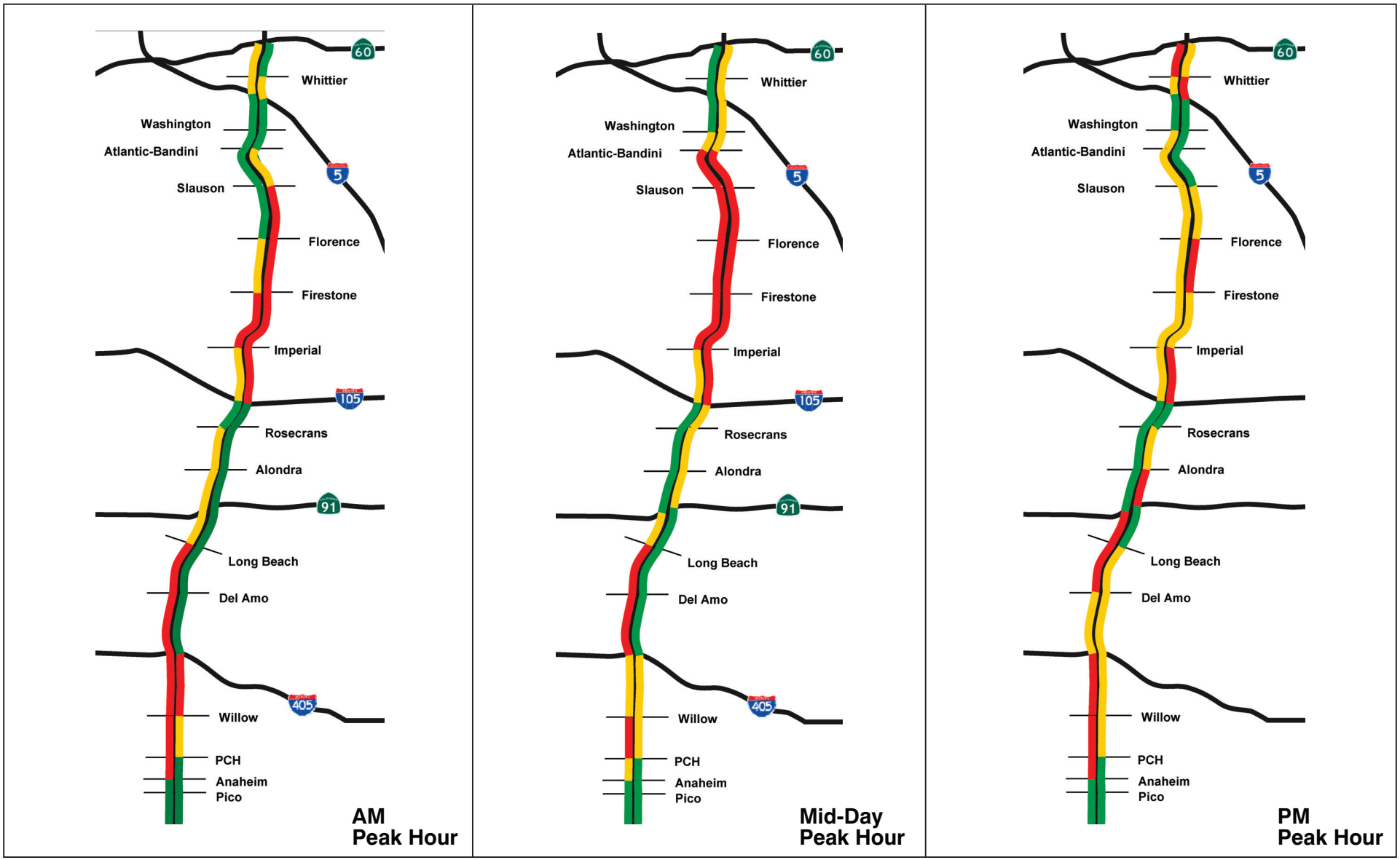

FIGURE 1.2-2

I-710 Corridor Project EIR/EIS

Existing (2008) Level of Service

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Table 1.2-2 I-710 Average Annual Daily Truck Traffic

Location	Lane Dir.	AADTT (one-way)[1]	Truck Classification			
			2-Axle	3-Axle	4-Axle	5-Axle
North of PCH interchange	3	21,106	12.0%	17.2%	1.2%	69.6%
North of I-405 interchange	4	14,260	17.9%	13.8%	1.3%	67.0%
North of SR-91 interchange	5	15,255	24.3%	12.3%	2.8%	60.7%
North of I-105 interchange	4	13,673	25.0%	16.6%	2.1%	56.3%
North of I-5 interchange	4	7,334	29.7%	14.4%	5.4%	50.5%

Source: *2007 Annual Average Daily Truck Traffic (AADTT) on the California State Highway System,* Caltrans, September 2008.

[1] Caltrans-published AADTT values are for two-way traffic. For the purposes of this calculation, AADTT values from this report are halved to represent one-way traffic at the given location.

Caltrans = California Department of Transportation
I-5 = Interstate 5
I-105 = Interstate 105
I-405 = Interstate 405
I-710 = Interstate 710
Lane Dir. = number of through traffic lanes on I-710 in each direction
PCH = Pacific Coast Hwy.
SR-91 = State Route 91

ARTERIAL HIGHWAY CAPACITY. In the I-710 Corridor, congestion at local arterial intersections is also a concern. The existing intersection LOS analysis is shown in Table 1.2-2. Intersections currently operating at LOS E or F are located on Firestone Blvd., Imperial Hwy., Willow St., Atlantic Blvd., Del Amo Blvd., and 223rd St.

TRANSPORTATION DEMAND. Regional population is forecast to grow by 27 percent and Study Area population is forecast to grow by 11 percent from 2008 to 2035. Employment will follow a similar pattern, with regional growth of 27 percent and Study Area employment growth of 7 percent. Growth will be lower in the Study Area than in the SCAG region because the Study Area is almost completely developed. New growth will be limited to smaller, infill-type developments. Table 1.2-3 summarizes forecasted population and employment growth from the 2008 RTP for the entire SCAG region and for the Study Area. The 2008 RTP growth forecast was the basis for the regional traffic modeling that was performed for the I-710 Corridor Project. Compared to the 2008 RTP growth forecast, the 2012 RTP growth forecast for population and employment by 2035 is about 9 percent lower (i.e., the 2012 RTP projects a population of 22.1 million people and 9.4 million jobs in the SCAG region by 2035).

Table 1.2-3 Forecast Growth in Population and Employment

		2008	2035	Percent Change
Population	Regional	18,904,711	24,049,676	27%
	I-710 Corridor Project Study Area	1,487,180	1,653,167	11%
Employment	Regional	8,115,208	10,283,947	27%
	I-710 Corridor Project Study Area	593,995	636,734	7%

Source: 2008 Regional Transportation Plan, Southern California Association of Governments.
I-710 = Interstate 710

The Study Area contains several land uses and activity areas related to goods movement and the transport of cargo. The POLA/POLB port complex is one of the largest container ports in the world and is located at the southern terminus of the I-710 mainline. Even though there has been a slowdown in imports and exports due to the current economic slowdown, which began in 2008, recent world trade forecasts based on assumptions of slower worldwide economic growth and diversion of cargo to other North American ports still anticipate growth in demand at the Ports that will increase from the handling of 13 million annual TEUs in 2008 reaching 42.7 million twenty-foot equivalent units (TEUs) by 2035 which will exceed planned capacity.[1] The I-710 Corridor is, and is expected to remain, a primary route for trucks carrying containers to and from the Ports. Figure 1.2-3 shows the freeway LOS forecast for 2035 based on this future traffic demand without the I-710 Corridor Project.

With regard to future demand for cargo containers to be transported to and from the Ports by rail instead of truck, the *I-710 Railroad Goods Movement Study* (February 2009) found that while railroads have employed a variety of operational strategies to meet container demand from the Ports, including longer trains with higher utilization rates, the railroad system will not be able to handle the demand even with the rail system operating at maximum capacity. Therefore, any additional containers would be transported via truck, which increases travel demand by truck on I-710.

TRAFFIC SAFETY. As discussed below, I-710 experiences high accident rates (particularly truck-related accidents), exceeding the State average for similar highway facilities in many locations along I-710.

[1] *I-710 Railroad Goods Movement Study,* 2009.

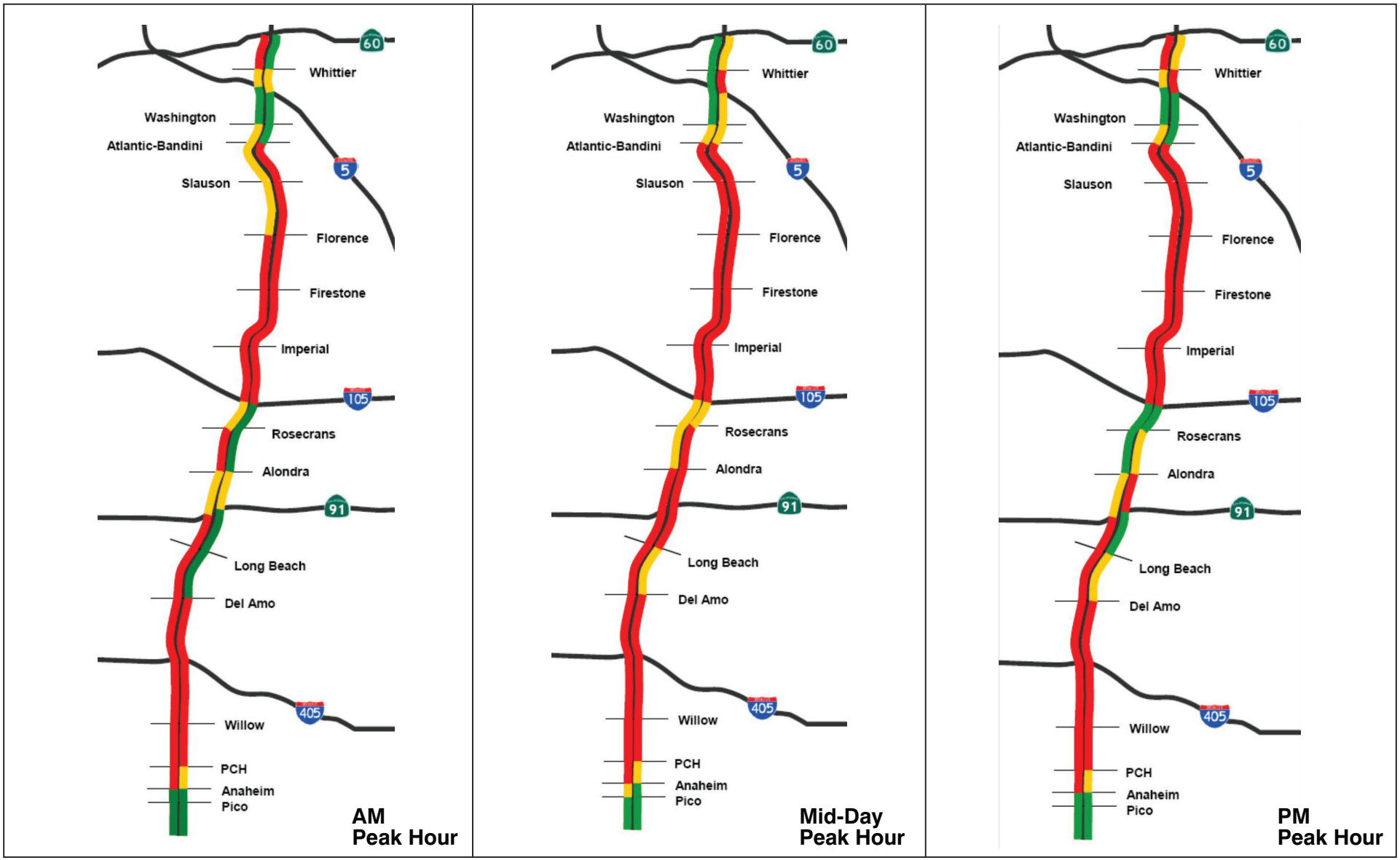

FIGURE 1.2-3

I-710 Corridor Project EIR/EIS

2035 No Build Level of Service

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By State law, heavy-duty trucks are relegated to the two right lanes of freeways. Most of the automobile/truck interaction occurs as automobiles maneuver to get on and off the I-710 mainline at the interchanges, therefore, crossing and traveling in these right two lanes. Additionally, trucks are slower to accelerate and slower to stop, which uses up more freeway capacity and also causes merging conflicts among these different vehicle types as automobile drivers weave in and out of traffic to avoid the slower-moving heavy-duty trucks. The difference in mass (weight) between a car and a heavy-duty truck makes an incident between these two vehicle types more consequential for the automobile.

According to the Caltrans Traffic Accident Surveillance and Analysis System (TASAS, October 2004 through November 2007; data is included in Section 4.4 of the Traffic Operations Analysis Report), truck-related accidents range from 29 to 36 percent of the total number of accidents along the I-710 mainline study segments. According to data collected and reported by Caltrans over a three- year period (October 1, 2004, to September 30, 2007), the I-710 mainline experiences an accident rate that is well above the statewide average for freeways of this type. A specific location that is especially problematic, as it causes increased truck/automobile conflicts, is the northbound segment of the I-710 mainline approaching the I-5 interchange.

The connector ramps from northbound I-710 to northbound I-5 are located on the left-hand side of the I-710 mainline. At this location, heavy-duty trucks are allowed to use the left lanes of I-710 to access the I-5 northbound ramps.

NORTHBOUND I-710. Of the four northbound I-710 mainline study segments, two segments have higher accident rates than the State average (between an average of 1.01 and 1.12 accidents per million vehicle miles traveled during this period) and two have higher fatal accident rates than the State average (167 and 67 percent higher). The high truck volumes may account for the severity of accidents occurring along the I-710 Corridor. The TASAS ramp accident data also shows that of the 59 Study Area ramp locations, 31 have higher accident rates compared to the State average. Rear-end collisions and sideswipes make up approximately 60 to 70 percent of all collisions that occur on the northbound I-710 mainline and ramps.

An analysis of truck accident data in the northbound direction is summarized in Table 1.2-4 and shows that for northbound I-710, truck-related accidents account for 31 percent of the TASAS-reported mainline accidents.

Table 1.2-4 I-710 Northbound Mainline Truck Accident Rates (October 1, 2004, to September 30, 2007)

Location (Post Mile)	Description	Total Truck Accidents	Total Accidents	Percent of Total Accidents that Include a Truck
4.96–9.411	Southern terminus to I-405	101	353	29%
9.411–12.970	I-405 to SR-91	97	321	30%
12.970–15.672	SR-91 to I-105	81	253	32%
15.692–22.607	I-105 to Leonis St.	314	993	32%
Entire Northbound Length (post mile 4.96–22.607)		**593**	**1,920**	**31%**

Source: *I-710 Corridor Project Final Traffic Operations Analysis Report,* December 2011.
I-105 = Interstate 105 I-710 = Interstate 710
I-405 = Interstate 405 SR-91 = State Route 91

SOUTHBOUND I-710. Of the four I-710 southbound freeway mainline study segments, one segment has a higher accident rate than the statewide average (60 percent higher). The TASAS ramp accident data also shows that two of the 54 I-710 southbound ramp locations within the project Study Area have higher accident rates when compared to the State average. Rear-end collisions and sideswipes make up approximately 70 percent of all collisions that occur on the southbound I-710 mainline and ramps.

An analysis of the truck accident data summarized in Table 1.2-5 reveals that for southbound I-710, truck-related accidents account for 31 percent of the TASAS-reported southbound ramp accidents within the Study Area.

Table 1.2-5 I-710 Southbound Mainline Truck Accident Rates (October 1, 2004, to September 30, 2007)

Location (Post Mile)	Description	Total Truck Accidents	Total Accidents	Percent of Total Accidents that Include a Truck
4.96–9.411	Southern terminus to I-405	78	262	30%
9.411–12.970	I-405 to SR-91	156	430	36%
12.970–15.672	SR-91 to I-105	114	336	34%
15.692–22.607	I-105 to Leonis St.	251	879	29%
Entire Northbound Length (post mile 4.96–22.607)		**599**	**1907**	**31%**

Source: *I-710 Corridor Project Final Traffic Operations Analysis Report,* December 2011.
I-105 = Interstate 105 I-710 = Interstate 710
I-405 = Interstate 405 SR-91 = State Route 91

Accidents, particularly truck-related accidents, form bottlenecks as emergency personnel temporarily close travel lanes to respond to the accident. As a result, these incidents lead to additional congestion, delay, and occasionally secondary accidents on the I-710 mainline and ramps as approaching vehicles unexpectedly run into the backs of other vehicles.

The relatively high incidence of accidents on the I-710 mainline and ramps appears to be the result of three main factors: (1) nonstandard geometrics and design features; (2) high traffic volumes; and (3) the mix of automobiles and heavy-duty trucks.

Nonstandard geometrics and design features exist at many of the I-710 mainline interchanges. In many cases, the curves are too tight on the ramps and the weave distances[1] between on- and off-ramps are too short.

The second contributing factor to the safety problem on the I-710 mainline is high traffic volumes. The occurrence of accidents is highest during the peak traffic periods. As traffic volumes increase, so does the propensity for accidents.

The third major factor related to safety concerns is the mix of vehicles using the I-710 mainline and ramps. In 2005, approximately 12 percent of the traffic on the I-710 mainline and ramps was heavy-duty trucks.[2] As discussed previously, the truck percentage is expected to increase to 30 to 40 percent of general traffic, depending on the segment of the I-710 mainline.

1.2.1.3 NEED FOR UPDATED ROADWAY DESIGN

The I-710 mainline was designed in the 1950s and 1960s, before the dramatic increase in U.S. imports from Asia and the containerization of oceangoing freight, which have resulted in increased cargo traffic at POLA and POLB. In general, the I-710 mainline has remained relatively unchanged from when it was originally constructed. Due to growth in overall traffic volumes and the high level of truck traffic that has occurred in recent years, the I-710 mainline does not have the capacity to accommodate current or future demand. In addition, many aspects of the freeway design do not operate efficiently due to the heavy truck traffic and the length and relative lack of maneuverability of those trucks.

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1 A "weaving" section is where vehicles are entering the freeway in an area where other vehicles are attempting to exit the freeway at the next off-ramp, requiring vehicles to "weave" across each other's paths.

2 Technical Memorandum – Traffic Data and Forecasting Analysis, March 4, 2009.

The design features that are most directly associated with the current operational problems on the I-710 mainline are discussed below.

I-710 FREEWAY MAINLINE. The speed, capacity, and safety of the I-710 mainline are negatively impacted by several existing design features that are discussed below.

NONSTANDARD WEAVING DISTANCES. Weaving distances on the I-710 mainline are substantially constrained by both the spacing of the interchanges and the ramp configurations. This negatively impacts the I-710 mainline's capacity and safety by introducing a substantial number of conflicts in the outer lanes between ramp merge and diverge points.

There is heavy truck traffic in the outer two lanes of the I-710 mainline during the peak traffic periods, as well as throughout the remainder of the day. This intensifies the conflicts in the weaving sections due to the size of the trucks and density of the truck traffic.

NARROW OR NONEXISTENT SHOULDERS. Along much of the existing I-710 mainline, the shoulders provided are narrow (nonstandard) in width, and in some segments, no shoulders are provided at all. As described in the MCS, because of the lack of shoulders, the current I-710 mainline does not provide sufficient enforcement areas for the California Highway Patrol (CHP), nor does it provide adequate areas for motorists with vehicle breakdowns or minor accidents to safely stop out of the flow of traffic.

NARROW LANE WIDTHS. Several locations along the I-710 northbound contain nonstandard-width lanes (approximately 10.8 feet instead of 11.8 feet). An example of this is the I-710 bridges over the railroad yards south of I-5. These narrow lanes tend to reduce the motorist's comfort level and speed, thus reducing overall capacity, especially when heavy-duty trucks are present.

THROUGH LANES. The number of through lanes on the I-710 mainline varies throughout the full length of the I-710 mainline. The I-710 mainline is four lanes in each direction between I-405 and SR-60, except for the section between Atlantic Blvd./Bandini Blvd. and I-5, which is five lanes in each direction. South of I-405, the number of through lanes is reduced to three lanes in each direction. This condition leads to bottlenecks on the I-710 mainline, as high volumes of traffic are compressed into fewer lanes. This is particularly evident on the I-710 mainline south of I-405, where long queues of trucks and cars frequently form during the peak traffic periods.

NON-UNIFORM RAMP METERING. Ramp metering is the use of a traffic signal(s) located on an on-ramp to control the rate at which vehicles enter a freeway facility. By controlling the rate

at which vehicles are allowed to enter a freeway, the flow of traffic onto the freeway facility becomes more consistent, smoothing the flow of traffic on the mainline and allowing more efficient use of existing freeway capacity. Approximately half of the existing interchanges along the I-710 mainline have ramp meters at the on-ramps. The benefit of these ramp meters is limited by the fact that they are only in place at some locations; therefore, there is not a coordinated ramp metering plan along the full length of the I-710 mainline. Some of the ramps have limited storage lengths, and if additional ramp meters are installed, the ramps would need to be widened to provide adequate storage capacity.

PAVEMENT. Since 2008, Caltrans has rehabilitated, as part of the Long Beach Freeway (I-710) Long Life Pavement Rehabilitation Project, the pavement on I-710 from just north of Pacific Coast Hwy. to Firestone Blvd. By summer 2012, the section from Firestone Blvd. to just south of Atlantic Blvd. will be complete.

MEDIAN BARRIERS. Since 2008, Caltrans has, as part of the Long Beach Freeway (I-710) Long Life Pavement Rehabilitation Project, replaced the double metal beam barrier with a heightened concrete median barrier (K rail) from just north of Pacific Coast Hwy. to Firestone Blvd. By summer 2012, the section from Firestone Blvd. to just south of Atlantic Blvd. will be complete.

INTERCHANGES WITH OTHER FREEWAYS. Within the Study Area, four of the five freeway-to-freeway interchanges have nonstandard geometric features. The major elements needing updated design are shown in Figure 1.2-4 and noted in Table 1.2-6. The one exception is the I-710/I-105 interchange, which was opened to traffic in the 1990s. This interchange meets current geometric standards and has no apparent elements associated with an outdated design.

Some of the freeway-to-freeway interchanges provide only low-capacity ramp connections for certain movements. These connector ramps are in a loop configuration, which limits the operating speeds and capacity versus higher-speed “flyover” ramps. For example, three of the connections at the I-710/I-405 interchange are cloverleaf-style loop ramps.

INTERCHANGES WITH LOCAL STREETS. The spacing between many of the I-710 mainline interchanges with local streets is less than current highway design standards, which typically require a minimum of one mile between interchanges. For example, Pico Ave., Anaheim St., and Pacific Coast Hwy. are very closely spaced, with less than 0.5 mile of separation between each interchange. Close spacing of interchanges limits the weaving distance between interchanges. Many of these existing interchanges are cloverleaf configurations (e.g., Anaheim St., Willow St., and Florence Ave.) requiring weaving of traffic over a short distance to accommodate the on- and off-ramp movements. Close spacing of interchanges and cloverleaf

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FIGURE 1.2-4

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SOURCE: Bing (2009)

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I-710 Corridor Project EIR/EIS

Freeway to Freeway Interchange:
Key Design Concerns

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Table 1.2-6 Freeway-to-Freeway Interchanges: Key Design Concerns

Cross Freeway	Existing Areas Needing Updated Design
I-405	On-/off-ramps for Wardlow Rd. are in close proximity to the interchange. Low speed/capacity connections (loop ramps) for the SB to EB, EB to SB, and NB to WB movements.
SR-91	On-/off-ramps for Atlantic Blvd., Alondra Blvd., and Long Beach Blvd. are located in close proximity to the interchange. Low speed/capacity connections (loop ramp) for the NB to WB movement.
I-105	No elements of outdated design identified.
I-5	Left side exit from NB I-710 to NB I-5. On-/off-ramps to Washington Blvd. are located in close proximity to I-5/I-710 interchange.
SR-60	Local interchange "hook" ramps to 3rd St. within interchange. May not be a substantial issue provided that volumes remain low. SR-60 ramps merge with I-710 south of SR-60 and are in close proximity to I-5/I-710 interchange

Source: *I-710 Major Corridor Study,* March 2005.

EB = eastbound
I-5 = Interstate 5
I-105 = Interstate 105
I-405 = Interstate 405
I-710 = Interstate 710
NB = northbound
SB = southbound
SR-60 = State Route 60
SR-91 = State Route 91
WB = westbound

ramps both result in nonstandard weaving distances. The necessary weaving distance is based on the total number and type of vehicles weaving; heavy-duty trucks require substantially more weaving distance than automobiles due to their slower acceleration/deceleration rates and length compared to automobiles.

Many of the local street interchange ramps have designs that require modernization based on current Caltrans design standards. These older designs greatly limit the operational efficiency of the ramps and interchanges as a whole. In some cases, narrow lane widths on the ramps and nonstandard turning radii for trucks at ramp entrances further diminish the operational effectiveness of the ramps. In many cases, the existing ramps have nonstandard acceleration distances and steep climbing grades (e.g., Washington Blvd.), which lead to a degradation of capacity on the ramps entering and exiting the freeway, particularly with truck traffic. These nonstandard geometric features typically result in automobiles and trucks proceeding through the intersections and ramps at low speeds and trucks taking up more than one lane, which greatly limits the capacity of the interchange as a whole.

There is also a substantial lack of storage on many of the off-ramps throughout the Study Area (e.g., the interchange at Florence Ave.). Ramp storage refers to the amount of cars that can be queued on an on- or off-ramp waiting to enter or exit the freeway. The number of lanes and length of storage areas provided are not adequate in many cases to store the vehicles queuing at the ramp intersection. This often results in traffic on the I-710 off-ramps backing up into the

I-710 mainline, which can cause traffic congestion and increase the potential for rear-end collisions.

1.2.1.4 SOCIAL DEMANDS AND ECONOMIC DEVELOPMENT

A review of the growth projections adopted by SCAG (SCAG 2012 RTP/SCS Growth Forecast, April 2012) indicates continuing growth in the Study Area. The population in Los Angeles County, as a whole, is expected to increase from 9.8 million in 2008 to 11.4 million in 2035, an increase of 18 percent. This regional growth will continue to increase travel demand on the I-710 Corridor.

The Study Area is located within the Gateway Cities Subregion of Los Angeles County. The Gateway Cities Subregion as a whole has experienced population, housing, and employment growth since the early 1900s and is anticipated to continue growth at a slower pace through 2035 (see Table 3.2-1 in Section 3.2). In the 20th century, the regional economy transitioned from an agricultural base to a manufacturing/industrial base, with a heavy emphasis on the aerospace and defense industries in the 1950s through the 1970s. As these industries declined in the 1980s, an expansion in global trade resulted in goods movement becoming an important element of the region's economy. The goods movement industry is a major source of employment in the Gateway Cities Subregion, providing thousands of direct and indirect jobs. By 2030, the goods movement industry is projected to generate 1.6 million jobs in the SCAG region (source: *Multi-County Goods Movement Action Plan,* SCAG 2008). As discussed in more detail in Section 3.3, the Gateway Cities Subregion experiences higher levels of unemployment and poverty than the SCAG region as a whole. As of October 2011, available data shows there are 4.3 million persons employed in the civilian labor force in the County of Los Angeles and 582,900 persons (11.9 percent) are unemployed. The County has a slightly higher unemployment rate than the State (11.7 percent). In the Gateway Cities Subregion, there are 765,400 persons employed in the civilian labor force, and 115,500 persons (approximately 15 percent) are unemployed. The Gateway Cities Subregion has a higher unemployment rate than either the State or the County.[1]

Today, POLB and POLA, the railroads, and the trucking industry provide goods movement not just within the Study Area, but also for the SCAG region and the nation as a whole. Growth at the Ports to accommodate increased cargo demand is constrained primarily by the physical capacity of the port facilities, as well as the efficiency with which containers can be unloaded from ships and reloaded onto trucks and/or the railroads in a timely manner for distribution.

[1] Employment Development Department, Labor Market Information Division, Monthly Labor Force Data for Cities and Census-Designated Places (CDPs), October 2011 – Preliminary.

POLB and POLA together handled 13 million TEUs in 2008 and are projected to grow to handle approximately 43 million TEUs by 2035 as described in the 2012 RTP/SCS Goods Movement Appendix (April 2012). The I-710 Corridor Project *Initial Feasibility Analysis* (IFA – December 2008) was prepared to review factors and indicators forecast as a base assumption in the traffic modeling for the I-710 Corridor Project. The purpose of the IFA was to select a cargo forecast that could be accommodated within the alternatives under study while still meeting the project's mobility, safety, congestion relief, and other goals. The IFA Study concluded that Scenario 1 (high growth without near-dock expansion) represents the most prudent long-term planning approach, providing a conservative basis to assess impacts and appropriate levels of impact mitigation for the I-710 Corridor Project. This conclusion is based on indications that there will be sufficient global trade demand to achieve the high-growth scenario, and that there is uncertainty regarding future proposed near-dock rail expansion projects such as the SCIG and the Intermodal Container Transfer Facility (ICTF) and was to present a worst-case assessment for traffic impacts resulting from port cargo demand. The results of the IFA and supporting studies, including the port cargo growth scenarios, were presented to the I-710 Corridor Project Technical Advisory Committee, the Corridor Advisory Committee, and the Project Committee. Both committees concurred with the findings of the IFA and recommended the high-growth scenario without near-dock rail expansion be used for all future analysis of project alternatives.

Based on the port cargo demand forecasts and how much of that cargo can be handled through maximum utilization of the railroad system, there is a high demand for movement of cargo containers by truck on the highway system, specifically I-710. The existing capacity of the I-710 freeway is not sufficient to meet the projected demand for goods movement within the I-710 Corridor that is driven by both the global and regional economy.

1.2.1.5 MODAL INTERRELATIONSHIPS AND SYSTEM LINKAGES

Figure 1.2-5 shows how goods are moved within the region. The I-710 Corridor serves regional, statewide, and national needs for both the general traveling public and the goods movement industry. The I-710 Corridor is the principal transportation connection between POLB/POLA and the BNSF/UP Railroad intermodal rail yards located in the cities of Vernon and Commerce and to other warehouse/distribution centers throughout Southern California. BNSF and UP Railroads provide freight movement to destinations throughout the United States. Together, POLB/POLA is one of the largest container ports in the world, and port activity is projected to triple in volume by 2035. Figure 1.2-6 shows the modal interrelationships and system linkages to the I-710 corridor.

HIGHWAYS. The I-710 Corridor also provides key interstate commerce connections to east-west freeways (I-405, SR-91, I-105, SR-60, and I-10) and I-5. From a system linkage standpoint, no

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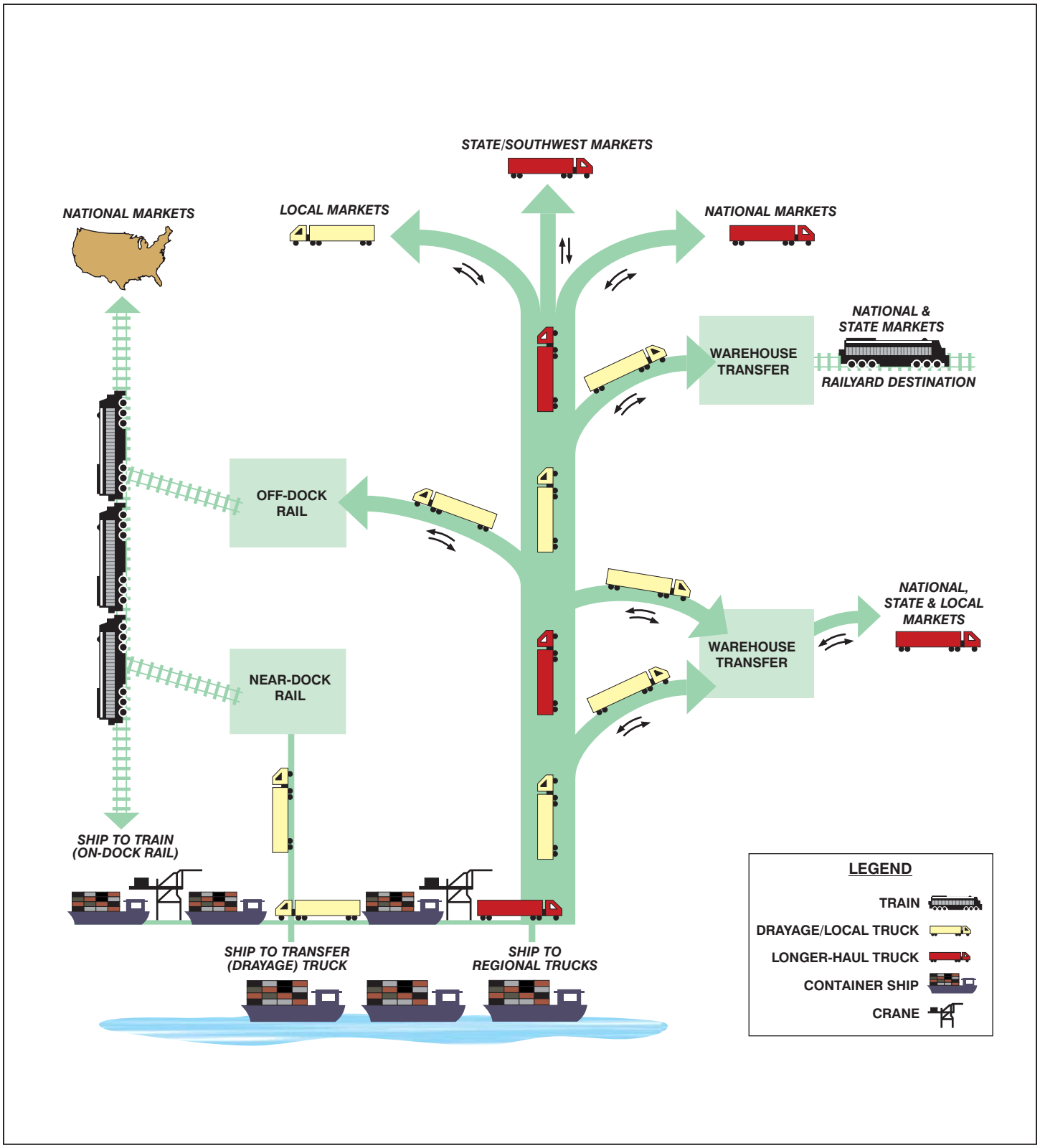

FIGURE 1.2-5

I-710 Corridor Project EIR/EIS

How Goods are Moved Regionally

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EA 249900

SOURCE: Metro

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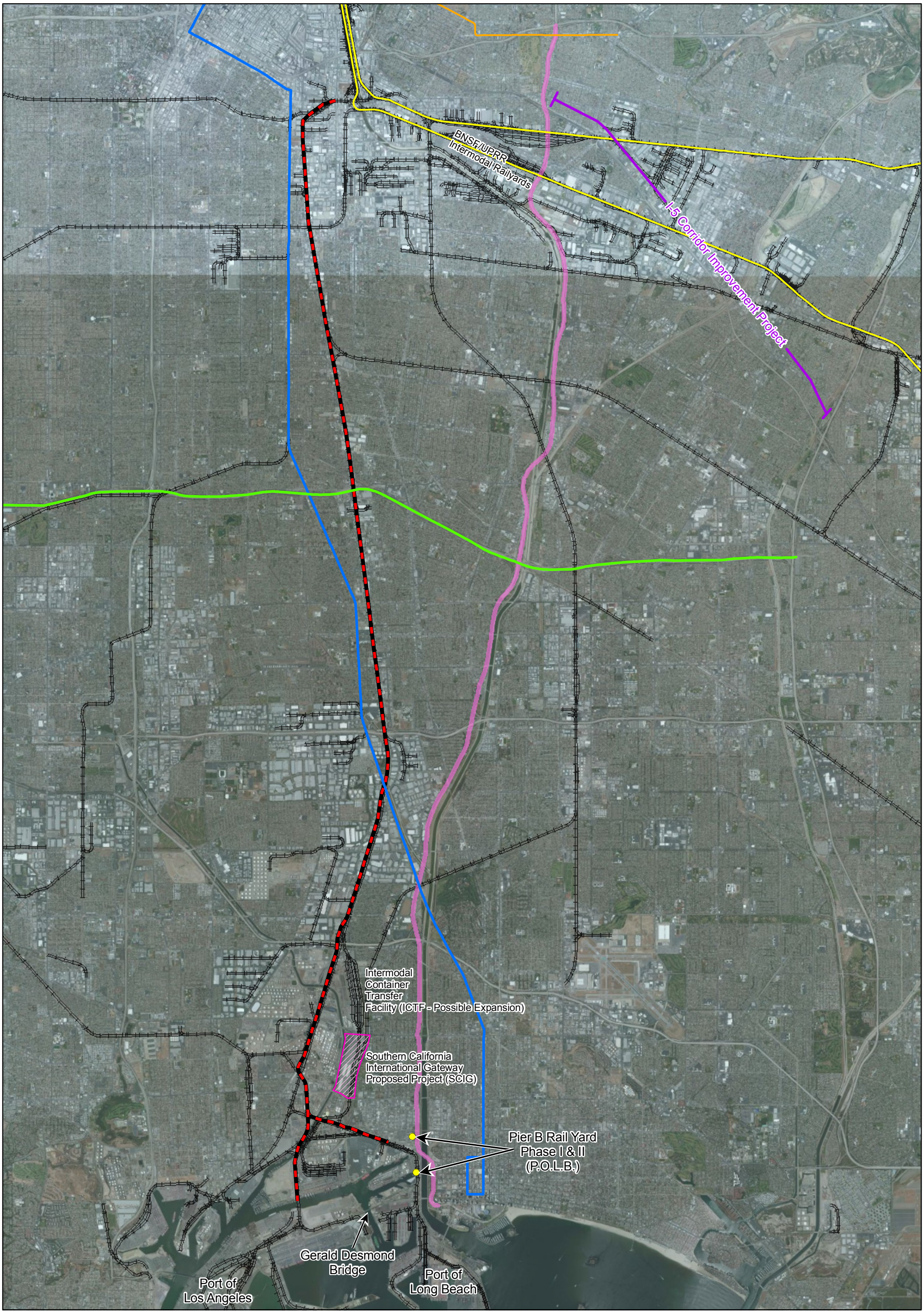

LEGEND

- I-710
- Alameda Corridor
- Metrolink Rail
- MTA Green Line
- MTA Blue Line
- Metro Gold Line
- Railroad

0 3750 7500
Feet

SOURCE: Bing (2009); Metro (2006)

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FIGURE 1.2-6

I-710 Corridor Project EIR/EIS

Model Interrelationships and System Linkages

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improvements are planned to these facilities except for possible improvements to I-5 (from Interstate 605 [I-605] through the I-710 interchange). Additionally, the Gerald Desmond Bridge Project is directly connected to the I-710 freeway and planned for replacement.

The I-5 Corridor Improvement Project consists of widening I-5 to accommodate high-occupancy vehicle (HOV) lanes and/or general purpose lanes from the I-605 through the I-710/I-5 interchange. Depending on the alternative selected, the project may also include reconstruction of the I-605 and I-710 interchanges. The study is in progress by Caltrans, and construction of the initial phases is tentatively scheduled to begin by 2019.

The Gerald Desmond Bridge Project will replace the existing five-lane Gerald Desmond Bridge, which connects Terminal Island (Port of Long Beach) to SR-710 with a new six-lane bridge (three lanes in each direction). This project will also include construction of the Terminal Island East interchange and replacement of the I-710 southbound off-ramp and northbound on-ramp. A Final EIR/Environmental Assessment (EA) was approved in July 2010, and project construction is expected to be complete by September 2015.[1]

The I-710 Corridor Project will be implemented in a manner that is consistent with the programmed and planned improvements described above.

PORTS. As described in the 2012 RTP/SCS Goods Movement Appendix (April 2012), POLB and POLA handle approximately 31 percent of the nation's imported goods. Approximately 23 percent of the imported goods are for local southern California and southwestern U.S. markets, while 77 percent are for national distribution to other parts of the U.S.

As illustrated in Figure 1.2-5, cargo containers at the Ports are transported from ships in one of three ways: to the terminals as property, to on-dock rail facilities, or to trucks that are used either for direct distribution to local and regional warehouses or for movement to near-dock and off-dock rail yards. As of 2008, the Ports processed approximately 13 million TEUs annually, and the 2009 Forecast[2] conducted by the Ports to forecast future growth found that, even with the recent recession, cargo container shipping demand at the Ports is projected to grow to almost 35 million TEUs by 2030. If these growth trends are extrapolated to 2035, cargo container shipping demand would exceed the capacity of the Ports with planned improvements (43 million TEUs). The 2009 Forecast also found that while the recent recession resulted in a decline in the volume of the containers processed compared to the peak volume of 15.8 million

[1] http://www.polb.com/environment/docs.asp.

[2] San Pedro Bay Ports Cargo Forecast, Port of Los Angeles, 2009.

TEUs in 2006, a positive cargo growth trend is again occurring, with a projected annual growth rate averaging approximately 5 percent per year in cargo container demand at the Ports between 2010 and 2035.

The POLB is proposing to expand the existing Pier B Rail Yard located in the North and Northeast Harbor Planning Districts. The On-Dock Rail Support Facility Project (Project) would enhance rail operations and the capacity and efficiency of rail facilities at the existing Pier B Rail Yard. The Project would realign Pier B St., provide an increase in inbound and outbound freight handling capacity, provide up to 10,000 foot-long staging tracks, accommodate 8,000-foot to 10,000-foot long container trains, provide storage tracks for empty rail cars, and remove the 9th St. grade crossing or realign 9th St. An EIR is currently being prepared for this project.[1]

RAILROADS. The present rail network in the SCAG region, including the Study Area, is composed of BNSF and UP Railroad rail lines, terminals/yards, and on-dock rail terminals at the Ports. Rail routes include the Alameda Corridor, BNSF Railroad's San Bernardino Subdivision, and UP Railroad's Los Angeles and Alhambra Subdivisions. The *I-710 Railroad Goods Movement Study* (Metro, 2009) was prepared to assess the available capacity of the Southern California rail network to handle the projected demand in the movement of containerized freight to and from the Ports. One of the fundamental assumptions in developing the 2035 travel demand forecasts for the I-710 Corridor Project is that the calculated maximum utilization of the amount of containers moved by rail would be consistent with the rail network (*I-710 Railroad Goods Movement Study)*. Taking into consideration the inland origins and destinations of the port cargo and operational characteristics of the railroads, it was assumed that approximately 40 percent of the cargo growth (approximately 17.1 million TEUs) in 2035 could be moved directly by rail from either on-dock or off-dock intermodal terminals.[2] Key information from the *I-710 Railroad Goods Movement Study* related to existing and future capacity of the rail system is summarized below[3]:

- As of 2007, the Alameda Corridor was operating 49 trains per day, a slight decrease from previous years, due primarily to longer trains. By 2035, the Alameda Corridor is

[1] Source: http://www.polb.com/about/projects.asp, accessed on June 5, 2012.

[2] Some port cargo is "transloaded", i.e., transferred from marine containers to larger domestic containers, and then moved by rail in these large containers. The transloaded cargo moved by rail is above and beyond the 40 percent that is moved directly by rail.

[3] All train projections reported assume no additional near-dock terminal capacity. This is reported as Scenario 1 in the *I-710 Railroad Goods Movement Study* (Metro, 2009).

projected to be operating 108 trains daily. The Alameda Corridor has three tracks and sufficient capacity to handle the projected traffic.

- As of 2008, BNSF Railroad's San Bernardino Subdivision operated up to 90 trains per day (38 freight trains, 22 Amtrak Pacific Surfliners, 28 Metrolink commuter rail trains, and two Amtrak long-distance trains) in its most heavily trafficked segments. By 2035, BNSF's San Bernardino Subdivision is projected to be operating up to 132 trains daily in its most heavily trafficked segments. The increase would be primarily from additional freight trains. This assumes no increase in Metrolink commuter rail trains. This is consistent with current operating agreements, although there is a desire in the region to increase Metrolink service if increased capacity can be made available. In most sections, the BNSF Railroad has constructed or has plans to construct three tracks on the San Bernardino Subdivision, sufficient capacity to handle the projected train volumes (assuming no growth in Metrolink service).

- The UP Railroad operates the Los Angeles and Alhambra Subdivisions as essentially parallel facilities that provide them with routing flexibility. As of 2008, UP's Los Angeles Subdivision operated between 37 and 40 trains per day. By 2035, UP's Los Angeles Subdivision is projected to be operating 50 to 90 trains daily (traffic varies by segment). Through most of its length, the Los Angeles Subdivision will have two tracks but sections that will have only one track are not likely to carry more than 50 trains daily. Thus, this subdivision should have sufficient capacity to carry the projected traffic.

- As of 2008, UP Railroad's Alhambra Subdivision was operating between 22 and 34 trains per day (traffic varies by segment). UP's Alhambra Subdivision does not operate any commuter trains. By 2035, UP's Alhambra Subdivision is projected to be operating 22 to 91 trains daily, depending on the segment. East of Pomona (the more heavily trafficked segment), the Alhambra Subdivision is or will be two tracks. Thus, the Alhambra Subdivision, especially given the operating flexibility provided by the Los Angeles Subdivision, will have sufficient capacity to carry the projected traffic.

In addition to the capacity of the rail facilities themselves, there are three types of intermodal facilities that may impact growth for the railroads: on-dock, near-dock, and off-dock. On-dock refers to an intermodal facility that is situated at a port marine terminal. As of 2007, the on-dock rail volume per year was at 23.5 percent of its capacity; however, by 2035 these facilities are projected to reach capacity.

Near-dock refers to an intermodal facility situated within five miles of POLA and POLB. The container volume handled at the ICTF as of 2007 was 710,460 containers, and the capacity is projected to be 760,000 containers by 2035. Plans to expand the ICTF and also build a new

facility (Southern California International Gateway [SCIG]) are in progress (a Draft EIR for the SCIG project was circulated for public review in late 2011); however, neither of these facilities was assumed to be operational in the travel demand forecasting conducted for the I-710 Corridor Project.

Off-dock refers to an intermodal facility located more than five miles from POLA and POLB. There are two off-dock facilities in the Study Area: BNSF Railroad Hobart and UP Railroad East Los Angeles. As of 2006, these off-dock facilities were operating below capacity, but they are projected to reach capacity by 2035. While the *I-710 Railroad Goods Movement Study* concludes that there would be a shortfall of lift capacity compared to demand by 2035, no specific expansion plans for the BNSF Railroad Hobart and UP Railroad East Los Angeles facilities have been proposed at the time this document was being prepared. There are also additional off-dock rail yards located further to the east (inland) that are also accessed by trucks from the I-710 Corridor.

TRANSIT. Local and County public transportation is provided by Metro, the Los Angeles Department of Transportation (LADOT), and various city municipal transit lines (e.g., Long Beach Transit) (see each city discussion in Sections 4.3–4.21 for additional details). Metro provides both local bus service and light rail service (called Metro Rail) in the Study Area. The local bus service operates six routes from southeast Los Angeles County to downtown Los Angeles, and there are a total of 13 routes that provide east-to-west service and 12 routes that provide north-to-south service. Metro Rail services are provided via the Blue Line, the Green Line, and the Gold Line, which run throughout the Study Area (see Figure 1.2-6). The *I-710 Corridor Project Initial Feasibility Analysis* evaluated expansion of transit services as part of the mobility solution within the I-710 Corridor. Chapter 2.0, Project Alternatives, describes transit improvements included in the Build Alternatives.

1.2.2 PURPOSE OF THE I-710 CORRIDOR PROJECT

1.2.2.1 PROJECT PURPOSE

The I-710 Corridor Project purposes are specific objectives that Caltrans, Metro, and the I-710 Funding Partners agencies would like to accomplish through implementation of the I-710 Corridor Project. The project purposes are used as the decision factors for comparing alternatives and identifying/selecting the preferred alternative. The purposes defined below are proposed solutions to the needs within the I-710 Corridor identified in the above sections.

- Improve air quality and public health;
- Improve traffic safety;
- Modernize freeway design;

- Accommodate projected traffic volumes; and
- Address increased traffic volumes resulting from projected growth in population, employment, and economic activities related to goods movement.

1.2.2.2 INDEPENDENT UTILITY AND LOGICAL TERMINI

Within the Study Area, I-710 experiences congestion and traffic delays. The I-710 Corridor Project termini are from the southern terminus of the I-710 freeway to its connection to SR-60. Given the needs within the I-710 Corridor, these are logical termini for considering proposed improvements because the southern terminus is an existing terminus already, and SR-60 is one of the major east-west freeways that connect to the I-710. This 18-mile Study Area is of sufficient length to address environmental matters on a broad scope. The I-710 Corridor Project would provide improvements to the current traffic conditions within the I-710 Corridor, even if no additional transportation improvements are made in the area. As such, the I-710 Corridor Project is considered to have independent utility as it does not rely on other projects to address the identified need in the Study Area. Furthermore, the I-710 Corridor Project would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements because the project is being developed in coordination with other transportation improvements in the I-710 Corridor.

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