

1. Goods Movement Setting

The South Bay, although largely residential (48.1 percent of land area and 1 million residents), has significant retail, industrial and distribution uses (20.7 percent of land area), which generate goods movement via truck and rail. Also, the South Bay's location near LAX and the San Pedro Bay Ports, results in non-local, "through" movement of goods. The vast majority of goods movement within the South Bay will be conducted by trucks and rail to/from major truck generators. The following section describes the setting for goods movement in the South Bay: the modes used for goods movement as well as major trip generators such as trade gateways and industrial areas.

Goods Movement

A good is any physical item that increases utility to its consumer. Since the production and consumption of a good most likely occurs in different places, the good must be transported from producer to purchaser, often with many intermediate stops. Therefore, goods movement is an essential component of economic activity. Because of the public interest in economic expansion and the large investment required in infrastructure, the public sector plans, funds construction, and maintains infrastructure that facilitates goods movement. Many of these infrastructure investments share their benefits with passenger vehicles.

There is a history of major goods movement investments in the United States, the Erie Canal, intercontinental railroad, and Interstate highway system; and the growth and maturation of the United States economy can be attributed to the efficient movement of goods.

After the construction of the majority of the Interstate highway system, the trucking industry overtook the rail system as the most efficient mode of transportation of product. Along with this transition came the change in many businesses from "push logistics" to "pull logistics," where the maintenance of large inventories to supply estimated demand was replaced by comprehensive data collection systems that insure that supply matches demand. Pull logistics did away with large inventory warehouses and opted for a "just-in-time" approach, where the product was created on a basis of need.

The North American Free Trade Agreement (NAFTA) was passed in 1992, and has brought additional truck traffic to Interstates that traverse the U.S, and routes that lead to Canada and Mexico. This agreement brought extra demand on the trucking industry and produced higher trucking volumes on our nation's roadways.

Although, the increase in goods movement helped expand the U.S. economy, it added new pressures to the transportation system, exacerbating negative externalities such as congestion, pavement deterioration, air pollution, and auto/truck conflicts.

1.1 Modes Used for Goods Movement in the South Bay

The majority of goods movement in the South Bay is conveyed by trucks or rail cars. As the volume of trade increases from trade gateways and local generators, so too will the usage of the transportation system for the purpose of moving the goods to intermediary or final destinations.

1.1.1 Trucking Companies

Trucking is a key element in the logistics system because all goods travel by truck at some point, and most truck trips are for the purpose of goods movement: over 90 percent of heavy-duty truck travel is for the movement of freight.

Heavy-duty trucks in the South Bay have multiple trip purposes: local pickup and delivery, drayage, and line-haul service. Local operations within the South Bay include door-to-door service between shipper and receiver and drayage from the ports to distribution centers and warehouses. In 1998 trucks moved 71 percent of international and domestic freight tonnage, and 80 percent of the total freight value nationwide.¹ In Southern California, over 75 percent of total truck tonnage stays within the region.

Companies that provide trucking service can be classified in numerous ways. Among the important types are:

- *Full Load* involves the movement of full trailers (or containers) cross-country, locally within the region, and between origins and intermodal rail yards.
- *Less-than-Truckload (LTL)* trucking firms generally pick up or deliver products locally in smaller trucks. These companies operate with terminal facilities where loads are consolidated into shipments to larger, full truckload lots for shipment cross-country or to intermodal facilities.
- The largest *couriers* are integrated firms like UPS, FedEx, and DHL. These firms are integrators that are both truck and air cargo carriers that have the ability to deliver door-to-door within the same organization.
- *Third party logistics* firms provide multiple value-added services for merchandise of clients who have outsourced their logistics functions to them. These operators may also maintain warehousing facilities or truck fleets, and often contract with rail lines for long distance shipping.
- Many companies maintain their own private *corporate fleets* of trucks for delivery of merchandise to their retail outlets. Generally these vehicles operate in conjunction with the company's local warehousing operation.
- *Drayage firms* contract with owner-operators to move containers and trailers to and from ports and rail intermodal facilities.

¹ Federal Highway Administration

1.1.2 Rail

The existing rail lines in the South Bay Cities subregion are legacies of predecessor systems.

- The Alameda Corridor is a former Southern Pacific route owned by the Alameda Corridor Transportation Authority (ACTA).
- The current Union Pacific (UP) branch lines in the South Bay are former Southern Pacific (SP) lines acquired in the UP-SP merger. Some of these ex-SP lines were formerly part of the Pacific Electric interurban passenger system.
- The current Burlington Northern Santa Fe (BNSF) lines in the South Bay are former Atchison Topeka and Santa Fe Railroad branch lines acquired in the Burlington Northern-Santa Fe merger.
- The Pacific Harbor Line (PHL), owned by Anacostia & Pacific, operates the former Harbor Belt line and associated trackage.

The Alameda Corridor is grade-separated facility between the port area and downtown Los Angeles. Built for a cost of \$2.4 billion, the trenched train tracks doubled railroad speeds, and allows nearly 50 trains a day to avoid conflicts at 200 at-grade crossings between downtown Los Angeles and the seaports.

The functions of other rail lines in the South Bay changed dramatically after the opening of the Alameda Corridor in 2002.

- The BNSF Harbor Subdivision was previously Santa Fe's primary route to and from the ports, carrying substantial volumes of intermodal container traffic through the South Bay.
- The Southern Pacific routed its intermodal port trains over the Alameda Street line. The Union Pacific used its own line east of Alameda Street for its intermodal trains.
- Creation of the Alameda Corridor concentrated the port intermodal container trains on that line, and traffic on the other lines declined substantially.
- The branch lines in the South Bay Cities subregion are now used to serve conventional carload rail customers on the branches and to move cars to and from connections with PHL at the ports.
- These lines are also available as detours or relievers for the Alameda Corridor, if needed.

1.2 South Bay Trade Gateways

Southern California's prominence in trade is facilitated by its large domestic market, strategic location, and exceptional goods movement infrastructure. The cities of the South Bay are adjacent to one of the country's largest air cargo hub, Los Angeles International Airport, and largest seaport complex, the ports of Los Angeles and Long Beach. In addition, the South Bay houses a significant amount of the support operations for these facilities such as freight forward, logistics, warehouse, and related businesses. Most goods entering and exiting through these gateways travel through the South Bay on its local transportation system. Thus, understanding trade gateways is critical to assessing local goods movement issues in the South Bay.

1.2.1 Air Cargo

Los Angeles International Airport (LAX) is the seventh busiest cargo airport in the world, and the third busiest cargo airport in the United States behind Memphis and Anchorage.

However, much of the air cargo passing through Memphis (FedEX's hub) and Anchorage (North American transfer point to and from Asia) is eventually destined for other airports. The vast majority of air cargo landing at LAX is transferred to trucks for distribution within the South Bay, the Greater Los Angeles area, or to other metropolitan areas via the Interstate highway system.

In 2005, LAX handled more than two million tons of origin and destination air cargo. An estimated 79 percent of the region's air cargo is handled through LAX. It is a major U.S. hub for trade with Pacific-rim countries. The most exported air commodity from LAX, in terms of tonnage, is vegetables, fruit and nuts with 15.1 percent of the total weight. Other leading exports are base metals and articles thereof; computer equipment; photo, science and medical instruments; paper and pulp products; chemical products; plastics and articles thereof; prepared foodstuffs; special classification provisions; and aircraft products. This distribution relates directly to the types of warehouses and truck movements adjacent to LAX.

Due to the significant difference in cost of air shipping as opposed to sea shipping, only high-value, time-sensitive commodities are currently shipped by air. In 2005 sending a 40-foot container of goods to the Los Angeles area from Hong Kong by air cost between \$50,000 and \$60,000; compared to between \$2,500 and \$3,000 by sea. Travel time is a day by air compared with 11 to 14 days by sea.² Apparel is the leading imported air cargo commodity, followed by computer equipment, audio and video media, fish, office machinery, textiles, footwear, vehicles other than railway, photo, science and medical instruments and electronic components. The following table shows the growth in air cargo through LAX over the past decade.

Table 1
Los Angeles International Airport (LAX) Cargo Volume

Year	Air Mail Tons	Air Freight Tons	Total Air Cargo
1992	162,840	1,202,317	1,365,157
1993	173,827	1,288,503	1,462,330
1994	186,878	1,516,567	1,703,445
1995	193,747	1,567,248	1,760,995
1996	194,091	1,696,663	1,895,754
1997	212,410	1,852,487	2,064,897
1998	264,473	1,787,400	2,051,873
1999	253,708	1,912,147	2,165,855
2000	246,536	2,002,614	2,249,152
2001	178,072	1,778,267	1,956,340
2002	92,422	1,869,932	1,962,354
2003	97,193	1,924,883	2,022,076
2004	92,353	2,109,895	2,202,248
2005	88,731	2,048,817	2,137,188

Source: Los Angeles World Airports

² "Air freight down as shippers take to sea," *Los Angeles Business Journal*, July 18, 2005.

On-Site Air Cargo Facilities

Air cargo handling at LAX is operated by 88 passenger and all-cargo airlines. The airport has 2.1 million square-feet in 24 buildings developed for cargo on 194 acres. Four million square-feet are developed for cargo use in the immediate vicinity of the airport.

Four cargo complexes are located on LAX property: the Century Cargo Complex, the Imperial Cargo Complex, the South Cargo Complex – West, and South Cargo Complex – East. Cargo truck trips enter and exit the airport at LAX property driveways along Century Boulevard and Imperial Highway. Freight trips from the Century Cargo Complex have direct access to Interstate 405 via Century Boulevard, while trips from the South Cargo Complexes and Imperial Cargo Complex have access to the Interstate 105 via Imperial Highway.

According to the LAX Master Plan – Phase III (October 17, 1997), activity in and out of the driveways remains high throughout the day, with a peak in the midday from 12:00pm to 2:00pm. The driveways do not exhibit the same peaking characteristics as observed on arterial roadways and freeways.

1.2.2 Sea Cargo

The San Pedro Ports of Los Angeles (POLA) and Long Beach (POLB) together are the largest container ports in the United States, and together represent the sixth largest container seaport in the world. They handle 87 percent of the annual container volume entering and exiting California. The seaports handled 15.2 million twenty-foot equivalent units (TEUs) of containers in 2005. It is estimated that the total throughput of the ports will reach 44.7 million TEUs by 2030, a 200 percent increase.

In 2005, the San Pedro ports moved seven times the amount of freight as LAX: 15,179,671 metric tons of freight for the seaports as compared to 2,137,188 metric tons for LAX. The value of international air freight moving through LAX in 2005 (\$68 billion) was one-quarter of the value of international maritime freight moving through POLA and POLB in 2005 (\$295 billion).

The POLA and POLB handle a broad variety of bulk and containerized cargo. Goods arrive at the ports and are transferred to rail, or highways for distribution. In a 2003 survey of trucks entering and leaving the Port of Long Beach, 29 percent of the trucks entering the port originated in the South Bay, and 23 percent of the trucks exiting the port were destined for the South Bay. Only about one quarter of the goods entering the seaports is for Southern California consumption. The other three quarters are ultimately transported out of the region by truck or rail.³

Port of Los Angeles

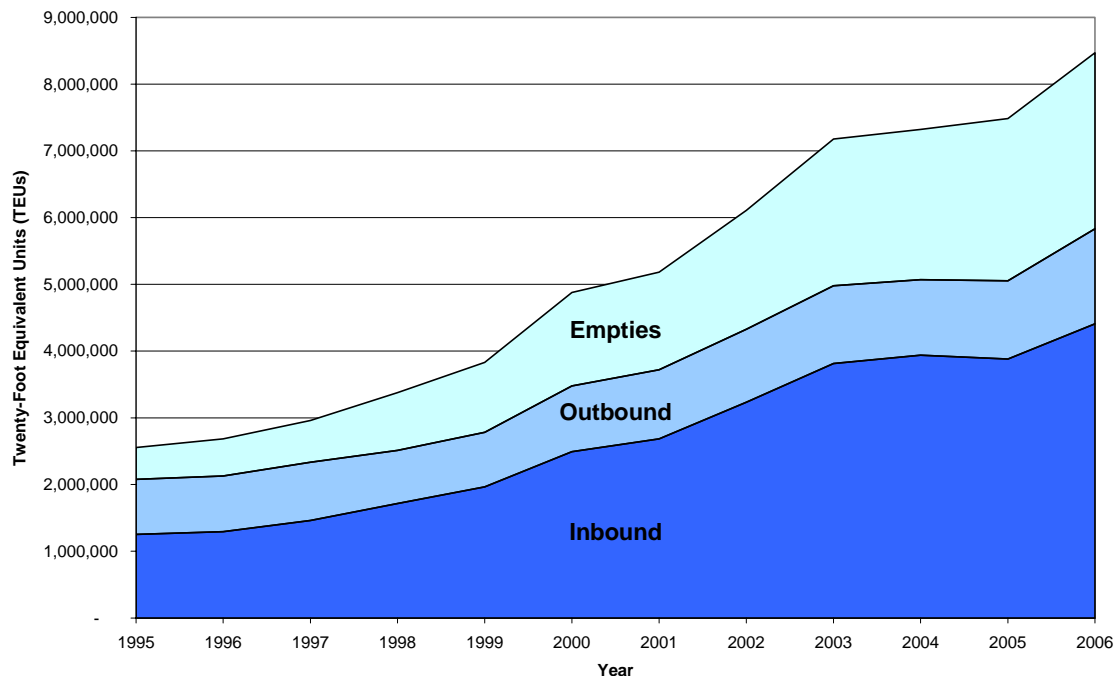
The Port of Los Angeles is the nation's top overall gateway by value of freight. In 2005, merchandise trade moving in and out of POLA was valued at \$189.6 billion.

Los Angeles is a major gateway for imports with inbound shipments accounting for 86 percent of the value of freight it handled in 2003—a ratio of export to imports of about 1 to 9 compared to the overall U.S. ratio of exports to imports of about 1 to 3.

³ "Port and Modal Elasticity Study," Southern California Association of Governments, September 2005

Although Los Angeles is a significant gateway for both imports and exports, inbound freight shipments accounted for 70 percent of tonnage handled by the port in 2003. Between 1999 and 2003, the tonnage of cargo handled at POLA increased 18 percent, due mostly to growth in imports, which grew by 23 percent from 24 million tons to 29 million tons. Exports hovered around 13 million tons. Figure 1 illustrates the growth in cargo throughput at POLA since 1995.

Figure 1
Port of Los Angeles Container Trade in TEUs (1995-2006)



Los Angeles is primarily a port for ships transporting containers—large, portable, reusable boxes that typically carry high-value cargo—which explains why this port ranks first by value and ninth by weight. In 2005, the port handled 8.5 million TEUs (twenty-foot equivalent units) carrying international imports and exports. Approximately 80 shipping lines and 2,695 vessels called at POLA in 2005.

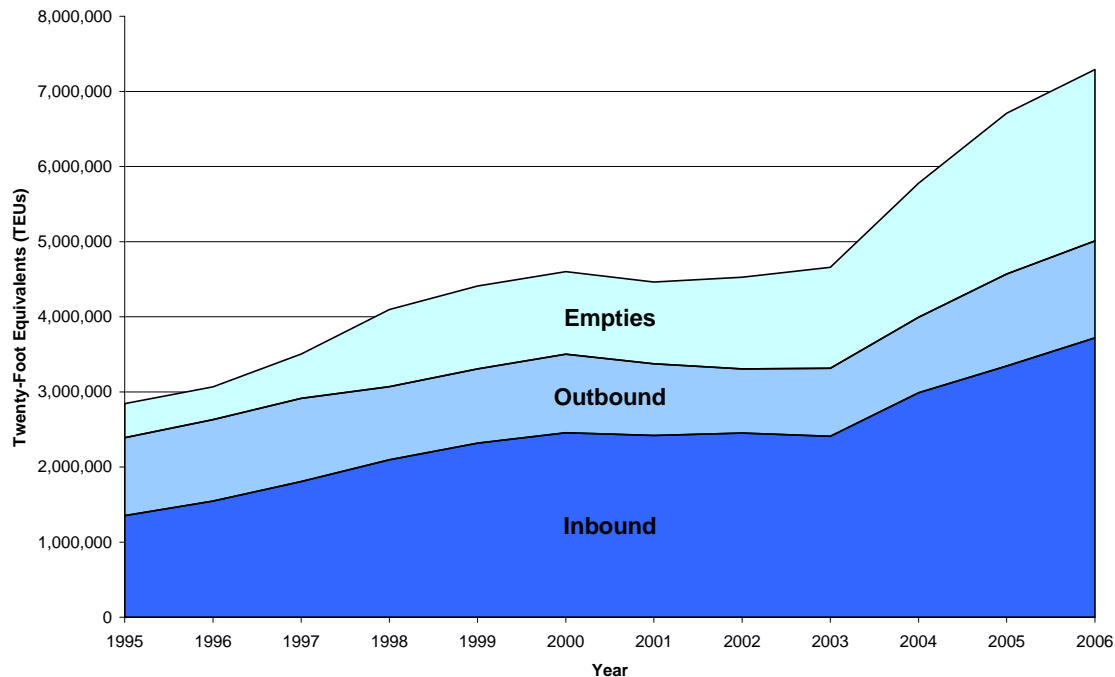
POLA has 27 major cargo facilities: eight container terminals, eight liquid bulk terminals, four warehouses, three dry bulk facilities, three break bulk facilities, and one automobile terminal.

Port of Long Beach

The maritime Port of Long Beach (POLB) is the nation's third busiest waterborne freight gateway for international merchandise trade by value of shipments. It is the fifth busiest U.S. gateway by value when compared with all U.S. freight gateways—land, air, and sea. In 2005, merchandise trade passing through the Port of Long Beach was valued at \$105.4 billion. POLB is a major gateway for imports with inbound shipments accounting for 82 percent of the value of freight it handled in 2003.

Long Beach is primarily a container port, although it handles noncontainerized bulk cargo. In 2005, the port handled about 7.3 million TEUs (twenty-foot equivalent units) carrying international imports and exports. About 78 percent of the POLB's containerized cargo was inbound. Figure 2 illustrates the growth in cargo throughput at POLB since 1995.

Figure 2
Port of Long Beach Container Trade in TEUs (1995-2006)



Nearly 2,800 vessels called at POLB in 2003. Container vessels were the most frequent type to call at the port, accounting for 48 percent. About 27 percent of the calls were by tanker ships.

Top containerized imports by value at POLB are machinery, electric equipment, motor vehicles, toys and sports equipment, and bedding. The top exports from POLB by value are machinery, plastics, electric equipment, vehicles, and chemicals.

1.2.3 International Trucking

In general, international truck moves do not directly affect the South Bay, however, the recent growth of cross-border trucks hint at a larger role for international trucking.

Maquiladoras, factories that import duty-free materials to Mexico for assembly or manufacturing and then re-export the assembled product, have grown considerably since the beginning of the North American Free Trade Agreement (NAFTA) in 1994. Mostly located along the United States/Mexico border, these factories are the primary generators of cross-border commercial traffic. Since the passage of NAFTA, trucks entering the United States from Mexico have been restricted to commercial zones within 20-25 miles the border.

In February 2007, a program that expands cross-border trucking was proposed. Under a year-long pilot program U.S. trucks will get to make deliveries into Mexico while a select group of Mexican trucking companies will be allowed to make deliveries beyond the commercial zones currently in place along the Southwest border.

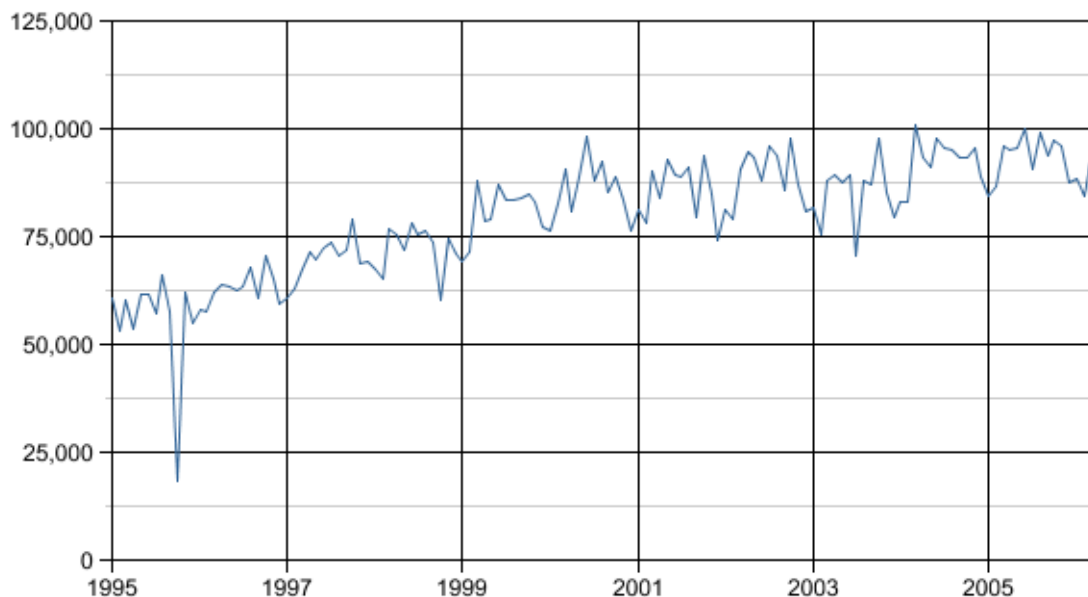
The demonstration program, authorized by Congress in 2001, was designed to simplify a process that currently requires Mexican truckers to stop and wait for U.S. trucks to arrive and transfer cargo.

Mexican truck companies that participate in the one-year program will be required to have insurance with a U.S. licensed firm and meet all U.S. safety standards. Companies that meet these standards will be allowed to make international pick up and deliveries only, and will not be able to move goods from one U.S. city for delivery to another, haul hazardous materials, or transport passengers.

The first Mexican trucks to be authorized under the program will begin traveling beyond U.S. border areas once the initial in-person safety inspections are done and proof-of-insurance is verified. Mexico will begin to consider applications from U.S. trucking firms for licensing rights to operate within Mexico. Approximately 100 U.S. operators would be licensed by Mexico for cross-border operations.

The cross-border trucking has the potential to serve the South Bay in terms of both imports and exports. In 2004, 3,000 trucks crossed from Mexico to the United States at the Otay/Mesa Crossing each day. It is estimated that these crossings could increase two to seven times under the new rules.

Figure 3
Monthly Value of Cargo by Trucks Crossing United States/Mexico Border at California
(in millions of dollars)



Source: Bureau of Transportation Statistics

1.3 Goods Movement Economy of the South Bay

1.3.1 Employment

Southern California Association of Governments (SCAG) employment projections for 2005 and 2030 are organized into ten categories of employment:

- Agriculture, Forestry, Fishing and Hunting
- Mining
- Construction
- Manufacturing
- Transportation and Warehousing (and public utilities)
- Wholesale Trade
- Retail Trade
- Finance, Insurance, and Real Estate
- Service
- Government

Employment types most related to goods movement are agriculture, mining, construction, manufacturing, transportation and warehousing, and wholesale and retail trade.

The South Bay subregion employs 11.5 percent of the total Los Angeles County workforce. Of those employed in the South Bay, 14 percent work in the mining industry, 17.5 percent work in the manufacturing industry, 15.8 percent work in the transportation industry, and 12.2 percent work in the wholesale trade industry. Thus, there is a somewhat disproportionate weighting towards industries that are thought of as producers of truck and rail trips. The goods moved through the South Bay also support other local jobs.

Table 2
South Bay and Los Angeles County Employment by Sector 2005 and 2030

Los Angeles County				South Bay Subregion			
Employment Sector	2005 Empl.	2030 Empl.	Difference (2005 - 2030)	Employment Sector	2005 Empl.	2030 Empl.	Difference (2005 - 2030)
Agriculture	11,170	8,295	(2,875)	Agriculture	1,248	942	(306)
Mining	4,084	2,062	(2,022)	Mining	573	284	(289)
Construction	164,349	203,575	39,226	Construction	17,775	21,532	3,757
Manufacturing	653,655	665,367	11,712	Manufacturing	114,509	118,360	3,851
Transportation	208,331	252,706	44,375	Transportation	32,858	43,052	10,194
Wholesale Trade	304,839	335,909	31,070	Wholesale Trade	37,249	40,556	3,307
Retail	709,149	902,270	193,121	Retail	80,072	98,726	18,654
FIRE	268,030	333,999	65,969	FIRE	28,523	35,367	6,844
Service	1,822,467	2,546,115	723,648	Service	171,432	243,182	71,750
Government	351,709	406,460	54,751	Government	31,184	36,637	5,453
Total	4,497,783	5,656,721	1,158,938	Total	515,423	638,623	123,200

Projected Employment Growth

The areas with the highest projected employment growth in the South Bay are all current industrial areas: north of Torrance Airport, south of Interstate 405 in Torrance between Western Avenue and Crenshaw Boulevard, Rancho Dominguez and El Segundo.

South Bay job sectors with the highest growth from 2005 to 2030 are transportation (31 percent), retail (23.3 percent), construction (21.1 percent), wholesale trade (8.9 percent), and manufacturing (3.4 percent). Jobs in goods-movement-related sectors are projected to grow to accommodate the projected growth in freight handled by LAX and the San Pedro seaports.

Location Quotient

A location quotient is a calculated ratio between the local economy and the economy of a reference unit. In this case, the South Bay subregion is considered the local economy and the County of Los Angeles is considered the reference unit. If an industry has a greater share than expected of a given industry, a location quotient greater than one, then that "extra" industry employment is assumed to be *basic* because those jobs are above what a local economy should have to serve local needs. This technique demonstrates the difference between local conditions in the South Bay and conditions in the entirety of Los Angeles County.

As demonstrated in Table 3, the South Bay, in relation to the rest of Los Angeles County, has a high percentage of manufacturing, transportation, warehousing, and wholesale trade employees. Projections show that by 2030 the South Bay will have a greater proportion of these jobs than in 2005. The growth in South Bay manufacturing jobs will account for 33 percent of all new manufacturing jobs in Los Angeles County between 2005 and 2030. The growth in the number of transportation and warehousing jobs in the South Bay will account for 22 percent of the sector's job growth in Los Angeles County during the same time period. Many of these employees are directly related to trade activities at the POLA, POLB, and LAX. These are also the sectors that generate the most truck trips.

Table 3
South Bay Location Quotient 2005 to 2030

Employment Sector	2005 Location Quotient	2030 Location Quotient	Percent Difference (2005 - 2030)
Agriculture	0.975	1.006	3.1%
Mining	1.224	1.220	-0.4%
Construction	0.944	0.937	-0.7%
Manufacturing	1.529	1.576	3.0%
Transportation	1.376	1.509	8.8%
Wholesale Trade	1.066	1.069	0.3%
Retail	0.985	0.969	-1.7%
FIRE	0.929	0.938	1.0%
Service	0.821	0.846	3.0%
Government	0.774	0.798	3.1%

Figures 4 through 8 illustrate the projected change in South Bay employment from 2005 to 2030 in key goods movement sectors.

Transportation

Figure 4 shows the change in employment for the transportation sector from 2005 to 2030. The transportation sector includes railroad transportation, motor freight transportation and warehousing, delivery service, water transportation, air transportation,

communications, and utilities. The major growth areas in the South Bay are projected to be in El Segundo, Hawthorne, Gardena, Torrance, Carson, and Rancho Dominguez.

Construction

Figure 5 shows the change in employment for the construction sector from 2005 to 2030. The construction sector includes building construction general contractors, heavy construction, and special trade contractors. The major growth areas in the South Bay are projected to be in Gardena, Torrance, Carson, and Rancho Dominguez.

Manufacturing

Figure 6 shows the change in employment for the manufacturing sector from 2005 to 2030. The manufacturing sector includes food products, textile products, furniture, lumber, paper, printing, chemicals, petroleum, rubber, primary metal industries, industrial and commercial machinery, transportation equipment, and other miscellaneous manufacturing industries. The major growth areas in the South Bay are projected to be in El Segundo, Torrance, Harbor Gateway, and Carson.

Wholesale Trade

Figure 7 shows the change in employment for the wholesale trade sector from 2005 to 2030. The wholesale trade sector includes the wholesale trade of durable and non-durable goods. The major growth areas in the South Bay are projected to be in El Segundo, Torrance, Carson, and Rancho Dominguez.

Total Employment

Figure 8 shows the change in employment for all sectors from 2005 to 2030. The major growth areas in the South Bay are projected to be in El Segundo, Torrance, Carson, and Rancho Dominguez.

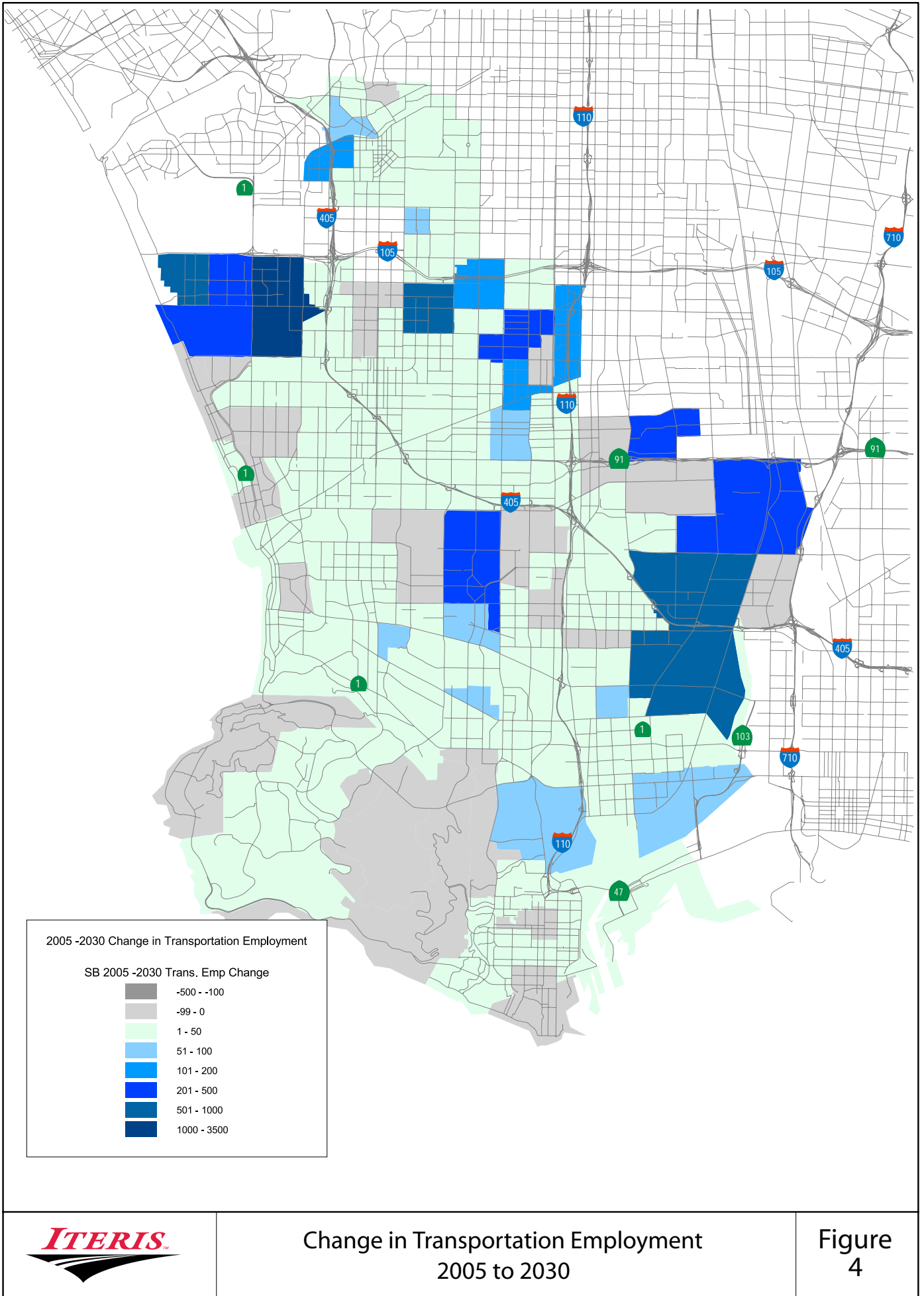
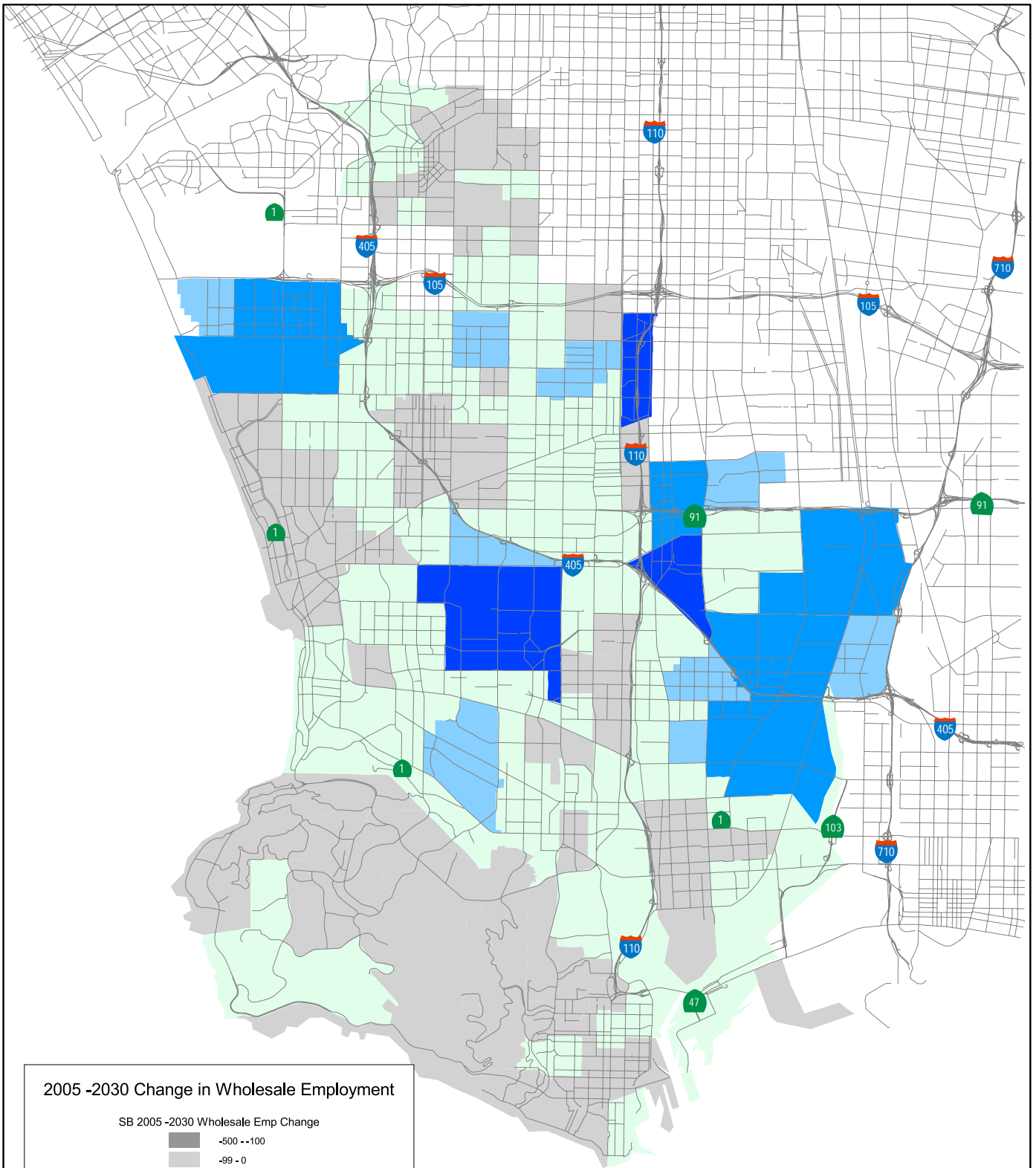




Figure
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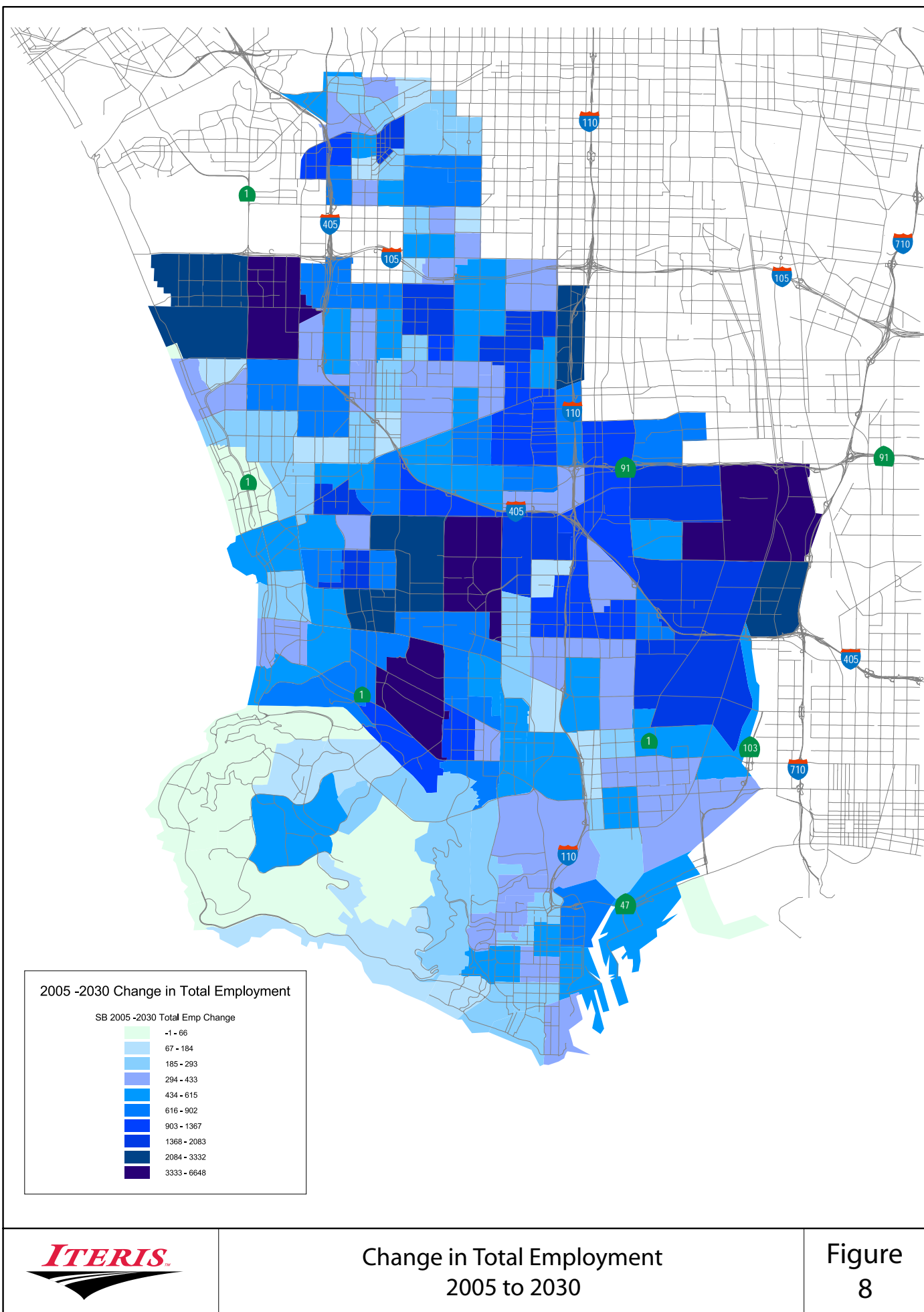


Figure
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1.3.2 Industrial Areas

The South Bay is attractive to warehousing and distribution centers because of its proximity to LAX and the seaports, labor force, customers, and connections to the regional and national transportation system. Much of the goods movement using the transportation system of the South Bay is generated by these industrial areas: LAX, El Segundo, Hawthorne, Gardena, Torrance, San Pedro, Rancho Dominguez, Carson, and the POLA and POLB. Figure 8 identifies the major industrial areas of the South Bay.

Because of the South Bay's proximity to trade gateways, it is a desirable location for many goods-movement related industries. Future growth in trade will be facilitated by more intense usage of South Bay facilities, as well as the development of new facilities outside of the South Bay, primarily in the inland empire.

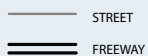
For most goods movement trips, access to South Bay industrial areas is through the freeway system. All of these industrial areas are within three miles of a freeway, and most are located adjacent to freeways and/or rail lines. The use of arterial roadways is either for access from the freeway system, an alternate route due to congestion, or for travel between two local points.

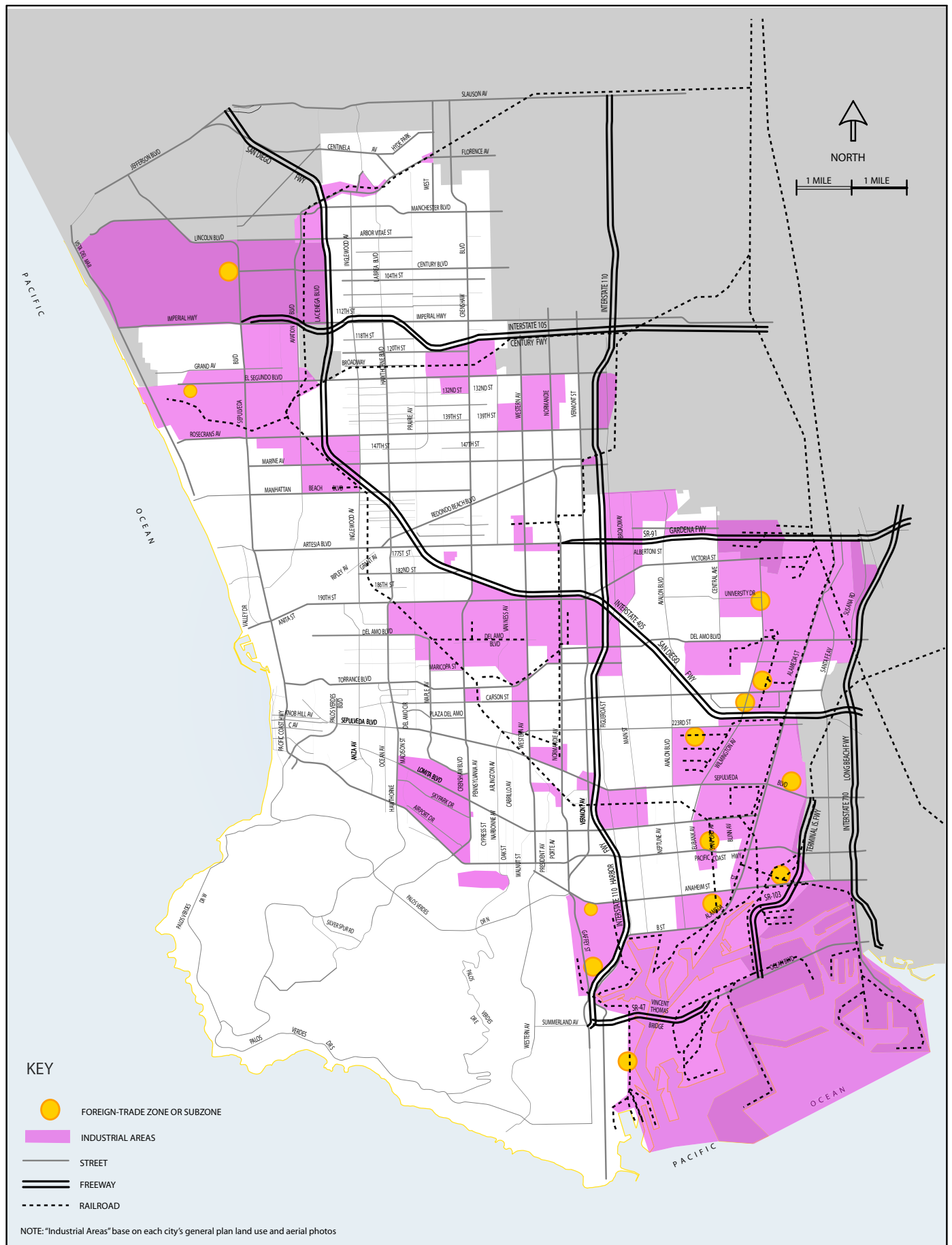
Foreign-Trade Zones (FTZ)

The United States Foreign-Trade Zones program was created by the Foreign-Trade Zones Act of 1934. Foreign-Trade Zones are isolated, enclosed, and policed areas, operated as a public utility, adjacent, in, or near a port of entry, furnished with facilities for lading, unloading, handling, storing, manipulating, manufacturing, and exhibiting goods, and for reshipping them by land, water, or air.

Foreign-trade zones are directly related to goods movement and have close association with trade gateways. Growth in foreign trade will increase the amount of goods moved in and out of these facilities.

There are two foreign-trade zones in and adjacent to the South Bay: Long Beach (FTZ number 50) and Los Angeles (FTZ number 202). Between the two South Bay FTZs, there are 10 sites in South Bay and 14 sites outside of the South Bay. In addition, there are four subzones in the South Bay and seven outside of the South Bay. Figure 9 portrays major industrial areas in the South Bay, and Figure 10 indicates the industrial zoned areas and FTZ sites in the South Bay.





1.3.3 Warehouses and Distribution Centers in the South Bay

The study team developed a database of roughly 150 warehouse and distribution firms and addresses in the South Bay, and categorized each by type based on readily available information. This database should not be regarded as complete or comprehensive since there is no available listing of all or even most such facilities in the South Bay cities or elsewhere. In addition, there is no strict definition of “distribution center” or other terminology that can be used to decisively segregate the universe of industrial and commercial facilities. This methodology was designed to identify the most prominent businesses that generate truck activity in the South Bay.

Methodology

In order to arrive at an inventory of warehouse and distribution facilities, this study began with a compilation of listings from the following:

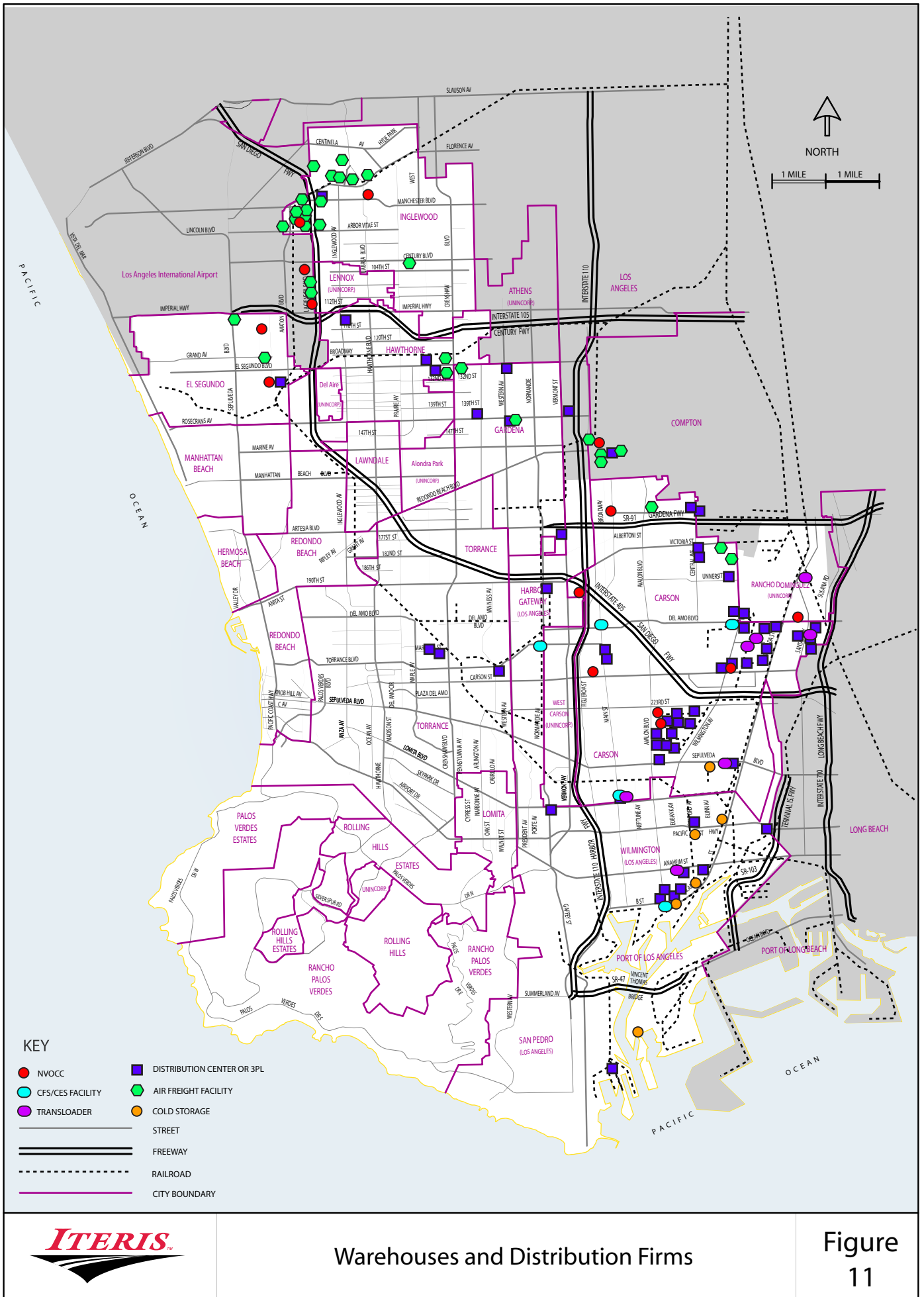
- Warehouse Education and Research Council
- International Association of Refrigerated Warehouses
- International Warehouse and Logistics Association
- National Association of Wholesale-Distributors
- Transload Distribution Association
- Manufacturers News, Inc.
- Yellow Page and Yahoo! Yellow Pages listings for South Bay communities
- R. L. Polk City Directories for South Bay Cities.

Facilities that were not true warehouse/distribution facilities were then removed. These included consumer self-storage, mini-warehouses, and facilities that appeared to be offices rather than actual distribution centers. This was accomplished by:

- A search was performed for each facility on the initial compilation.
- Those facilities that were listed as self-storage or similar businesses were removed from the compilation.
- Those facilities that appeared to be offices or headquarters, rather than the actual distribution or warehouse facilities, were identified in the compilation.

Many facilities serve multiple purposes. Most manufacturing facilities have a holding area for finished goods that could be construed as a “warehouse,” and to the extent that they dispatch goods to multiple customers or locations, they can also be considered distribution centers. Intermediaries and logistics firms tend to be highly entrepreneurial, and are commonly engaged in multiple lines of related business. Facility functions tend to change over time as well. All of these factors make it difficult to categorize facilities with confidence. The categories applied in the study database, are intended only to reflect the dominant use of each facility, and should not be construed as to eliminate other uses or functions.

Figure 11 shows the location of about 150 warehouses, distribution centers, freight forwarders, and other freight handling and logistics facilities that generate truck trips that were able to be mapped. Although a few of these facilities may be connected with manufacturing or processing plants, most are intermediaries that receive, handle, sort, store, and ship goods rather than creating new goods from raw materials. A few could not be mapped due to incomplete or inaccurate addresses.



As Figure 11 shows, the distribution and intermediary facilities in the South Bay cities are clustered in a few major areas. In general, those firms dealing directly with air freight tended to locate in Gardena, Inglewood and El Segundo. Those dealing directly with ocean freight tend to locate in the Wilmington, Ranch Dominguez, San Pedro, and Harbor City areas. Most of the large cold storage warehouses are located in Wilmington.

By far the greatest concentration of general warehouse/distribution activity is in Carson. This includes virtually all varieties of businesses. Many advertise their location as being convenient to harbor, railroad, and airport traffic. Together, Carson, Wilmington, and Rancho Dominguez, account for about 65 percent of all facilities, and probably a much greater share of the capacity, although there were insufficient statistics available to be certain. With the exception of areas near the harbor, very few facilities were located near the coast, or in coastal communities such as Redondo Beach, Hermosa Beach, Manhattan Beach, or cities in the Palos Verdes Peninsula.

While aerial photos were used to confirm that the addresses found correspond to appropriate industrial buildings, the actual cargo handling activity of those firms can vary considerably. In some cases, multiple firms were found at the same address, suggesting that different types of business (e.g. air freight forwarding versus distribution) are conducted by subsidiaries or related companies. The level of activity is likely to be a function of the facility size, rather than the number of companies.

The study team was able to obtain size information for 22 of the 150 listed facilities. Reported floor area ranged from a minimum of 22,000 to a maximum of 1,000,000 square feet. Refrigerated facilities are typically rated in cubic feet and range from 458,000 to 5,605,000 cubic feet. Further information is provided below by facility type.

Distribution Centers and Third Party Logistics

The distribution center (DC) and third party logistics (3PL) categories also overlap, since most 3PLs offer storage and distribution services, and most DCs offer logistics services and storage.

- Distribution centers basically receive large shipments inbound, place the goods in inventory, and dispatch smaller or mixed shipments outbound. Inbound shipments are usually under control of the shipper, and make delivery appointments at the DC. Outbound shipments are usually controlled by the DC.
- 3PLs typically offer additional “value-added” services such as packaging, sub-assembly, or quality control, as well as the distribution functions.

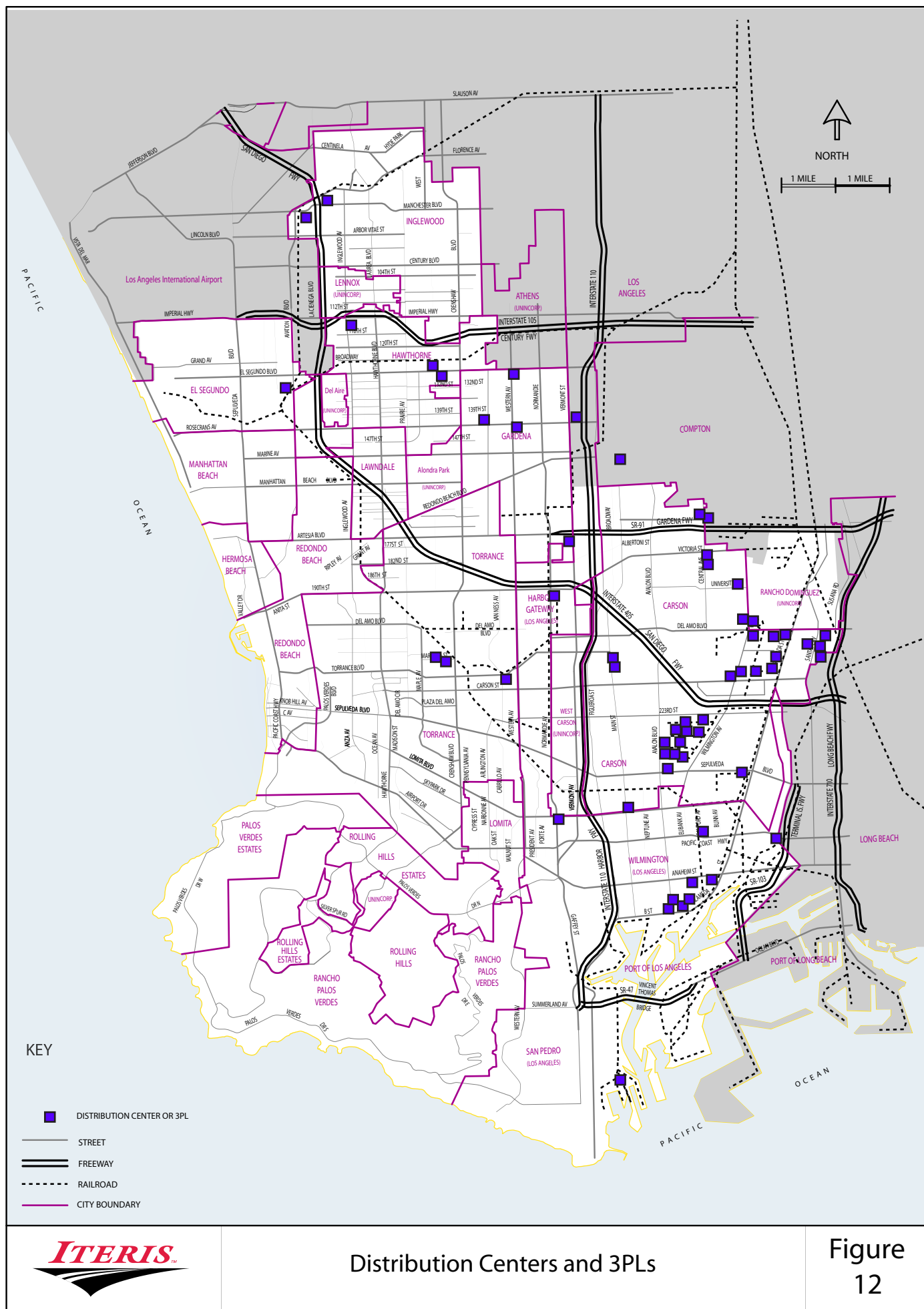
The distinction between warehouses, DCs, and 3PLs is not clear-cut and is subject to interpretation. Warehouses typically offer the least sophisticated storage and inventory services, with DCs offering more complex functions and 3PLs offering the most logistical services.

Table 4
Major South Bay Distribution Centers

NAME	ADDRESS	CITY
Amco Distributors	23610 Banning Boulevard	Carson
Bayer Corp	20455 S. Reeves Avenue	Carson
Brookvale International Corp.	20943 South Maciel Avenue	Carson
Coastline Logistics	989 East 233 St	Carson
Custom Goods, LLC	1111 East Watson Center Road	Carson
Fcl Logistics, Ltd.	24760 Main Street	Carson
FLS Warehouse & Distribution, Inc.	2824 East 208th	Carson
Fuji Trans USA	1231 East 230th Street	Carson
Green Logistic Service Inc	16905 Keegan Avenue	Carson
Gts Terminals, Inc.	2710 East El Presidio Street	Carson
Hero International Warehouse Co.	2132 East Dominguez Street	Carson
Hoza Warehousing	2664 East Del Amo Boulevard	Carson
Jit Consolidators, Inc.	21136 S. Wilmington Avenue	Carson
Minhira Masuri	20920 Main Street	Carson
Mitsui-Soko (USA), Inc.	20974 South Santa Fe Avenue	Carson
Noble Transfer Group	2318 East Del Amo Boulevard	Carson
Operations Management	21175 Main Street	Carson
P & O Logistics LLC	1610 East Sepulveda Boulevard	Carson
PDF Warehouse	16809 Central Avenue	Carson
Port Services Logistics	1130 Watson Center Rd.	Carson
Price Transfer Group	1240 East 230th Street	Carson
Price Transfer Group	1145 East 233rd Street	Carson
Processing and Distribution Services, Inc.	2839 East El Presidio Street	Carson
Schafer Logistics	1981 East 213th Street	Carson
South Coast Transportation & Distribution, Inc.	1130 East 230th Street	Carson
USC Distribution Services	21488 South Reeves Avenue	Carson
Vm International	857 East 230th Street	Carson
Fast Track Expediting	354 Coral Circle	El Segundo
A P W Knox-Seeman Warehouse, Inc.	14020 Van Ness Avenue	Gardena
Access Plus Warehouse and Logistics	505 East Gardena Blvd	Gardena
Carmichael Warehouse & Distribution Center	1639 West Rosecrans Ave.	Gardena
Flash Logistics	285 East Redondo Beach Blvd.	Gardena
Kiwi Distributing Co.	13008 South Western Avenue	Gardena
Lifetime Motor Express	16000 South Figueroa Street	Gardena
National Distribution Services	19801 Santa Fe Avenue	Gardena
Harbor City Enterprises	25111 Normandie Avenue	Harbor City
Pacific Ocean Distribution	12616 Yukon Avenue	Hawthorne
Atc International	413 North Oak Street	Inglewood
Four S Auto Supply	4520 West Imperial Highway	Inglewood
Soka Gakkai International USA	8811 Aviation Boulevard	Inglewood
Chick Packaging of Southern California	2988 Anna Street	Rancho Dominguez
GSL Transportation Services, Inc.	17925 South Santa Fe Avenue	Rancho Dominguez
Meridian IQ Global	2960 East Victoria Street	Rancho Dominguez
Noble Transfer Group	255 West Manville Street	Rancho Dominguez
Noble Transfer Group	172 East Manville Street	Rancho Dominguez
Saint George Warehouse, Inc	2035 East Vista Bella Way	Rancho Dominguez
V & S Transportation	19021 South Reyes Avenue	Rancho Dominguez
Crescent Warehouse Co. Ltd.	111 East 22nd Street	San Pedro
All Round Southern California Courier	1821 West 213th Street	Torrance
Eastline, Inc.	2935 Columbia Street	Torrance
M B Packing and Crating	444 Alaska Avenue	Torrance
Sumitomo Warehouse, USA	19301 Pacific Gateway Drive	Torrance
Advanced Cargo Services	333 North Marine Avenue	Wilmington
Granadeno Armando	1109 East Anaheim Street	Wilmington
Harbor Weighers, Inc	430 Lecouvreur Avenue	Wilmington
Master Textile	529 North Avalon Boulevard	Wilmington
Metro International Trade Service	909 East Colon Street	Wilmington
Schafer Brothers	710 East "G" Street	Wilmington
SPT	512 East "C" Street	Wilmington

Table 5
Major South Bay Third Party Logistics Firms (3PLs)

NAME	ADDRESS	CITY
Ability Tri-Modal	2011 Carson Street	Carson
Ability Tri-Modal	1911 Watson Center Dr.	Carson
Ability Tri-Modal	22560 Lucerne St	Carson
California Cartage/Brookvale	20943 S. Maciel St..	Carson
Coastline Logistics	1050 Est 233 St	Carson
Globe Con Freight Systems, Inc.	16905 South Keegan Avenue	Carson
Price Transfer Group	23011 Wilmington Avenue	Carson
Service Craft Logistics	1650 Glenn Curtiss Street	Carson
Synergy Cargo Logistics	18780 S. Central Avenue	Carson
Imex Logistics, Inc.	500 West 140th Street	Gardena
Arrowlink USA	13025 Cerise Avenue	Hawthorne
Globe Con Freight Systems, Inc.	1701 W. Walnut Parkway	Rancho Dominguez
Inland Star Distribution Centers, Inc.		Rancho Dominguez
Transport Express, Inc.	19801 South Santa Fe	Rancho Dominguez
Calmodal Freight Systems	19520 S Wilmington Avenue	Rancho Dominguez
California Cartage	2401 E Pacific Coast Highway	Wilmington



All of these facilities have similar generalized truck trip patterns, with a mix of large trucks and smaller trucks between the facility, its sources, and its customers. Those that handle imports or exports will also see a stream of containers drayed to and from the ports.

There are three major clusters of DCs and 3PLs in the South Bay subregion:

- In the eastern portions of Rancho Dominguez and Carson, on either side of Alameda Street.
- In southern Carson, between Wilmington Avenue and Avalon Boulevard
- North of the Port of Los Angeles, between Alameda Street and Avalon Boulevard

The location factors for these facilities differ depending on their function, size, and ownership. A private DC operated for a manufacturer or retail chain will be located according to the needs of the enterprise as a whole, while a public warehouse or 3PL facility may be centrally located to serve multiple customers. All such facilities seek low-priced land with good truck access.

The strong clustering of freight handling facilities north of the ports is due to three factors:

- Proximity to the ports for import and export cargo (chiefly imports);
- Availability of low-priced industrial land (unincorporated areas such as Rancho Dominguez are seen as advantageous), and
- A central location for the greater Los Angeles market.

As the concentration of facilities in the figures suggest, a large portion of the containerized cargo handled at POLA and POLB is drayed to and from the area bounded by Interstate 110, State Route 91, and Interstate 710.

Air Freight

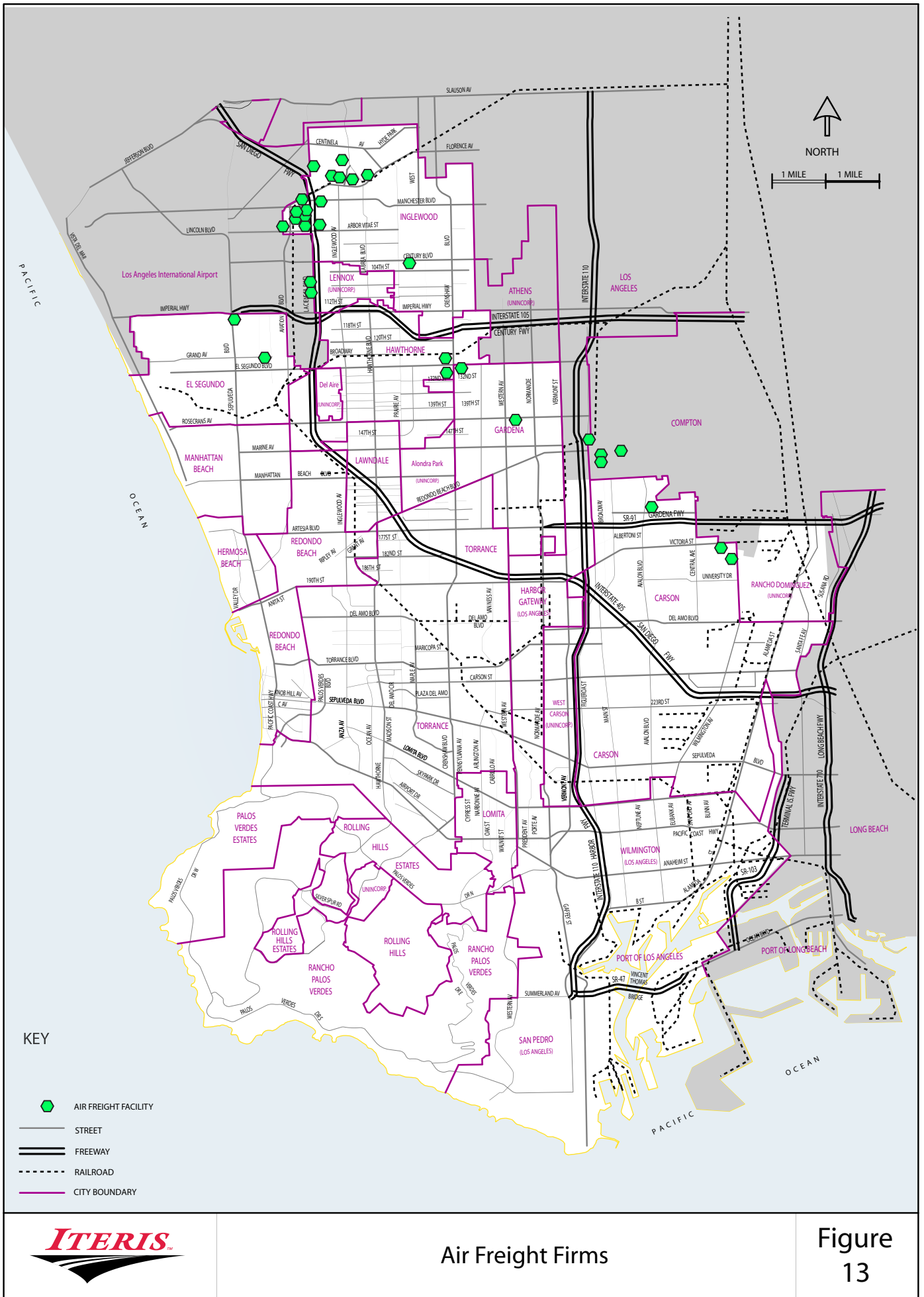
Freight forwarders and related firms are clustered east of LAX in Inglewood, Lennox, and Hawthorne. These facilities vary in scope from small, entrepreneurial firms to industry leaders such as BAX in El Segundo. There are tight clusters of such firms in areas such as North Oak Street and West Manchester Boulevard in Inglewood. It is typical for multiple smaller firms to be housed in single multi-tenant buildings.

While proximity to LAX is preferred for high-volume participants such as BAX, other firms are farther away in Gardena and Carson where land costs are cheaper. These may include operators with multiple lines of business, so airport proximity is only one factor in their location decisions.

The listing is unlikely to be complete, as some listings showed different or multiple firms at the same address. There are also many more air freight firms in Los Angeles and other areas near LAX, but outside the South Bay.

Table 6
Major Air Freight Facilities in the South Bay

NAME	ADDRESS	CITY
Korea Express USA Inc	709 E Walnut St	Carson
United Air Freight Svc	709 E Walnut St	Carson
Yamato Transport USA Inc	18271 Bishop Ave	Carson
A & F Services, Inc.	1200 Kona Dr.	Compton
Dfds Dan Transport Corp	898 N Sepulveda Blvd	El Segundo
Nippon Express USA	2233 E Grand Ave	El Segundo
Carmichael International Svc	1639 W Rosecrans Ave	Gardena
Express Air Cargo Inc	14916 S Figueroa St	Gardena
Kita Transport, Inc.	277 East Redondo Beach Boulevard	Gardena
Multi Air Express	15525 Broadway Center St	Gardena
Rapid Cargo Logistics	15606 Broadway Center St	Gardena
B E Logistics	12912 S. Chadron Ave	Hawthorne
Bax Global Lax	2815 W El Segundo Blvd	Hawthorne
Pace Freight Systems Inc	12719 Chadron Ave	Hawthorne
Pilot Air Freight Corp	2805 W El Segundo Blvd	Hawthorne
Admiral Air Express	3800 W Century Blvd	Inglewood
Aeris Logistics	900 W Florence Ave	Inglewood
Aguila Express	654 W Arbor Vitae	Inglewood
Air Cargo Transport	1031 W Manchester Blvd	Inglewood
Ame Express Inc	801 W Hyde Park Blvd	Inglewood
Australian Air Express	401 N Oak St	Inglewood
Bellair Express Inc	5140 W 106th St	Inglewood
Concord Express Inc	901 W Hillcrest Blvd	Inglewood
Dart Express Los Angeles Inc	821 W Arbor Vitae St	Inglewood
E Z Worldwide Express	929 W Spruce Ave	Inglewood
Group United Shipping	701 W Manchester Blvd	Inglewood
Guaranteed Air Freight	463 N Oak St	Inglewood
Hawaii Air Cargo	1031 W Manchester Blvd	Inglewood
Jet Line Air Cargo Inc	307 E Beach Ave	Inglewood
Max Cargo Inc	9111 S La Cienega Blvd	Inglewood
Nnr Air Cargo Svc USA	630 S Glasgow Ave	Inglewood
Pan Star	353 N Oak St	Inglewood
Priority Solutions International	5140 West 104th Street	Inglewood
Stevens Air Transport	704 Hindry Ave	Inglewood
Tokyo Air Cargo America Inc	618 S Glasgow Ave	Inglewood
Trust Air Cargo	8915 S La Cienega Blvd	Inglewood
Unicargo Express Inc	405 N Oak St	Inglewood
Network Global Solutions	9010 Bellanca Avenue	Los Angeles
Emerald Air Express Inc	18300 S Wilmington Ave	Rancho Dominguez

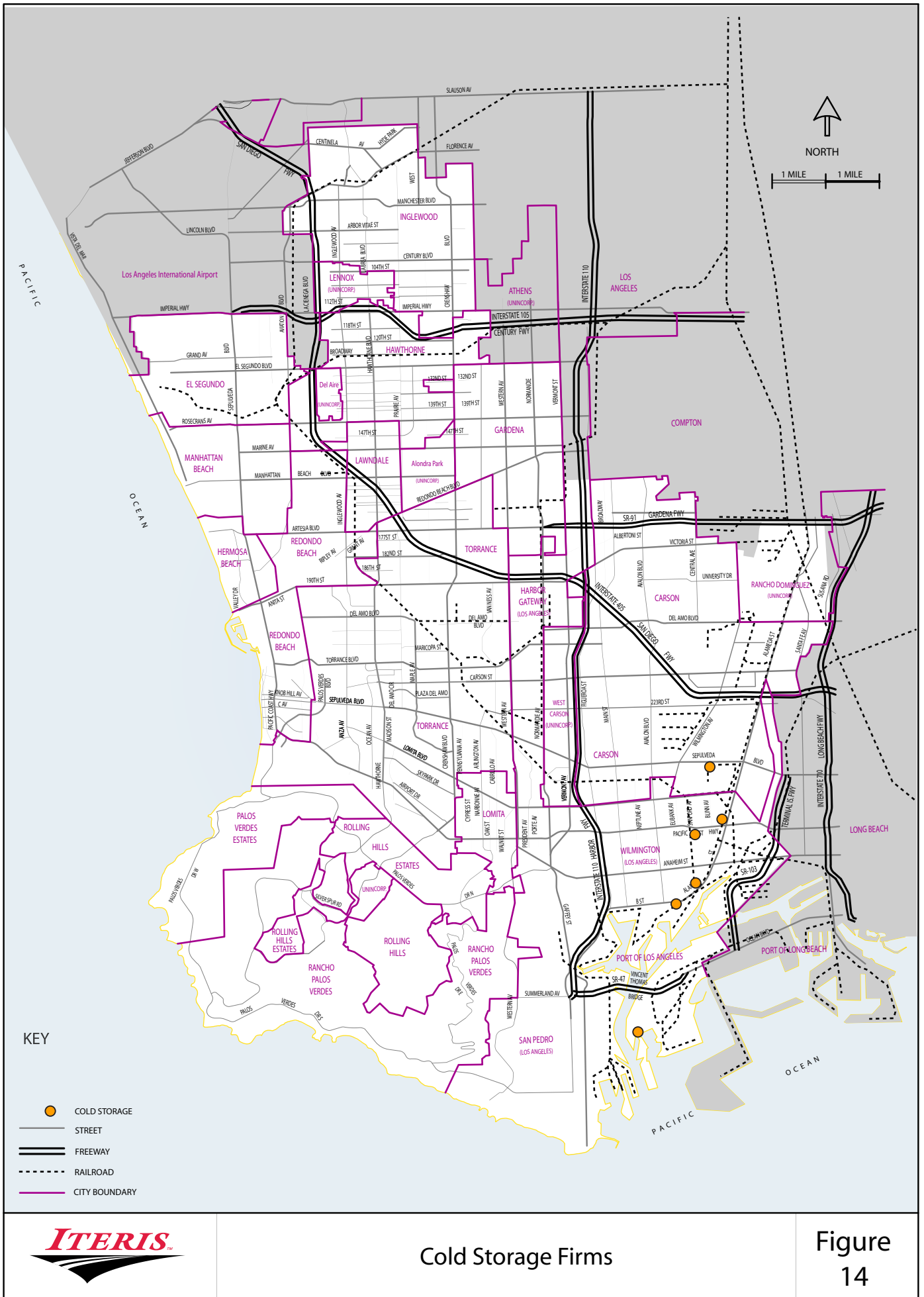


Cold Storage Facilities

Cold storage facilities are specialized warehouses with all or part under constant refrigeration. Because of the high logistical and monetary cost of keeping individual containers refrigerated, cold storage facilities are clustered near the seaports.

Table 7
Major South Bay Cold Storage Facilities

NAME	ADDRESS	CITY
VersaCold (US)	1610 E. Sepulveda Blvd	Carson
Harbor Ice & Cold Storage	740 South Seaside Avenue	San Pedro
Konoike Pacific	1420 Coil Avenue #310	Wilmington
Preferred Freezer Services of Wilmington	900 East M Street	Wilmington
State Fish Co. Cold Storage	403 Harry Bridges Blvd	Wilmington
Union Ice	901 East "E" Street	Wilmington
E Street Cold Logistics LLC	901 E Street	Wilmington



KPAC (Konoike Pacific), located on Coil Avenue in Wilmington, is a prominent example of a cold storage facility. It handles import and export shipments of perishable frozen and chilled commodities, chiefly produce. In addition, KPAC transloads goods between ocean going containers and domestic containers or trailers without intermediate storage.

Typical trucking patterns for a cold storage facility engaged in import/export trade would include:

- Refrigerated marine containers with chassis-mounted generator sets (“gensets”) drayed to and from marine terminals.
- Additional drayage trips to and from specialized “reefer container depots” where refrigerated containers are cleaned and pre-cooled or otherwise prepared for new perishable loads.
- Domestic refrigerated trailer trips (or occasionally refrigerated domestic containers) to and from local, regional, and national customers.

The refrigeration units on marine containers or highway trailers must often be kept running to either protect a valuable load (a container load of frozen Thai tiger shrimp can be worth \$500,000), or to chill the unit in preparation for loading. The running refrigeration units or gensets raise emissions and noise issues.

Container Freight Stations and Centralized Examination Stations

A Container Freight Station (CFS) specializes in consolidating smaller shipments into full container loads to obtain economies of scale in ocean transport. An import CFS receives full container loads and distributes the smaller shipments; and export CFS receives smaller shipments and dispatches full containers. A given facility often combines both functions. Through the 1970s, the CFS would be located as part of the marine terminal but a decline in the CFS business, changing labor rules, and heightened demand for terminal space led to a shift to off-dock locations.

A Centralized Examination Station (CES) is an off-dock facility for cargo inspection by Customs and Border Protection (CBP). Since marine container terminals do not have facilities for loading or unloading the cargo in marine containers, all CBP inspections of the cargo itself take place at an off-dock CES. Price Transfer is a leading CES operator in Southern California with facilities in Rancho Dominguez and Carson (Exhibit 19). As is typical of many other intermediaries, Price Transfer also offers distribution, logistics, warehousing, drayage, and air freight services and the database assembled for this project classifies some of their facilities as DCs or 3PL locations.

Table 8
Major South Bay Container Freight Station and Centralized Examination Station Facilities

NAME	ADDRESS	CITY	TYPE
Price Transfer Group	24760 South Main Street	Carson	CES
Universal Warehouse Co.	2850 East Del Amo Boulevard	Carson	CES
B & J Cfs, Inc.	8933 South La Cienega Boulevard	Inglewood	CFS
Price Transfer Group	2790 East Del Amo Boulevard	Rancho Dominguez	CFS
Imperial CFS, Inc.	1331 West Torrance Boulevard	Torrance	CFS
Packers, Ltd.	100 Broad Avenue	Wilmington	CFS

Figure 15 combines the CFS and CES categories, since the facility types often overlap. Most of the CFS and CES facilities are clustered near the ports, as expected.



Figure
15

Typical trucking patterns for CFS facilities include:

- Marine containers drayed to and from the port terminals; and
- Domestic truck trips to and from local or regional customers.

The CES pattern is somewhat different:

- Marine containers, primarily imports, drayed to and from port terminals for inspection; and
- The same containers drayed to importers once cleared by CBP, and back to the ports once emptied.

Transloaders

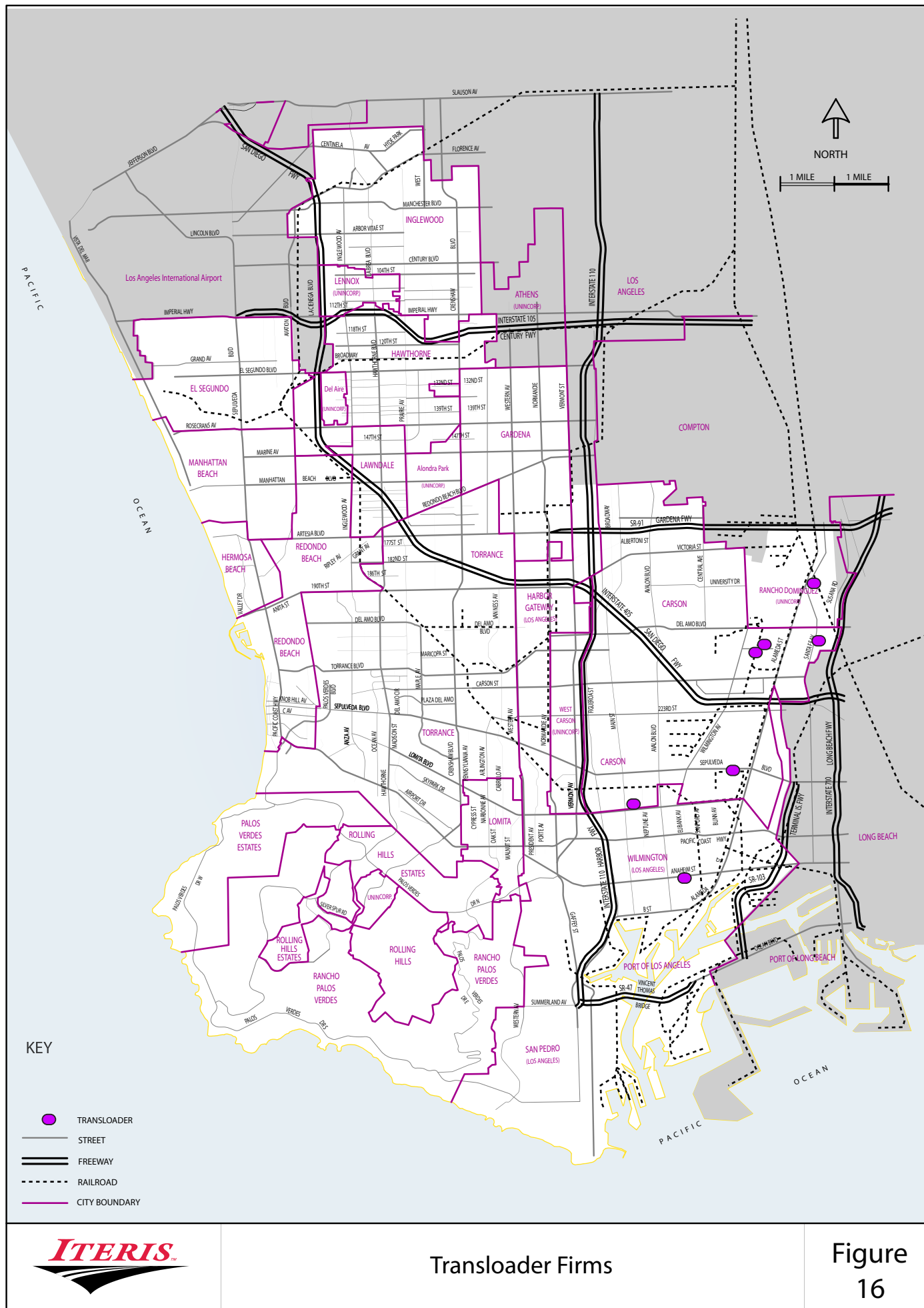
Transloading is an important segment of the freight-handling industry. Within the South Bay subregion the principal transloading activity is transfer from oceangoing containers to larger domestic containers or trailers for delivery inland. For imports, a transload facility is often the first stop for imported cargo that requires additional sorting and routing. At this stage, the contents of a marine container coming from the port will be unloaded and transferred to one or more domestic containers or trailers for delivery to local stores and factories or to an off-dock rail yard. Other transloaders may shift export freight from domestic trucks to marine containers, or transfer freight between truck and rail modes.

Transload facilities are operated by various kinds of companies, including truckers, warehouse operators, logistics companies, or even large retailers. Some operations will provide additional basic services like tagging or labeling cargo as it is sorted.

Since transloaders minimize any freight storage, pure transloading facilities are typically much smaller than distribution centers for the volume of freight they handle (and the number of truck trips they generate). In most cases, transload facilities will conduct “cross-dock” operations where the cargo is not stored at the location, or is stored for very short periods.

Table 9
Major South Bay Transloaders

NAME	ADDRESS	CITY
Ancon Transportation Service	2250 Dominguez Street	Carson
Brookvale International Corp.	20943 S. Maciel St.	Carson
Pacific Coast Container	2888 El Presidio Street	Carson
Sankyu USA Inc.	24700 Main St.	Carson
Ventura Transfer Company	1805 East Sepulvada Blvd.	Carson
Keep On Trucking Company Inc.	2979 East Ana Street	Rancho Dominguez
MAERSK LOGISTICS	5011 Firestone Place	South Gate
Vanco Heavy Lift	711 East Anaheim Street	Wilmington



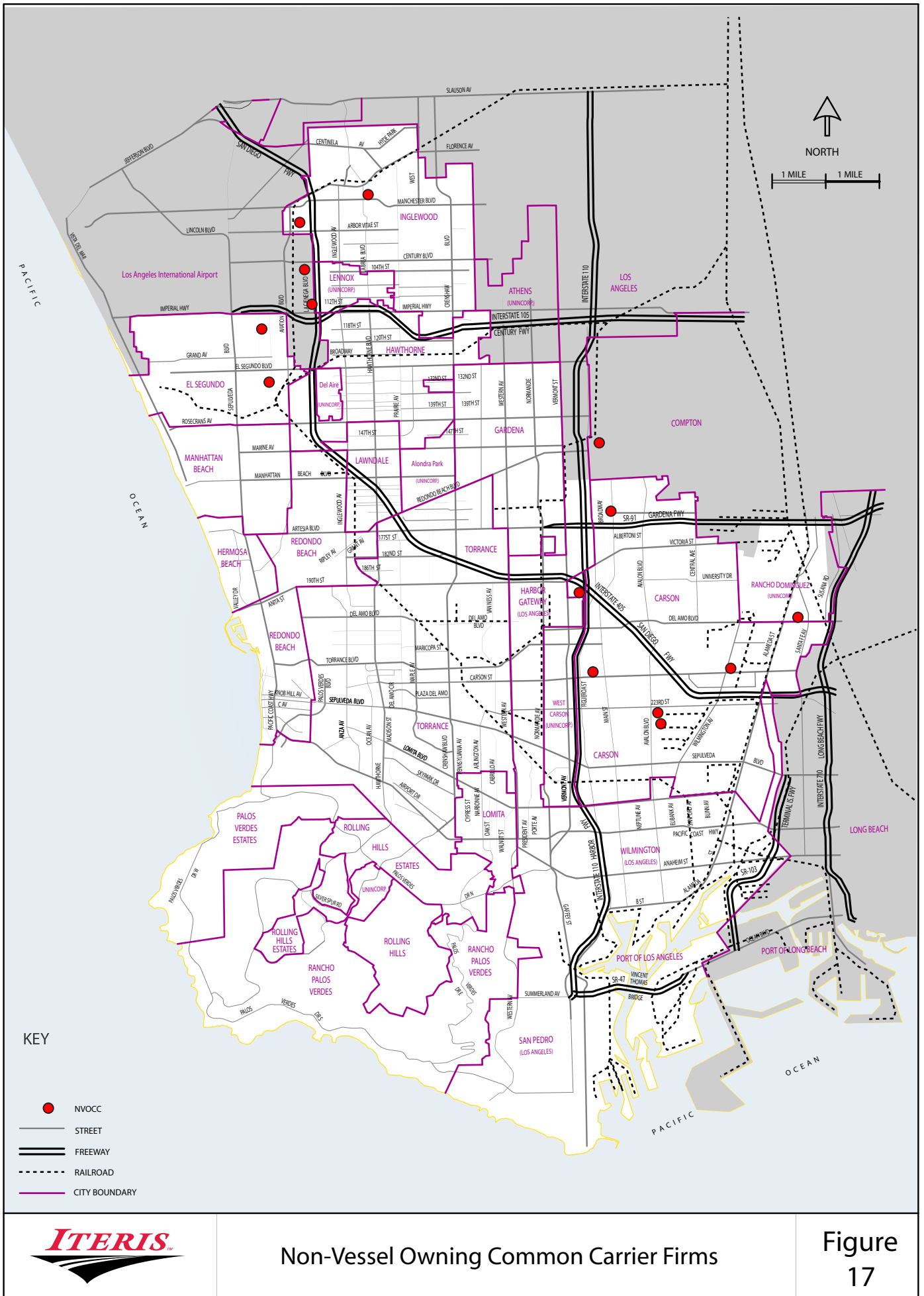
Non-Vessel Owning Common Carriers

Non-Vessel Owning Common Carriers (NVOCCs) are intermediaries in containerized ocean shipping. To customers – shippers and consignees – they offer ocean transport as if they were a steamship line. To the steamship lines, NVOCCs are customers tendering full containers for import or export. In effect, NVOCCs buy containerized service wholesale under volume contracts and sell it retail to smaller customers. In some transpacific trades, NVOCCs control as much as 30 percent of the cargo.

NVOCCs may or may not handle cargo at the addresses found; some may be office locations with cargo handled elsewhere. In the past NVOCCs dealt primarily with smaller shipments, operating similarly to Container Freight stations. As they have expanded their scope they handle more full container shipments, with the container loaded or unloaded at the customer's site rather than at the NVOCC's facility. Many, if not most, 3PLs and other logistics companies have NVOCC authority. UPS, for example, is an NVOCC. The companies listed as NVOCCs in the database likely engage in other cargo-handling activities as well, and companies listed in other categories may also be NVOCCs.

Table 10
Major South Bay NVOCCs

NAME	ADDRESS	CITY
Carotrans International	1939 East Carson Street	Carson
Direct Container Line	857 East 230th Street	Carson
Fritz Companies	771 Watson Center Road	Carson
Transworld Shipping	One Civic Center Plaza Dr. Ste. 324	Carson
Hitachi Transport System America	2040 East Maple Avenue	El Segundo
Speedmark Transportation	301 Coral Circle	El Segundo
Flying Fish Service	19300 South Hamilton Ave. Ste. 150	Gardena
Korean Cargo Consolidators	15151 South Main Street	Gardena
Shipco Transport Inc.	101 West Walnut	Gardena
Transitrailer, Inc.	1816 West 135th Street	Gardena
Combi Maritime Corp.	709 South Hindry	Inglewood
President Container Lines	9133 South LaCienega Blvd Ste 100	Inglewood
Seaborne Express Lines	11222 South La Cienega Blvd. Ste. 470	Inglewood
Sino American Corp.	440 South Hindry Ave. Ste. C	Inglewood
Brennan international	2665 East Del Amo Boulevard	Rancho Dominguez



Summary

Future growth in trade will be facilitated by more intense usage of South Bay facilities, as well as the development of new facilities accessed from the South Bay, primarily in the inland empire. The next section discusses the goods movement system in the South Bay, and its individual components.