Southern California Consensus Group Projects
TCIF Application Economic Analysis

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LAEDC

Economic Vitality,
Trade & Jobs

EXECUTIVE SUMMARY

The five-county Southern California region has become an important hub for domestic and foreign trade because of its enormous market and its massive investments in trade transportation infrastructure. The region's three ports—Los Angeles, Long Beach, and Hueneme—plus its rail yards, rail lines, highways, and distribution centers move an incredible volume of trade, sustaining hundreds of thousands of jobs in the process. The trade is forecast to grow, and when it does, still more jobs will be created. To realize the job growth, however, will require significant investments in capacity and efficiency, as well as environmental mitigation. The Southern California consensus group has identified 53 projects that are critical to accommodating trade growth and job creation. The collective importance of these projects greatly exceeds their individual contributions, since their primary value derives from the larger network of which they are part. Risks to the forecast trade and job growth include the need for further investment, potential roadblocks to adding capacity, and competition.

Trade: In 2006, the real value of international ocean trade moved through the L.A. Customs District was $217 billion (in 2000 dollars), up more than threefold since 1990. Container traffic at the Ports of Los Angeles and Long Beach grew at an average rate of 11.5% per year for eleven years, reaching 15.8 million TEUs in 2006. Over the next 24 years, container traffic at the ports is expected to average 4.2% annually, which would bring container traffic to 42.5 million TEUs by 2030.

Current trade-related employment: Transportation and logistics firms handle the actual movement of goods from point to point within the network, and employed 144,200 people in Southern California in 2006. Wholesale firms process, store and distribute goods throughout the region. The wholesalers dealing in the import/export trade employed 115,600 people. The workers and firms in these sectors sustain further employment when they purchase goods and services in the local economy, bringing the total number of jobs supported by transportation, logistics and international-trade-related wholesale firms in Southern California to 598,000. Manufacturers and related firms that produce goods destined for export to other nations via the Los Angeles and Long Beach ports account for a further 120,000 direct and indirect jobs in the five-county region. Thus, a grand total of 718,000 jobs were tied directly or indirectly to trade traffic flowing into and out of the ports in 2006.

Potential trade-related employment: The LAEDC conservatively estimates that more than 1 million jobs will be tied to imports and exports moving through the Southern California region by 2030. This represents an increase of 318,000, or 44%, from the 2006 total of 718,000 jobs. The employment forecast is based on an average annual increase in transportation and logistics employment of 2.4%, after adjusting for rising productivity. Wholesale trade employment is projected to increase modestly—by 0.5% per year—in line with the 1990-2006 experience. Export-related employment is forecast to grow by 1.0% per year. While export volumes will grow significantly—by 6% per year or more—rising productivity in export-oriented manufacturing and agriculture (in the 5.0%/year range) will absorb most of the projected growth in exports.

Other Employment Impacts: International trade is and will remain a key driver of the Southern California economy. However, it's important to recognize that the transportation, logistics and trade-oriented wholesale industries represent less than 10% of the area's economy. Already, the region's transportation infrastructure is strained. Projected population and employment growth will place even more demands on the system. All parts of the goods movement system simply must be improved to accommodate the coming surge in trade if we are to avoid the consequences of gridlock. Improvements to the rail network will remove containers from the area's highways, but the rising number of trains exacerbates costly wait times at grade crossings. Highway improvements allow more freight traffic, but the rising number of trucks moving slowly on off-ramps increases delays for everyone at highway interchanges. Increased congestion on local streets and highways affects local businesses with no ties at all to goods movement, making it harder for them to receive deliveries and for their employees to get to work. Rising congestion increases the costs of doing business in Southern California, encouraging existing firms to relocate elsewhere and threatening the region's future. By directly addressing congestion at rail crossings and freeway interchanges, the TCIF projects will help preserve existing jobs, particularly among the thousands of firms throughout the corridor. They will also support future growth in other sectors not linked to trade.

Building the network: The Southern California consensus group has identified 42 Tier 1 and 11 Tier 2 projects critical to accommodating trade growth and job creation. The projects represent significant upgrades in the region's trade infrastructure capacity and efficiency, and offer substantial air quality benefits. Though individually important, the real value of the proposed TCIF projects derives from the regional economic growth underpinned by the operations of the entire trade network. Two analogies suggest the nature of the problem. First, think of the trade corridor as a hose, with several kinks that hinder the water flow. Straightening out one or two kinks will not improve flow rates; all must be aligned properly to permit maximum water flow through the hose. Similarly, one cannot use the value of any single course—say, a required sophomore economics class—to estimate the value of a university degree.

Risks to the forecast: To reach the region's trade potential – and realize the projected employment growth – the initial TCIF projects will need to be followed by further capacity, efficiency, and environmental improvements, including substantial private sector investment. Failure to invest in a timely fashion will create twin risks. First, shippers will not tolerate long-term declines in timelines and reliability for moving goods through the region. With sufficient time and resources, they can and will invest in facilities elsewhere to handle some of the Southern California cargo that arrives by ship and leaves by rail. Second, the community will not tolerate long-term increases in traffic flows and worsening air quality and will block capacity and efficiency improvements unless the projects also provide congestion and air quality relief. On the upside, the LAEDC continues to expect activity at the Ports of Los Angeles and Long Beach to reach 42.5 million TEU by 2030 despite the slowdown in 2007-2008. Indeed, unconstrained forecasts (by the LAEDC and others) suggest demand exists for considerably more container traffic by then. Higher trade volumes would translate into a greater number of trade-related jobs.

Construction-related activity: The 42 Tier 1 projects are expected to cost $4.3 billion and the 11 Tier 2 projects $1.3 billion, excluding the acquisition cost of rights-of-way acquisition. This $5.6 billion in spending will generate considerable one-time economic activity during

the construction period, which will start no later than 2013 for all projects. Collectively, the projects will generate $13.5 billion in economic output in California. This is the amount firms statewide will earn in business revenues, most of it going to construction, architecture and engineering firms plus their subcontractors and suppliers. The total business revenues exceed the cost of the construction project because they include the business revenues earned by firms selling goods and services to the employees of the contractors, architects, engineers, and their suppliers when they spend their project-related wages.

During the construction period, the projects will generate total employment equivalent to 107,400 full-time jobs for one year. Measuring jobs in full-time equivalents (FTEs) is particularly useful for construction projects, where the jobs created are not permanent. FTEs measure the amount of work, *not* the number of *individuals* involved: one FTE could represent any of numerous combinations, such as twelve people each working full-time for one month. A single worker laboring steadily on a series of projects over five years counts as 5 FTEs. As with the economic output, the employment estimate includes both direct and indirect jobs. Workers in positions sustained in whole or in part by economic activity related to the construction will share $4.4 billion in wages.

State Investment Benefits: For its $1.7 billion TCIF investment in Southern California, the state will receive many benefits. First, the funds will be incorporated into a construction program that will spend a total of $5.6 billion. The construction projects will generate $13.5 billion in economic output, 107,400 FTE one-year jobs, and $4.4 billion in wages. The state will recoup roughly 22% of its investment ($370 million) from the state income taxes and the state share of sales taxes related to the construction activity. The TCIF projects are the first step in preparing the region for trade-related employment growth of at least 318,000 jobs by 2030. The jobs will be added over a 24-year period, incrementally increasing the state's revenue from income and sales taxes by about $1 billion (in 2007 dollars) in 2030**.** The cumulative increase in state tax revenues will far exceed the value of the initial investment, particularly since we have not estimated increases to other state taxes such as unemployment and disability insurance, fuel taxes, and state corporate profits taxes. The projects will also generate state benefits in the form of air quality improvements and congestion relief not quantified in this report. These improvements will be particularly important in preserving existing jobs and facilitating employment growth in majority of the Southern California economy surrounding the trade corridor that is not trade-related.

INTRODUCTION

This report was prepared in support of the Southern California TCIF project applications. The LAEDC estimated the economic impact of the improvements to the Southern California trade corridor. The report consists of three sections. Section I estimates the one-time economic impact of construction. Section II forecasts the long-term employment impact of trade growth in Southern California. Section III provides some background for the trade forecast, chiefly through comparisons with the rest of the ports on the West Coast, and discusses risks to the forecast.

I. CONSTRUCTION-RELATED ECONOMIC IMPACTS

The LAEDC estimated the statewide, one-time economic impact of building the 53 Southern California projects being submitted to the California Transportation Commission for funding under the TCIF portion of Proposition 1B. The economic impact includes direct and indirect economic output, jobs and wages generated by the construction activity. The estimates were derived using a custom model based on multipliers from the Regional Input-Output Modeling System (RIMS II), which was developed by the U.S. Department of Commerce, Bureau of Economic Analysis. The construction impact reported in Table 1 is based on total project spending, not just the TCIF request, and includes architecture and engineering expenses, plus construction labor and materials, less any expenses for right-of-way acquisition.

Table 1
Southern California Trade Corridor Improvements
Construction-related Direct and Indirect Economic Impact

	Tier 1 Projects ($millions)	Tier 2 Projects ($millions)	Total ($millions)*
Construction Spending	$4,263	$1,316	$5,578
Economic Output	$10,300	$3,200	$13,500
Jobs	82,000	25,400	107,400
Earnings	$3,400	$1,000	$4,400

*Dollar values expressed in constant (2007) dollars. Numbers may not sum due to rounding.
Source: TCIF Southern California Consensus List, LAEDC

Construction spending is expected to be $4.3 billion for 42 Tier 1 projects and $1.3 billion for the 11 Tier 2 projects. This $5.6 billion in spending will generate considerable one-time economic activity during the construction period, which will start no later than 2013 for all projects. The Tier 1 projects, for example, together will generate $10.3 billion in economic output in California. This is the amount firms statewide will earn in business revenues, most of it going to construction, architecture and engineering firms plus their subcontractors and suppliers. The total business revenues exceed the cost of the construction project because they include the business revenues earned by firms selling goods and services to the employees of the contractors, architects, engineers, and their suppliers when they spend their project-related wages.

During the construction period, the Tier 1 projects will generate total employment equivalent to 82,000 full-time jobs for one year. Measuring jobs in full-time equivalents (FTEs) is particularly useful for construction projects, where the jobs created are not permanent. Note, however, FTEs measure the amount of work, *not* the number of *individuals* involved. One FTE could represent any of numerous combinations, such as two people who each work half-time for a year, or twelve people each working full-time for one month. Similarly, if one worker labored steadily on a series of projects over five years, (s)he would count as 5 FTEs. As with the economic output, the employment estimate includes both direct and indirect jobs. Workers in positions sustained in whole or in part by economic

activity related to the construction of Tier 1 projects will share $3.4 billion in wages during the construction period.

Billions of dollars in construction spending will generate considerable state and local taxes. The contractors working on the projects will purchase hundreds of millions of dollars worth of materials, and much of this spending is sales- or use-taxable. The direct and indirect workers will pay state income taxes on their earnings, and their taxable purchases will generate sales tax revenue.

Table 2
Southern California Trade Corridor Improvements
Construction-related Tax Revenue

	Tier 1 Projects ($millions)	Tier 2 Projects ($millions)	Total* ($millions)
State Taxes	$282	$87	$370
Local Taxes	$49	$11	$60
Total	$331	$98	$430

*Numbers may not sum due to rounding
*Note: Dollar values expressed in constant (2007) dollars
Source: LAEDC

The resulting revenue for state and local governments are shown in Table 2. The Tier 1 projects, for example, will generate $282 million in tax revenue for the state from state income tax and sales taxes. Cities, counties, and transportation authorities will share $49 million in local taxes from project-related sales taxes. We used the relevant sales tax rate for Los Angeles (8.25%), Orange (7.75%), Riverside (7.75%), San Bernardino (7.75%), and Ventura (7.25%) counties. The difference between the rates is related to the number of 0.50-percentage point county transportation surcharges: there are two such surcharges in LA, none in Ventura, and one each in the rest of the counties. In sum, economic activity related to the Tier 1 projects will generate $331 million in tax revenue for the state and local governments.

Overall, our estimates of tax revenues generated by construction-related activity are low, because we have only counted state income and sales taxes. [Indeed, we have not even included the local permits and fees for construction.] We have also omitted local taxes and fees that vary from city to city, such as utility taxes and business license fees. Nor have we included the state unemployment insurance and California disability insurance that will be paid by direct and indirect workers in construction-related jobs. Finally, we have not estimated various state taxes that will be generated by construction-related economic activity, such as state fuel taxes, and state corporate profits taxes.

The economic impact and tax revenue for each project, grouped by county and by tier, is presented in Table 3 (on the next two pages).

Table 3
SoCal Trade Corridor Improvement Projects — Construction-related Economic and Revenue Impact

Construction Projects	Economic Output ($mil)	Jobs	Wages ($mil)	Taxes	
				State ($mil)	Local ($mil)
Los Angeles County Projects					
Tier 1					
Replace Gerald Desmond Bridge	$1,911	15,200	$628	$52.38	9.76
ACE-San Gabriel Valley	$1,644	13,100	$540	$45.06	8.39
SR47 Port Access Expressway/Schuyler Heim Bridge Replacement	$1,450	11,600	$476	$39.75	7.40
Ports Rail System	$1,253	10,000	$412	$34.35	6.40
ACE/Gateway: Valley View Grade Separation	$165	1,300	$54	$4.53	0.84
South Wilmington Grade Separation	$128	1,000	$42	$3.51	0.65
I-110/SR-47 Interchange & John S. Gibson Bl. Intersection/NB I-110/SR-47 Ramp Access Improvement	$92	730	$30	$2.52	0.47
Washington Blvd. Widening and Reconstruction Project	$76	600	$25	$2.08	0.39
I-110 Fwy/C Street Interchange Improvement	$53	420	$17	$1.46	0.27
New Siding on the Antelope Valley Line (MP44 to MP61) for Freight Trains	$36	290	$12	$0.99	$1.08
Tier 2					
Ports Rail Program - Phase 2	$946	7,500	$311	$25.92	$2.82
I-5 Truck Lane, Calgrove to SR14	$266	2,100	$87	$7.28	$0.79
ACE: Nogales Grade Separation	$220	1,800	$72	$6.03	$0.66
Navy Way Connector to Westbound Seaside Ave (SR47)	$97	770	$32	$2.65	$0.29
SR47 On-Ramp and Off-Ramp at Front Street	$48	390	$16	$1.33	$0.14
Orange County Projects					
Tier 1					
Connecting existing Aux. Lane thru interchange on WB SR91 between SR57 & I5	$162	1,300	$53	$4.43	$4.80
ACE: Orangethorpe Avenue Overcrossing (Placentia & Anaheim)	$150	1,200	$49	$4.12	$4.46
ACE: Kraemer Blvd. Undercrossing (Placentia)	$103	820	$34	$2.83	$3.06
ACE: State College Blvd (Fullerton)	$96	760	$32	$2.63	$2.85
ACE: Raymond Avenue (Fullerton)	$96	760	$31	$2.62	$2.84
ACE: Tustin Avenue/Rose Drive Overcrossing (Placentia & Anaheim)	$96	760	$31	$2.62	$2.83
ACE: Lakeview Avenue Overcrossing (Placentia & Anaheim)	$73	580	$24	$1.99	$2.16
ACE: Placentia Avenue Undercrossing (Placentia & Fullerton)	$66	520	$22	$1.80	$1.94
Tier2					
SR-57 Truck Climbing Lane	$378	3,007	$124	$10.35	$1.50
Ventura County Projects					
Tier 1					
Reconstruct US 101- Rice Avenue IC (Oxnard)	$132	1,100	$43	$3.62	$0.38
Tier 2					
Freight Siding between Las Posas Road & Pleasant Valley Road	$36	290	$12	$0.99	$0.10

Table 3 (continued)
SoCal Trade Corridor Improvement Projects — Construction-related Economic and Revenue Impact

Construction Projects	Economic Output ($mil)	Jobs	Wages ($mil)	Taxes	
				State ($mil)	Local ($mil)
San Bernardino County Projects					
Tier 1					
I-15 Widening & Devore Interchange (at I-215) Reconstruction	$437	3,500	$144	$11.98	$1.74
I-10 Widening & Interchange Improvements (LA Co. Line to I-215)	$353	2,800	$116	$9.69	$1.40
ACE: Milliken/Alhambra Line	$173	1,400	$57	$4.75	$0.69
ACE: Valley at BNSF/UP	$77	620	$25	$2.12	$0.31
ACE: S. Archibald Ave at UP Alhambra	$76	600	$25	$2.09	$0.30
ACE: Vineyard at UP Alhambra	$71	570	$23	$1.95	$0.28
ACE: Palm at BNSF/UP	$65	520	$21	$1.79	$0.26
ACE: Glen Helen at BNSF/UP	$63	500	$21	$1.72	$0.25
ACE: Lenwood Ave at BNSF Cajon	$63	500	$21	$1.72	$0.25
ACE: S. Milliken at UP Los Angeles	$61	490	$20	$1.68	$0.24
Tier 2					
High Desert Corridor - Phase 1A	$759	6,000	$249	$20.81	$3.01
Riverside County Projects					
Tier 1					
March ARB/Global Cargo Port I-215/Van Buren Interchange (Riverside)	$218	1,700	$71	$5.96	$0.86
ACE: Magnolia Ave (BNSF) Grade Separation (Riverside County)	$189	1,500	$62	$5.17	$0.75
ACE: Clay St (BNSF) Grade Separation (Riverside County)	$86	680	$28	$2.35	$0.34
ACE: Sunset Ave (UP) Grade Separation (Banning)	$86	680	$28	$2.35	$0.34
ACE: 3rd St (BNSF & UP) Grade Separation (Riverside)	$79	630	$26	$2.17	$0.31
ACE: Auto Center Drive (BNSF) Grade Separation (Corona)	$71	570	$23	$1.95	$0.28
ACE: Magnolia Ave (UP) Grade Separation (Riverside)	$70	560	$23	$1.92	$0.28
ACE: Streeter Ave (UP) Grade Separation	$63	500	$21	$1.72	$0.25
ACE: Iowa Ave (BNSF & UP) Grade Separation	$60	480	$20	$1.66	$0.24
ACE: Columbia Ave (BNSF & UP) Grade Separation (Riverside)	$54	430	$18	$1.47	$0.21
ACE: Riverside Ave (UP) Grade Separation (Riverside)	$39	310	$13	$1.06	$0.15
ACE: Avenue 66 (UP) Grade Separation (Riverside County)	$36	290	$12	$0.99	$0.14
ACE: Avenue 52 (UP) Grade Separation (Coachella)	$31	250	$10	$0.86	$0.12
Tier 2 Projects					
ACE: Jurupa Rd (UP) Grade Separation (Riverside County)	$245	2,000	$81	$6.73	$0.97
I-10 SR60 Truck Climbing Lane	$111	886	$37	$3.05	$0.44
ACE: Mary St (BNSF) Grade Separation (Riverside)	$75	600	$25	$2.05	$0.30
Total Southern California Trade Corridor Projects	**$13,500**	**107,400**	**$4,400**	**$370**	**$60**

II. LONG-TERM TRADE-RELATED ECONOMIC IMPACTS

Introduction

The five-county Southern California region is an important hub for domestic and foreign trade. Goods are distributed from factories and warehouses in the area to local businesses serving the region's huge population. Also, the area is the nation's largest manufacturing center; materials and components are moved into the production plants and finished goods are moved out. Finally, and of importance to this report, Southern California is a key distribution node in global supply chains that stretch from Asia to the East Coast.

All this activity requires a sizeable, efficient transportation and distribution network. In the Southern California region, the land-based trade corridor infrastructure consists of the area's three ports—Los Angeles, Long Beach, and Hueneme—plus rail yards, rail lines, highways, and distribution centers. Goods are moved to points located throughout the network. The ports are in Los Angeles and Ventura counties, but much cargo is moved to distribution centers and final destinations in other parts of the region—north L.A., Orange, Riverside, and San Bernardino counties – and beyond.

In order to estimate trade-related job creation, we treat the entire five-county Southern California region as a single trade corridor and analyze it accordingly. It makes sense to treat the trade corridor as a regional entity—and the proposed TCIF projects collectively—because goods-movement-generating activities and jobs *and the economic impact they generate* take place at many different locations in Southern California. To discuss the job creation of any single element of the corridor provides at best an incomplete picture. The real value of any one network component must include the regional economic growth underpinned by the operations of the entire network. Two analogies suggest the nature of the problem. First, think of the trade corridor as a hose, with several kinks that hinder the water flow. Straightening out one or two kinks will not improve flow rates; all must be aligned properly to permit maximum water flow through the hose. Similarly, one cannot use the value of any single course—say, a required sophomore economics class—to estimate the value of a university degree.

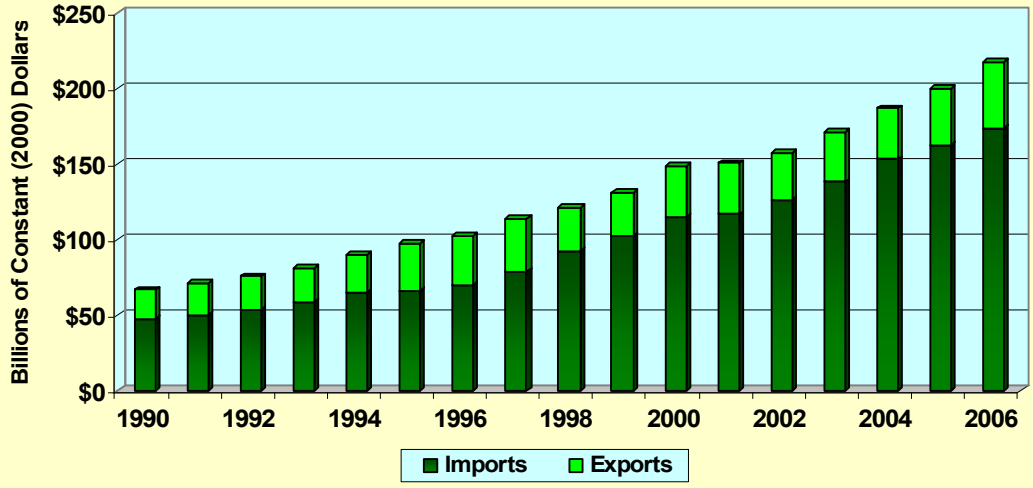
Thus, we estimate the economic potential of Southern California trade corridor projects by examining the growth in trade (and trade-related employment) that it will help make possible. Specifically, we measure and forecast trade-related goods movement employment at businesses in three different industry sectors. Transportation and logistics firms handle the actual movement of goods from point to point within the network. Wholesale firms process, store and distribute goods throughout the region. [In this report, the LAEDC focuses on wholesalers dealing in the import/export trade rather than those distributing domestically produced goods.] Finally, manufacturers and related firms produce goods destined for export to other nations. The workers and firms in these three sectors sustain further employment when they purchase goods and services in the local economy.

The LAEDC's employment forecasts start with the assumption that container traffic in Southern California will rise to 42.5 million TEU by 2030.[1] The Southern California consensus group has determined that the 42 Tier 1 and 11 Tier 2 projects selected for TCIF applications collectively comprise a crucial step in preparing the region's trade infrastructure for the forecast growth. To reach the region's trade potential – and realize the projected employment growth – these necessary initial projects will need to be followed by further capacity, efficiency, and environmental improvements, including substantial private sector investment.

Trends in International Trade and Employment—History

In this section, we document the growth in international trade since 1990, representing goods that were carried on the region's highways and rail lines on their way to or from the Los Angeles area ports. We also estimate the growth of employment in *foreign-trade-related* industries since 1990. Then we apply relationships observed during the historical period to forecast the number of trade-related jobs out to 2030.

Figure 1
Los Angeles Customs District Ocean Trade, 1990-2006

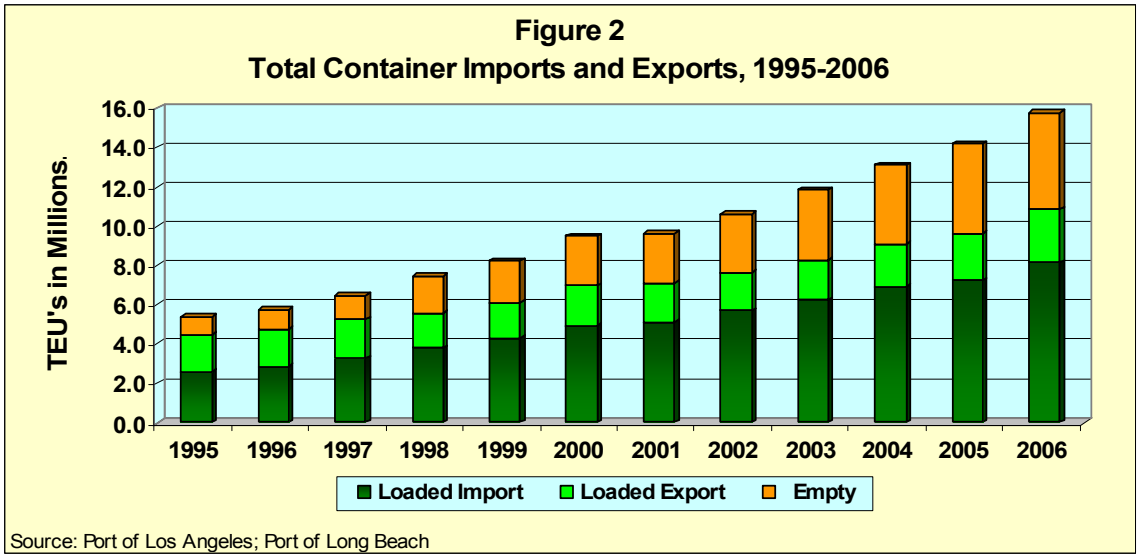


Source: US Census Bureau; BEA; LAEDC

Figure 1 highlights the value of goods imported and exported by vessel through the Los Angeles Customs District (LACD), which includes the ports of Los Angeles, Long Beach and Hueneme. The real value of imports (expressed in constant (year 2000) dollars) moving into the U.S. through the LACD was $47.47 billion in 1990.[2] Another $17.48 billion of goods was exported via one of the three LACD ports, bringing total real trade value to $66.95 billion in 1990. Real import value grew by 266% over the next sixteen years, while export values increased by "only" 122%. By 2006, the value of imports had soared to $173.73 billion, and the value of exports to $43.40 billion, bringing total real trade value to $217.03 billion, 3.2 *times* as large as the total value in 1990.

[1] The 42.5 million TEU estimate is a "constrained" forecast – the unconstrained demand is higher. If the actual trade flows are larger in 2030, the job creation will be higher, too.

[2] Nominal dollar trade valuations were provided by the U.S. Census Bureau. To eliminate the impact of changing prices, the LAEDC converted the nominal dollar values to constant-dollar valuations using export and import deflators from the U.S. Bureau of Economic Analysis.



Many of the products involved in international trade through the LACD arrive and depart in shipping containers. Figure 2 depicts the remarkable growth of containers handled at the ports of Los Angeles and Long Beach over the past eleven years. In 1995, the two ports handled a total of 5.40 million twenty-foot equivalent containers (TEU), of which 48% were loaded containers for import, 34% were loaded containers for export, and 17% were empty boxes, mostly being returned abroad to be reused.

By 2006, the total number of containers handled by the two ports had nearly tripled to 15.76 million TEU, an increase of 192% over the eleven-year time span. Loaded import containers increased by 212%, while loaded export boxes grew by 46%. Empties grew by a whopping 427%, as China and other Asian nations became more important sources of US imported goods, absorbing a growing share of the world's empty containers. In 2006, import containers represented 52% of the total and export boxes 17%, while empty containers accounted for the remaining 31%.

Figures 1 and 2 demonstrate that international trade has been a key growth industry in the five-county Los Angeles since 1990. How many jobs are tied to this economic driver? The LAEDC performed a careful analysis of official government employment data to estimate the number of people working in jobs directly related to the flows of goods traveling between the U.S. and the rest of the world via the three Southern California ports, rail lines and highways.

Table 4 Trade-Related Employment—Five-County Region		
Industry	NAICS	Direct Jobs
Rail Transportation	482	6,400
Water Transportation	483	3,000
Truck Transportation	484	45,400
Transportation Support Activities	488	53,500
Warehousing & Storage	493	36,000
Wholesale Trade	42	115,600
Total Employment		259,800

Source: LAEDC

Table 4 presents LAEDC's 2006 employment estimates for the port-trade-related industry sectors—transportation, logistics, and wholesale trade. Almost 260,000 people hold trade-related jobs in these industries, either as employees or as independent contractors.[3] Wholesale trade is the single largest sector, with 115,600 workers, about 45% of the total. Import/export firms are classified in this industry.[4] Another 14% (nearly 36,000 people) work in public warehouses and storage facilities. Transportation support activities employ approximately 53,500 workers, almost 21% of the trade-related total. This category includes firms involved in port operations, cargo handling, and transportation arrangements as well as support for rail and trucking industries. The LAEDC estimates that more than 45,300 people hold foreign-trade related jobs in the truck transportation industry, 17% of total trade-related jobs.[5] Finally, there are fewer than 10,000 people in the five-county area working for firms in water transportation (e.g., the ocean shipping companies) and rail transportation.[6]

[3] To create the industry-level estimates, the LAEDC made use of two data sources. The Labor Market Information Division of the California Employment Development Department is the primary source of the employee related information. The U.S. Census Bureau supplied county-level statistics on the number of "nonemployer firms" in various industries.

[4] These figures reflect employment in the wholesale trade industries that LAEDC identified as mainly involved in the import/export business versus serving the regional L.A. market. These sectors are: motor vehicles & parts, electric goods, apparel, furniture, hardware, toys and industrial supplies.

[5] To get to the trade-related jobs, the LAEDC excluded those working for "local" trucking firms. This means our estimate is conservative, as we believe a number of these workers are involved in port drayage carrying containers to warehouses and rail yards in the local area.

[6] The LMID does not provide complete data for railroad employment. The LAEDC instead used data on the number of active rail employees from the U.S. Railroad Retirement Board, adjusting their figures downward to eliminate passenger rail employees.

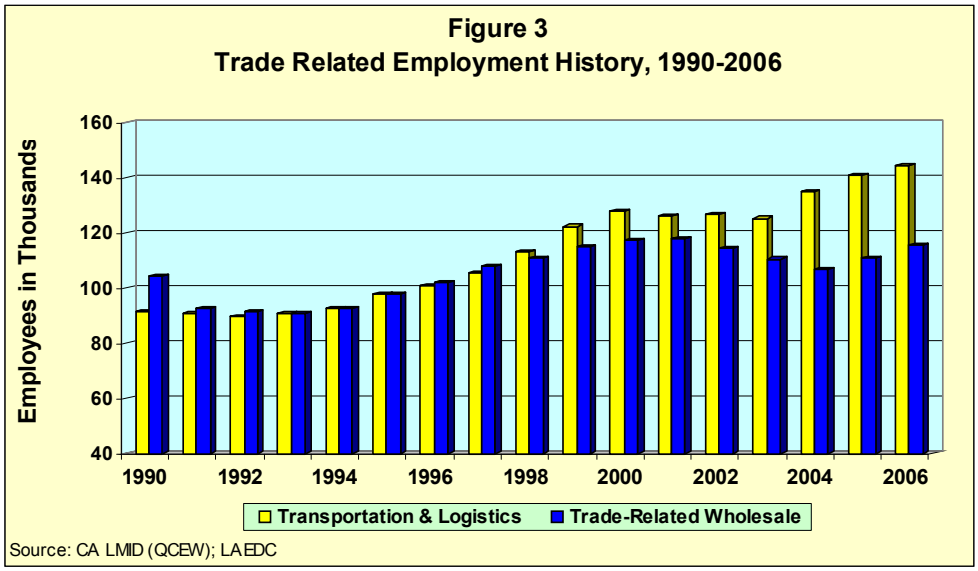


Figure 3 displays the LAEDC's employment estimates of trade-related employment in the five-county Los Angeles region. Total employment is split between transportation and logistics jobs and wholesale trade jobs. There were 91,400 trade-related transportation and logistics (T&L) workers in 1990. Trade-related wholesale firms employed another 104,300 workers, bringing total trade-related employment to 195,700 jobs in 1990. T&L employment grew by 58% over the next sixteen years, while wholesale trade increased by only 11%. By 2006, T&L employment had grown to 144,200 jobs and wholesale trade employment to 115,600 jobs, bringing total trade related job counts to 259,800, an increase of 33% over the total in 1990.

To summarize the LAEDC's analysis and put all three series in the same time frame, total real trade value soared by an enormous 122% between 1995 and 2006, while total containers handled by the ports increased by 192%. Over the same period, total trade-related job counts grew by 33%, more slowly than either measure of trade volume.

Figure 4 on the next page displays an important trend in the transportation and logistics (T&L) industries. Productivity in these industries, measured as total containers divided by the number of transportation and logistics employees, has increased sharply over the past eleven years. The T&L industries handled 55.2 containers per employee in 1995. By 2006, T&L productivity had increased to 109.3 containers per employee, almost twice as high.

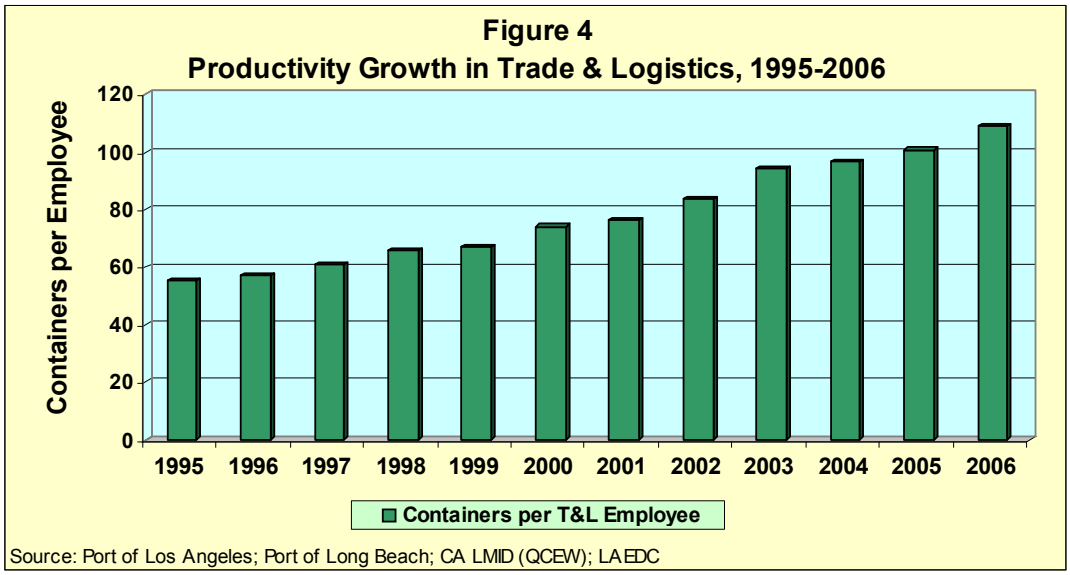


Table 5 builds on Table 4's estimates of the direct jobs involved in transportation, logistics, and wholesale trade (TLW), which are shown in the first column. All of these activities generate an economic impact in the form of indirect jobs and earnings for firms that supply goods and services to the TLW businesses and that sell consumer goods and services to the workers in the TLW industries. Total employment (i.e., direct plus indirect workers) is shown in the second column of Table 5. Nearly 260,000 TLW jobs support 598,000 jobs in the five-county Southern California region.

Table 5
2006 Trade-Related Employment—Five-County Region

Industry	NAICS	Direct Jobs	Total Jobs
Rail Transportation	482	6,400	22,000
Water Transportation	483	3,000	23,000
Truck Transportation	484	45,400	107,000
Transportation Support Activities	488	53,500	103,000
Warehousing & Storage	493	36,000	60,000
Wholesale Trade	42	115,600	283,000
Total TLW Employment		259,800	598,000
Total Export-Related Jobs			120,000
Grand Total Trade-Related Employment			718,000

Source: LAEDC; BST Associates

However, there are still more jobs in this region tied to foreign trade. Many firms in the five-county area export their wares through the ports of Los Angeles, Long Beach, and Hueneme. The LAEDC estimates that approximately 120,000 direct and indirect jobs in the five-county region are tied to exports through the L.A./Long Beach ports.[7] Thus, a grand total of 718,000 jobs were tied directly or indirectly to trade traffic flowing into and out of the ports in 2006.

[7] Based on work done by BST Associates, Trade Impact Study: Final Report (March 2007), prepared for the Port of Los Angeles, Port of Long Beach, and the Alameda Corridor Transportation Authority.

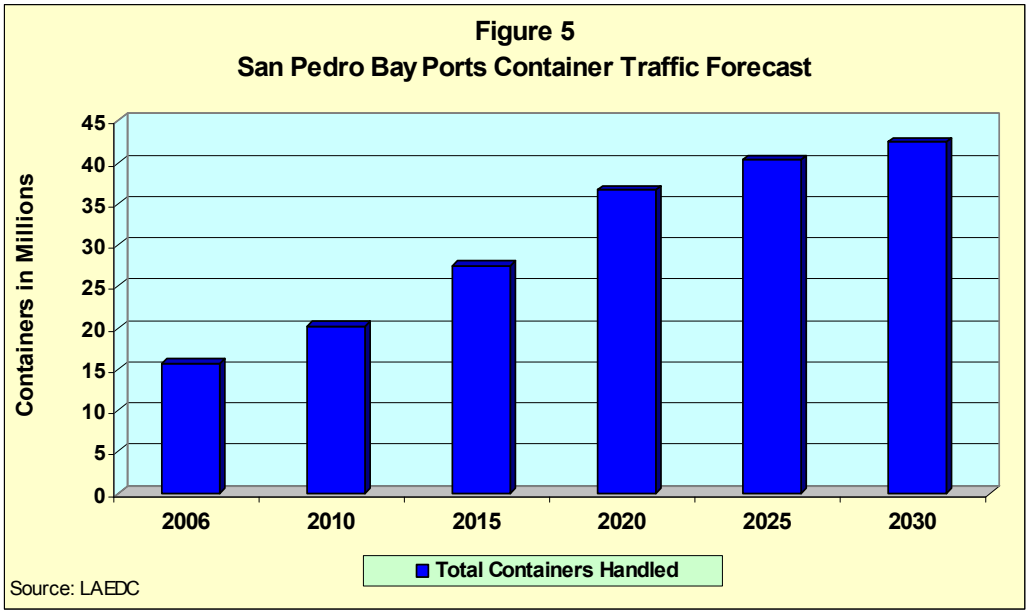
BST Associates recently estimated the total employment impact of foreign trade moving through the Ports of Los Angeles and Long Beach. Though they were obtained by a different methodology, the estimates presented in Table 5 above appear to be of a similar order of magnitude as the BST Associates' results.

- BST started with the dollar values of goods imported and exported through the two ports during 2005 and then used RIMS II final demand multipliers to estimate the indirect and total jobs in California associated with the trade flowing in each direction. They found there were approximately 743,000 import-related jobs statewide and another 143,000 jobs tied to exports, for a grand total of 886,000 direct and indirect jobs tied to trade flowing through the ports during 2005.
- BST did not calculate the number of trade-related jobs in any particular part of California but they did provide dollar-value estimates of import originations and export destinations by Congressional and state Assembly district. If we assume the trade-related jobs were distributed across districts in proportion to the dollar trade flows, well more than 80% of the statewide employment impact of trade through the ports occurs in the Southern California region.
- The LAEDC started with the number of trade-related jobs in the five-county region in the transportation & logistics and wholesale industries. We then used RIMS II direct effects multipliers to estimate the number of indirect and total import-related jobs in Southern California. The LAEDC found there were about 598,000 import-related jobs in the five-county region. To this we added 120,000 export-related jobs (based on the BST Associates' analysis of the State's export mix), for a grand total of 718,000 trade-related jobs in the region.
- The LAEDC results are somewhat lower than the BST findings, as expected. After all, BST covered the state and LAEDC only the five-county area. Another difference is that the LAEDC methodology by design *excluded* the jobs of retail employees selling goods imported through the ports. These jobs are *included* in the BST statewide figures.

The LAEDC used the 2006 employment estimates as the basis for our projections to 2030, which are presented in the next section.

Trends in International Trade and Employment—Forecast

The LAEDC's forecast of trade-related employment in the five-county Southern California region reflects the growth patterns and relationships between trade volumes and trade jobs documented in the previous section and builds on the transportation agencies' consensus container forecast, which reaches 42.5 million TEU by 2030.



The container forecast is displayed in Figure 5. If it comes to pass, the number of containers handled by the region's ports, rail lines and highways will increase by a whopping 170% between 2006 and 2030. This implies a slowing in the average annual growth rate to 4.2%, from an average of 11.5% per year between 1995 and 2006.

How many new jobs will be created by trade volume growth of this magnitude? In Table 6 on the next page are the LAEDC's forecasts of trade-related direct employment in the transportation and logistics (T&L) industries and in trade-related wholesale trade. The T&L projection assumes continued improvements in labor productivity. Wholesale trade jobs are forecast to grow slowly—by less than 1.0% per year—in line with historical experience. The LAEDC projects export-trade-related employment will grow by about 1.0% per year on average.[8] We added the number of indirect trade-related jobs to arrive at the grand totals shown in Table 6. By 2030, more than 1,000,000 jobs in all will be tied to imports and exports moving through the Southern California region. This represents an increase of 318,000, or 44%, from the 2006 total of 718,000 jobs. The workers in 2030 will earn a total of $53 billion in wages and salaries compared to $37 billion in 2006. (All figures expressed in constant 2007 dollars.)

[8] This is much slower than expected growth in real trade volumes but takes into account the rapid improvement expected in productivity in the manufacture-for-export sector. [A key comparative advantage for successful US exporters is strong and increasing productivity.]

Table 6 Forecast: Trade-Related Jobs & Earnings						
Year	Container Traffic (000s)	Import-Related Jobs		Export-Related Total Jobs	Grand Total Trade-Related Jobs	Trade Related Total Earnings ($millions)
		Direct	Total			
2006	15,760	260,000	598,000	120,000	718,000	37,000
2010	20,300	286,000	657,000	125,000	782,000	40,000
2015	27,600	322,000	741,000	131,000	872,000	45,000
2020	36,700	360,000	829,000	138,000	967,000	49,000
2025	40,300	376,000	864,000	145,000	1,009,000	52,000
2030	42,500	384,000	884,000	152,000	1,036,000	53,000

*Note: Dollar values expressed in constant (2007) dollars
Source: LAEDC; BST Associates

A considerable amount of tax revenue is associated with the jobs tied to foreign trade flowing through Southern California. As shown in Table 7, the LAEDC estimates that about $2.3 billion was paid 2006 to state and local governments during in the form of personal income taxes and sales taxes. Of this amount, the state garnered nearly $2.1 million, while city and county governments and transportation authorities received approximately $180 million. These sums are projected to grow considerably. In 2030, the state should collect more than $3.0 billion in sales and personal income taxes associated with trade-related jobs in Southern California, with local governments and transportation authorities gathering in nearly $260 million. (All figures expressed in constant 2007 dollars.)

Table 7 Trade Related Employment & Tax Revenue ($millions)*		
	2006	2030
State Taxes	$2,090	$3,020
Local Taxes	$180	$260
Total Taxes	$2,270	$3,280

*Note: Dollar values expressed in constant (2007) dollars
Source: LAEDC

Summary

Table 8 summarizes the LAEDC projections of trade volumes and trade-related employment in the Southern California trade corridor. The forecasts are based on conservative but realistic assumptions. Most important, the container forecast is constrained to 42.5 million TEU. The growth projected—at 169% over the 24-year period, or 4.2% per year on average—is well below recent experience (11.5% annual growth between 1995 and 2006), even allowing for the slowdown during 2007-2008.

Table 8
Employment Impact of International Trade Growth

	2006	2030	Change 2006-2030	
			#	%
Containers Handled (millions TEU)	15,760	42,500	26,700	169%
Direct Transportation, Logistics & Wholesale Jobs	260,000	384,000	124,000	48%
Total Transportation, Logistics & Wholesale Jobs	598,000	884,000	286,000	48%
Total Export-Related Jobs	120,000	152,000	32,000	27%
Grand Total Trade-Related Jobs	718,000	1,036,000	318,000	44%

Sources: LAEDC; BST Associates

Total direct and indirect trade-related employment is projected to increase by 44%, or 1.6% per year on average. The LAEDC analyzed separately job growth in the different trade-related sectors to arrive at these figures, as discussed below.

- The transportation and logistics employment forecast assumes that rising productivity will continue to absorb some of the growth in containers. Mostly, we expect job counts to rise in trucking and in cargo handling jobs at/near the ports. T&L employment is projected to rise by 2.4% annually.
- Wholesale trade employment is projected to increase modestly—by 0.5% per year—in line with the 1990-2006 experience.
- Export related employment is forecast to grow by 1.0% per year. While export volumes will grow significantly—by 6% per year or more—rising productivity in export-oriented manufacturing and agriculture (in the 5.0%/year range) will absorb most of the projected growth in exports.
- Indirect trade-related employment growth will reflect growth in the direct jobs.

Despite the conservative assumptions underlying the LAEDC's forecast, the five-county Southern California region could have more than one million people in total working in jobs related to trade-related goods movement in 2030. However, many things have to go right to get there. Building the proposed TCIF projects is but a necessary first step on a longer journey.

III. SOUTHERN CALIFORNIA TRADE FLOWS IN CONTEXT

In 2006, the Port of Los Angeles (8.5 million TEU) and Port of Long Beach (7.3 million TEU) were the 1st and 2nd busiest container ports in the country; they were the 10th and 12th busiest container ports in the world.[9] From the perspective of Southern California trade infrastructure and statewide job creation, it makes sense to treat the San Pedro Bay ports as a single unit. Together, they were the 5th busiest container port in the world in 2006 with a combined 15.8 million TEU, trailing only Singapore (24.8 million TEU), Hong Kong (23.2), Shanghai (21.7), and Shenzhen (18.5). The Port of New York/New Jersey (5.1 million TEU) was the next busiest U.S. container port, ranking 18th in the world.

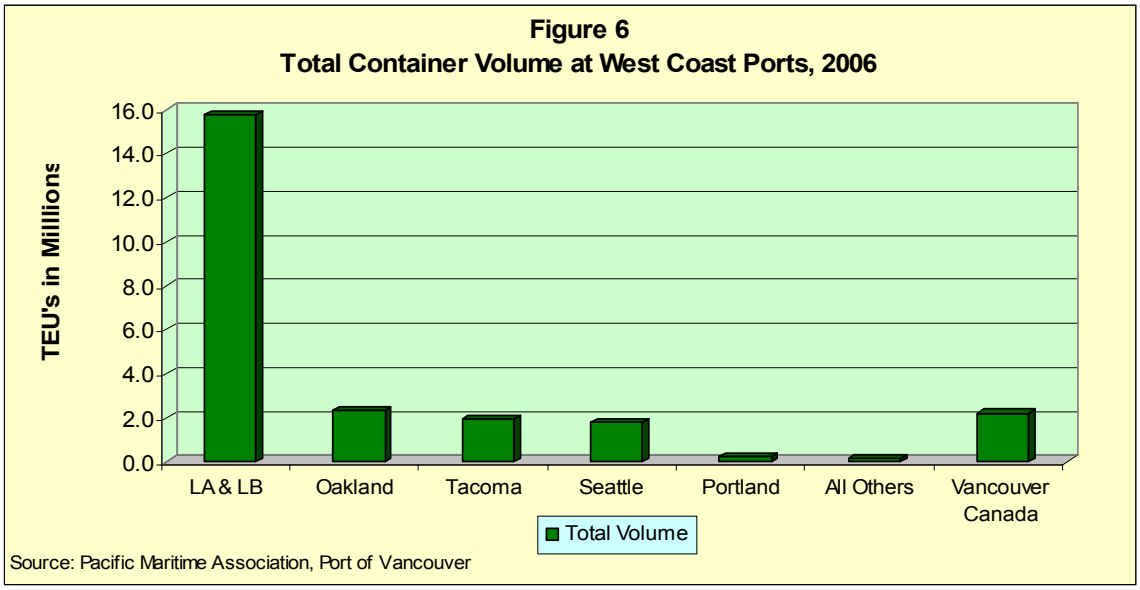


Figure 6 compares the container traffic at Los Angeles and Long Beach with the rest of the ports on the West Coast, including Vancouver, Canada. Los Angeles and Long Beach moved more than 6 times the number of containers handled by the next busiest ports on the West Coast, Oakland (2.4 million TEU, 41st in the world) and Vancouver (2.2 million TEU, 44th in the world). Tacoma and Seattle, with slightly fewer than 2 million TEU each, were the only other significant container ports by volume on the West Coast.

Los Angeles and Long Beach dominate container traffic on the West Coast because of the strong regional demand in the metro area and their own massive investments in capacity. The demand is twofold. First, there are the purchases of the people who live in the region. The population of Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties exceeds 18 million people, more than the entire state of Florida, the nation's fourth most populous state. Add in San Diego County, which despite a port of its own relies on LA & LB for container traffic, and the regional population is greater than New York, the nation's third most populous state. And the rapidly growing population centers in Nevada and Arizona are less than a day's drive away.

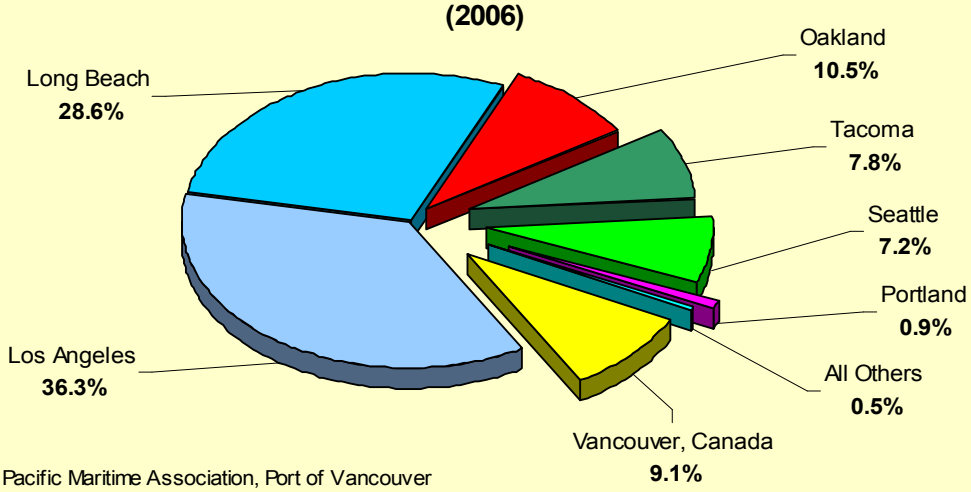
This vast, comparatively affluent market is a magnet for imported goods. It is also a surprising source of exports: waste paper and scrap metal are two of the largest exports

[9] Container port rankings and annual TEU from "The JoC Top 50 World Container Ports," *Journal of Commerce*, July 30, 2007.

through the San Pedro Bay ports. Second, the Southern California area is home to one of the largest manufacturing centers in the country. Manufacturers import component products used in the manufacturing process and are also a source of exports.

The other big driver of container traffic through Southern California is capacity. The scale of Southern California's infrastructure dwarfs the rest of the West Coast. The region's extensive freeway network plus massive investments in port capacity, on-dock rail, rail line capacity, grade separation projects and intermodal lift facilities underpin the region's ability to handle large trade flows. Moreover, in a mutually reinforcing relationship the volume of trade both supports and is supported by a network of logistic firms, freight forwarders, truckers, distribution centers, and other trade workers.

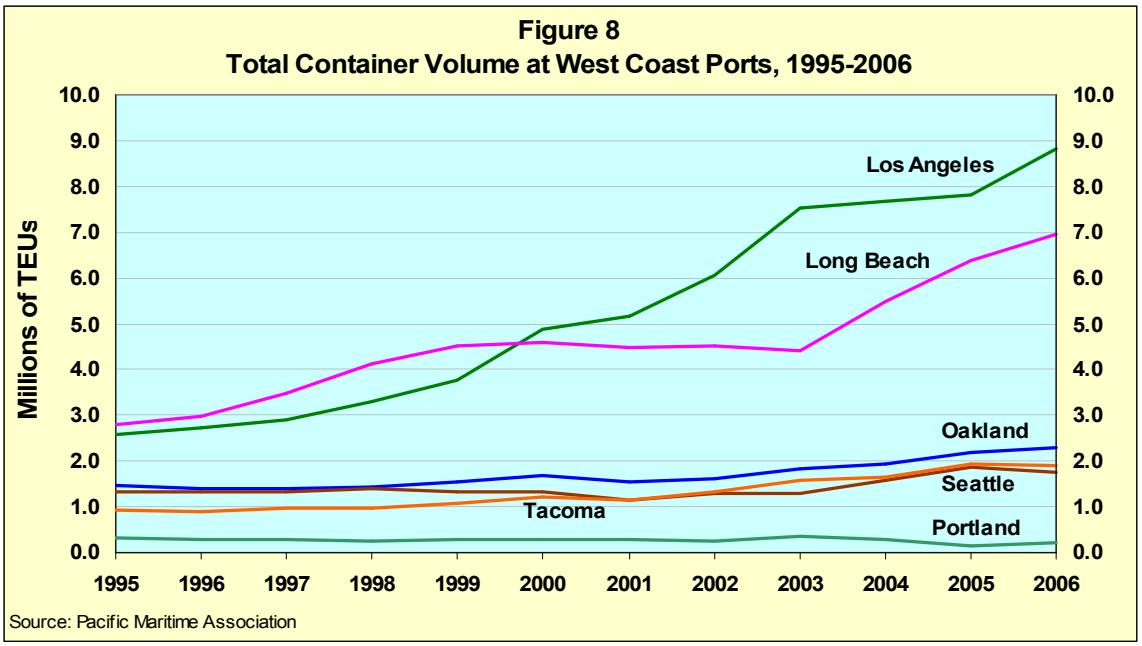
Figure 7
Share of All West Coast Container Traffic
(2006)



Source: Pacific Maritime Association, Port of Vancouver

Figure 7 shows the share of container traffic on the West Coast, including Vancouver, Canada. Los Angeles and Long Beach handle 64.9% of all container traffic on the West Coast; the Puget Sound ports (Seattle and Tacoma) handle 15.0%; Oakland handles 10.5%; and Vancouver handles 9.1%. Portland handles less than 1 percent of the container traffic. Combined, all other ports on the West Coast, including San Diego, handle less than 0.5 percent. [In just two days, more containers move through LA and LB, on average, than are handled in San Diego in a year.] Loaded import containers greatly outnumber loaded export containers at Los Angeles and Long Beach, but the general West Coast pattern holds for California exports by value. WISER trade data show the state exported $27.3 billion by vessel in 2006. The top five ports for California exports (by value) were Los Angeles and Long Beach (with about 54 percent of the total); Oakland (23%); Houston (9%); San Francisco (3%); and New York (2%). No other port moved more than 1 percent of California's waterborne exports by value.

Los Angeles and Long Beach have been the largest ports on the West Coast for many years. They have also been the fastest growing ports over the past decade, as shown in Figure 8.



From 1995 to 2006, container traffic increased by almost 3½ times at the Port of Los Angeles and about 2½ times at the Port of Long Beach. During the same period, container traffic at the Port of Tacoma doubled; the Port of Oakland grew by almost 60 percent; and the Port of Seattle container traffic increased by about one-third. [Vancouver, Canada (not shown) has seen rapid growth in container traffic in recent years, and was up by 25% in 2006.] Because of the sheer scale of the ports' operations, the growth in Southern California is truly remarkable. In just two years, 2004-2006, the increase in container traffic at Los Angeles and Long Beach was more than the total containers handled at Oakland in 2006.

Growth in container traffic stalled in 2007. The LAEDC anticipates an increase in exports in 2008, but overall container traffic will likely remain flat. Long-term, however, the LAEDC continues to expect activity at the Ports of Los Angeles and Long Beach to reach 42.5 million TEUs by 2030. Indeed, unconstrained forecasts (by the LAEDC and others) suggest demand exists for considerably more container traffic. Since trade-related employment growth is dependent on the increase in container throughput in Southern California, it is worth considering in detail some of the major elements and risks to the forecast.

Risks to the Forecast

Growth in container traffic stalled in 2007. The LAEDC anticipates an increase in exports in 2008, but overall container traffic will likely remain flat. Since trade-related employment growth is dependent on the increase in container throughput in Southern California, it is worth considering in detail some of the major risks to the forecast.

On the upside, the LAEDC continues to expect activity at the Ports of Los Angeles and Long Beach to reach 42.5 million TEU by 2030 despite the slowdown in 2007-2008. Indeed,

unconstrained forecasts (by the LAEDC and others) suggest demand exists for considerably more container traffic by then.

The most frequently cited downside risk to trade growth in Southern California is diversion – the idea that growth will slow as ships are sent instead to other, presumably less crowded ports. The LAEDC believes large-scale diversion away from Southern California ports is unlikely in the short term (5 years) but possible over the long term (10-20 years). Even in the long-term, however, significant investment would be required before large-scale diversion became possible.

Whether diversion makes sense depends on two key factors: demand in the local market and capacity at alternative ports. First, much of the cargo makes its first stop in Southern California. About half of the inbound containers hold goods that are destined for consumption (or use in processes that add value) relatively close to the ports. These containers are distributed and delivered by truck locally (23%) and regionally (25%). With so much of the cargo destined for businesses and consumers in Southern California and the surrounding region, it makes economic sense to channel the lion's share of vessels to Southern California ports. Seattle, for example, is a day's sailing closer to Asia, but has only a small fraction of Southern California's market. Thus, diverting ships to Seattle would just shift some of the associated truck traffic (and the attendant congestion and pollution) from the I-710 to the entire length of the I-5. Moreover, the Southern California economy is dominated by small and mid-sized firms. These firms account for much of the container traffic entering the region, and have little incentive to move their containers through other ports.

Second, there is insufficient capacity at alternative ports to accommodate large-scale diversion from Southern California. Indeed, trade between Asia and the U.S. will grow sufficiently over the next 25 years that there will be plenty of container traffic to go around. The LAEDC expects increases in container traffic at existing West Coast container ports and at new container facilities in Prince Rupert, Canada and Ensenada, Mexico. Also, there will be more all-water (direct) service to Gulf Coast and East Coast ports. All of these ports will face challenges, ranging from physical constraints (such as limited water depth dockside, congested freeways and rail capacity limits) to community opposition on environmental and quality-of-life grounds. In this context of constrained growth, there will be little excess capacity available to accommodate large-scale diversion. Moreover, Southern California already has invested billions of dollars and plans to invest much more in capacity improvements and environmental mitigation. In the future, the region will continue to have the greatest potential to absorb growth, as occurred in 2004-2006 when the ports of Los Angeles and Long Beach added container traffic that exceeded the entire 2006 throughput of the next largest port, Oakland.

The other major risk to the projected growth in trade and thus job creation in Southern California revolves around the planned capacity, efficiency and environmental improvements themselves. Failure to invest in a timely fashion will create twin risks. First, shippers will not tolerate long-term declines in timelines and reliability for moving goods through the region. With sufficient time and resources, they can and will invest in facilities elsewhere to handle some of the Southern California cargo that arrives by ship and leaves by rail. Second, the community will not tolerate long-term increases in traffic flows and worsening air quality and will block capacity and efficiency improvements unless the projects also provide congestion and air quality relief.