

Goods Movement in Southern California: How Can We Solve Problems and Generate New State Sales and Income Tax Revenues?

By Jack Kyser, Chief Economist, LAEDC

What's at Stake: Employment and Tax Revenue

The West Coast National Freight Gateway (WCNFG) is a goods movement program developed to invest \$10.5 billion in rail, highway and intermodal capacity improvements in Southern California. For the purposes of this white paper it will serve as a “straw man” model but is not the only solution to the goods movement challenge in our State.

As one of the nation's premier global gateways, Southern California connects the region, the state, and the rest of the country with the dynamic economies of Asia. The volume of trade flowing through our ports has surged in recent years and is expected to at least triple over the next twenty years, but only if we have adequate trade infrastructure capacity. We have a problem, however. Southern California is rapidly running out of trade infrastructure capacity. Intermodal rail yards will be close to capacity in 2006; and freight railways will see significant goods movement delays within five years. Highway congestion, already legendary, will only worsen. The solution is to deliver the needed capacity improvements to let the region's job base grow.

The WCNFG and programs like it must be designed with the mutually reinforcing goals of efficient goods movement and livable communities. Freight shares the region's rails and roads with people, so reducing freight congestion can help prevent or ease gridlock for commuters and others, too. In addition, reducing congestion lowers the emissions produced by both passenger and goods movement vehicles. These clear benefits are easily understood. Less well recognized, however, are the fiscal benefits that would accrue to the State of California as a result of investing in the goods movement program. Building the infrastructure improvements will create permanent jobs and tax revenue; and so will the greater trade flows made possible as the various projects in the program come on line.

The economic impact of a WCNFG construction program will be large.

The \$10.5 billion construction program will directly and indirectly support the equivalent of almost 208,000 full-time, year-long jobs for direct and indirect workers.¹ The direct workers hold the construction-related jobs (including everyone from engineers and surveyors to concrete truck drivers and welders) hired to build the infrastructure projects. The indirect workers are those people in jobs sustained by the purchases of the “direct” construction firms and the direct workers when they spend their salaries. The direct and indirect employment effects will be spread over a construction period that is assumed to last eleven years, 2005-2015.

The 208,000 direct and indirect workers will earn about \$8.3 billion during the construction period. They will pay state income taxes of \$348 million. The state share of the sales tax owed on their taxable purchases will be \$125 million. And the construction contractors and subcontractors will make taxable purchases worth another \$197 million in tax revenues for the state. The

¹ One job may represent twelve months of work for one person, six months of work for two people, four months of work for three people, or one month of work for twelve people. Similarly, one person who worked for four years on WCNFG projects would be counted as four “jobs”.

WCNFG straw man program, therefore, will generate for the state *at least* \$669 million in state income and sales taxes on economic activity related to construction alone. Additional state taxes, such as those levied on corporate profits earned on economic activity related to the construction period will further increase state revenues.

The table on this page illustrates the likely annual fiscal and employment impact of WCNFG construction. The figures assume that 5 percent of total program spending occurs in the first year (2005); 10 percent in 2006; 15 percent per year in 2007-2010; 10 percent in 2011; 5 percent per year in 2012-2013; and 2.5 percent per year in 2014-2015.

Fiscal and Employment Impact of WCNFG Construction (Millions of Dollars and Number of Jobs)				
Year	Spending	Employment	CA Income Taxes	Sales Taxes (State Share)
2005	\$525	10,000	\$17	\$16
2006	\$1,050	21,000	\$35	\$32
2007	\$1,575	31,000	\$52	\$48
2008	\$1,575	31,000	\$52	\$48
2009	\$1,575	31,000	\$52	\$48
2010	\$1,575	31,000	\$52	\$48
2011	\$1,050	21,000	\$35	\$32
2012	\$525	10,000	\$17	\$16
2013	\$525	10,000	\$17	\$16
2014	\$263	5,000	\$9	\$8
2015	\$263	5,000	\$9	\$8
Total*	\$10,500	208,000	\$348	\$322

*May not sum due to rounding.

For simplicity, all dollars are reported on a current year basis (using 2003 wage levels), not year-of-expenditure or year-of-receipt, an approach which omits the effect of inflation. The exact annual flow of state revenue will depend on the share of total construction underway each year. A shorter construction period would increase the annual return and a longer one would decrease it, but in both cases the total revenue accruing to the state would remain about the same.

Many trade-dependent jobs are at risk.

International trade sustains hundreds of thousands of jobs in Southern California. The number of trade-related jobs has been growing along with the increase in trade volumes. Yet, with the regional infrastructure nearing capacity, continued growth in these jobs – which frequently pay well – is threatened. Here we estimate the potential number of additional jobs at risk and the state tax revenues foregone if Southern California’s trade infrastructure capacity is not increased to accommodate the projected demand.

What’s at stake?

Southern California has been adding trade jobs at about the same rate as growth in the value of international trade moving through the L.A. Customs District. In the past 25 years, the inflation-adjusted value of international trade has increased 3.6 times, while the number of direct trade jobs has grown 2.6 times. Looking just at the 14 years since 1990, trade value has increased 1.56 times and trade-related jobs have increased 1.55 times. Going forward, this relationship suggests that a

doubling in trade value would roughly double the number of direct trade jobs; if trade triples, so would the number of direct trade jobs.

Burgeoning trade with Asia, particularly China, could easily result in a tripling in the value of trade moving through the Ports of Long Beach and Los Angeles by 2035. Yet, the capacity of existing trade infrastructure will not support that much additional traffic. At best, the region's current ports, freeways, railroads, and intermodal rail yards could only be stretched to allow trade volumes to double. Thus, unless something is done, current capacity constraints will restrict trade-related employment to at most doubling rather than tripling.

Failure to build the transportation infrastructure to accommodate expected growth in international trade, therefore, would be a tragic and monumental missed opportunity. **If trade-related employment doubles when it could have tripled, the region will have foregone job creation equivalent to the entire trade-dependent workforce in 2003.** The jobs at stake are described in the next section.

Trade-related employment of 550,000 is at risk.

The infrastructure targeted for improvement under the WCNFG straw man program sustains hundreds of thousands of direct trade jobs. This group includes workers from all or part of numerous industries: rail transportation, water transportation, truck transportation, transportation support activities (such as freight forwarding and logistics), trade finance, customs brokerage, warehousing and storage, and wholesale trade. In 2003, there were approximately 250,000 direct workers in these industries in Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties.

The direct trade workers sustain additional indirect workers when they spend their salaries. The LAEDC used direct effects multipliers from the Regional Input-Output Modeling System (RIMS II) developed by the U.S. Department of Commerce, Bureau of Economic Analysis, to estimate the additional jobs supported by the 250,000 direct trade workers. Region-wide, these direct trade jobs sustain a further 300,000 indirect jobs, for a total of roughly 550,000 jobs dependent on the region's port, rail, intermodal, and highway trade infrastructure. These 550,000 workers generate state income and sales taxes of \$1.27 billion per year. Thus, if Southern California's trade-related job growth is limited to doubling instead of tripling by capacity constraints, the state will have missed out on the creation of more than half a million jobs and \$1.27 billion in annual state revenue.

Trade-related state tax revenue of \$17 billion is at risk.

In one scenario, Southern California does nothing to improve trade infrastructure capacity. The region is feeling the capacity pinch on the rail lines extra slots disappear sometime between now and 2010. Congestion on the region's freeway system will worsen due to regional population and trips growth, even without any increase in freight volumes; growing international trade will further exacerbate the problem. Trade-related jobs will continue to be added as firms throughout the goods movement industry adjust their operations to handle the growing volume of trade using existing infrastructure. Trade and trade-related jobs will double (at most) in this scenario, leveling off sometime after 2010 as capacity constraints and increased congestion inevitably choke off growth.

Alternatively, Southern California could invest in greater infrastructure capacity. In addition to easing congestion for non-trade-related transportation and reducing air pollution, adding new capacity could allow the region to triple rather than just double its trade-related job base. The extra job growth would begin almost immediately as trade-related firms take actions to handle the larger volumes that can be accommodated under this scenario. Employment builds gradually with increases in the value of international trade moving through Southern California. In this scenario, the region would double its trade-related jobs sooner than in the no-build alternative, and then continue to add jobs instead of stalling out.

The difference between the two scenarios represents opportunity for the region and the state. It also represents what may be lost if nothing is done. The table below shows the total number of potential new trade-related jobs (direct and indirect) plus the related state income and sales taxes at risk if additional trade capacity is not added. For each year beginning in 2008, the table shows the cumulative jobs at risk as well as the taxes those jobs would have generated that year. The cumulative total builds in a smooth progression until it is equal to the difference between the two scenarios: a doubling versus a tripling of trade-related employment. The actual year-to-year variation in jobs at risk likely would be more uneven than presented here. Note that the impacts are based on current dollars, and have not been adjusted for inflation.

Fiscal and Employment Costs of Capacity Constraints on International Trade Growth in Southern California				
	Cumulative	Annual Revenue Forgone (millions)		
Year	Net Jobs Forgone	CA Income Taxes	Sales Taxes (State Share)	Total*
2008	16,000	\$27	\$10	\$37
2009	32,000	\$55	\$20	\$75
2010	49,000	\$83	\$30	\$113
2011	65,000	\$112	\$40	\$152
2012	82,000	\$141	\$50	\$191
2013	99,000	\$170	\$61	\$231
2014	117,000	\$200	\$72	\$271
2015	134,000	\$230	\$82	\$312
2016	152,000	\$260	\$93	\$354
2017	171,000	\$292	\$105	\$396
2018	189,000	\$323	\$116	\$439
2019	208,000	\$355	\$127	\$482
2020	227,000	\$388	\$139	\$527
2021	246,000	\$421	\$151	\$571

Over the next thirty years, Southern California could miss out on the opportunity to create 547,000 more trade-dependent jobs (including direct and indirect employment). The impact would build gradually. By 2035, workers in the missed jobs would have paid \$936 million (in today's dollars) in state income taxes annually. Their taxable spending would have generated sales taxes, the state share of which would have been \$336 million per year. Thus, by 2035 the state will be foregoing at least \$1.27 billion per year. The cumulative impact on the state's revenues over three decades is enormous: \$12.7 billion in lost state income taxes and \$4.5 billion of sales taxes for the state. The total sales tax revenues missed would be higher still, since hundreds of millions in sales taxes that are returned to local jurisdictions is not included here.

Fiscal and Employment Costs of Capacity Constraints on International Trade Growth in Southern California (continued)				
	Cumulative	Annual Revenue Forgone (millions)		
Year	Net Jobs Forgone	CA Income Taxes	Sales Taxes (State Share)	Total*
2022	266,000	\$454	\$163	\$617
2023	285,000	\$488	\$175	\$663
2024	305,000	\$522	\$187	\$710
2028	389,000	\$665	\$239	\$903
2029	411,000	\$702	\$252	\$954
2030	433,000	\$740	\$265	\$1,005
2031	455,000	\$778	\$279	\$1,056
2032	477,000	\$816	\$293	\$1,110
2033	500,000	\$855	\$307	\$1,160
2034	524,000	\$895	\$321	\$1,220
2035	547,000	\$936	\$336	\$1,270
Total	547,000	\$12,683	\$4,549	\$17,230

*May not sum due to rounding.

Actual results could be even better (or even worse if we do nothing).

The contribution from trade-dependent job growth seems enormous, yet if anything, this is probably an underestimate. At all stages, our assumptions used to determine the potential jobs growth – those at risk without additional capacity – have been conservative. We have assumed for example that trade through the Southern California ports has the potential to triple over the next 30 years, suggesting a compound annual growth rate of 3.2 percent. Overall, the U.S. potential economic growth rate is similar, based on population growth and expected improvements in labor productivity. California is growing faster than the U.S. as a whole, however, and international trade is growing faster than the domestic economy. Since 1980, the value of trade moving through the L.A. Customs District has grown at an average compound annual growth rate of 5.3 percent. Since 1990, trade value has averaged 3.5 percent growth per year.

China has greatly increased its manufacturing capacity and is continuing to do so; China has joined the WTO; and apparel tariffs and quotas have been removed, which will likely shift still more production to China. India is also looking at its manufacturing potential. These and other trade trends all point to an acceleration of trade growth in the coming years, well above our conservative assumption. Thus, we have almost certainly underestimated the risk of doing nothing.

We’ve probably also understated the problems related to doing nothing. We’ve assumed that current infrastructure could be stretched to allow for a doubling in trade value (and jobs) without substantial investment in new capacity. In practice, however, capacity constraints and community complaints about the impacts of unmitigated growth would almost certainly cut off the jobs growth at much lower levels. Residents of nearby communities complain today about the volume of truck traffic on the I-710; imagine how they would feel if congestion on the freeway between 8AM and 5PM continued unabated around the clock. If anything, there are more jobs – and greater tax revenue for the state – at risk than our estimate suggests.

This estimate of what’s at stake is also low because it focuses on international trade, which ignores the related risks to the domestic side of the economy. Capacity on the freeways and rail system is

not, of course, just dedicated to international trade. Domestic cargo moves to and from Southern California on the same rail system and uses the same intermodal rail yards as international cargo. And international cargo competes for space on the freeways with local, regional, and national goods *and* all of the people moving around the region. If the burgeoning level of international trade further restricts mobility in already severely congested Southern California and chokes off potential domestic activity, the number of jobs – and state revenue – at risk would be far larger. The projection of threatened jobs is not just a hypothetical exercise. International trade will continue to grow in California and the United States and the jobs will be created. The only question is where. In the long-term, trade can, and will, be diverted. The diversion of container ships away from the Ports of Los Angeles and Long Beach during 2004 to avoid the backlog at the ports marked the beginning of potential job losses for Southern California.

The threat for Southern California, and thus the state, is threefold.

First, jobs that could have been created in California will go elsewhere on the West Coast (Mexico, Portland, Tacoma, Seattle, and Vancouver, Canada), elsewhere in the U.S. (Gulf ports such as Houston and even ports on the East Coast.), or will simply not be created at all. [Diversion is really only possible at the margins: the Los Angeles and Long Beach ports dwarf the rest of the West Coast ports.

Second, trade diverted from Southern California will shift congestion rather than reduce it. Southern California has 17 million people (20 million if San Diego is included) and our population is growing rapidly. Many goods are shipped here because the biggest market is here. If goods are shipped through other West Coast ports (or Houston for that matter), they will still have to be transported by truck or rail to Southern California. The congestion and pollution will simply be shifted from Southern California exclusively to the I-5 and other major corridors through the rest of the state.

Third and most important, Southern California is the logical place to improve infrastructure capacity. Only Southern California can handle the largest new ships; the region's trade capacity – while strained – is orders of magnitude larger than the alternatives. *Just the annual increase* in container traffic at the Ports of Los Angeles and Long Beach in 2003 was equivalent to more than 80 percent of the entire annual container traffic handled by the Port of Oakland. Going forward, Southern California will see an increase in international trade related goods movement even if all of the other ports on the West Coast double their capacity. Fortunately for the state, building capacity improvements in Southern California will hasten the job creation, and increase the long-term cumulative benefit to the state, including congestion relief and reduced air pollution.

Conclusion: In total, a program like the WCNFG could generate 750,000 jobs and \$18 billion in state taxes over the next 30 years.

The \$10.5 billion infrastructure investment program in new capacity for goods movement will generate major economic, environmental and congestion relief benefits for Southern California. The program is anticipated to create 208,000 construction-related (direct and indirect) jobs, resulting in at least \$669 million of net new state income and sales tax revenues. Permanent trade-related direct employment is projected to grow by 250,000 workers more than under the baseline case, with an additional 300,000 indirect jobs being created. Together, these new positions are forecast to ultimately generate \$1.27 billion *annually* in new state income and sales tax revenues. Over 30 years (2005-2035), the combined net new state revenues from both construction and trade-related jobs are conservatively estimated to exceed \$17.9 billion. The following table summarizes these combined effects.

**Fiscal and Employment Costs of
Capacity Constraints on International Trade Growth in Southern California
(Number of Jobs and Millions of Dollars)**

Year	Potential Construction-Related Jobs	Forgone Trade-Related Jobs	Forgone CA Income Taxes	Forgone Sales Taxes (State Share)	Forgone CA Tax Total*
2005	10,000		\$17	\$16	\$33
2006	21,000		\$35	\$32	\$67
2007	31,000		\$52	\$48	\$100
2008	31,000	16,000	\$79	\$58	\$137
2009	31,000	32,000	\$107	\$68	\$175
2010	31,000	49,000	\$135	\$78	\$213
2011	21,000	65,000	\$146	\$72	\$219
2012	10,000	82,000	\$158	\$66	\$224
2013	10,000	99,000	\$187	\$77	\$264
2014	5,000	117,000	\$208	\$80	\$288
2015	5,000	134,000	\$238	\$90	\$329
2016		152,000	\$260	\$93	\$354
2017		171,000	\$292	\$105	\$396
2018		189,000	\$323	\$116	\$439
2019		208,000	\$355	\$127	\$482
2020		227,000	\$388	\$139	\$527
2021		246,000	\$421	\$151	\$571
2022		266,000	\$454	\$163	\$617
2023		285,000	\$488	\$175	\$663
2024		305,000	\$522	\$187	\$710
2025		326,000	\$557	\$200	\$757
2026		347,000	\$593	\$213	\$805
2027		368,000	\$629	\$225	\$854
2028		389,000	\$665	\$239	\$904
2029		411,000	\$702	\$252	\$954
2030		433,000	\$740	\$265	\$1,005
2031		455,000	\$778	\$279	\$1,057
2032		477,000	\$816	\$293	\$1,109
2033		500,000	\$855	\$307	\$1,162
2034		524,000	\$895	\$321	\$1,216
2035		547,000	\$936	\$336	\$1,271
Total*	208,000	547,000	\$13,031	\$4,870	\$17,901

*May not sum due to rounding.