



REGIONAL *analyst*

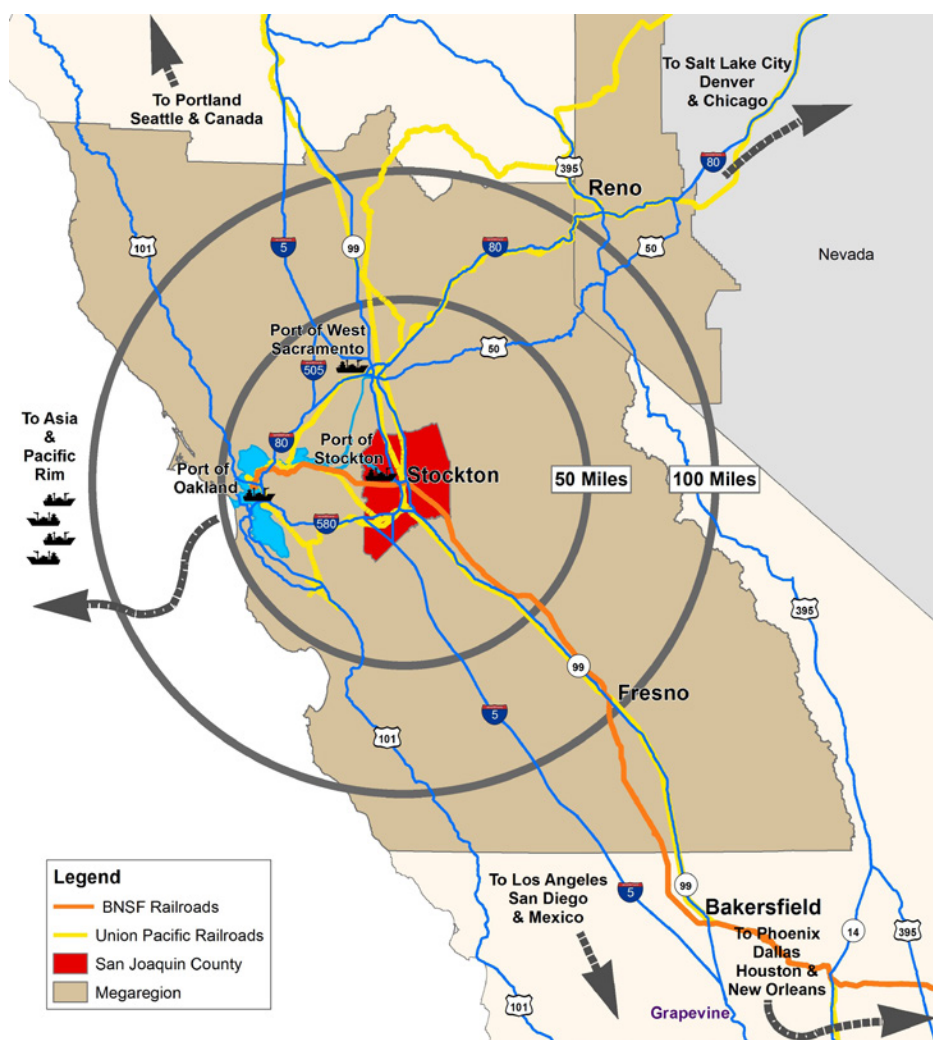
JULY 2013

San Joaquin County's Goods Movement System

In San Joaquin County, goods movement has been an important economic activity since the Gold Rush. After a period of relative stability, the goods movement system has re-emerged over the past two decades to join agriculture as a major economic base for the county. Despite challenging economic conditions that have affected goods movement nationally, the San Joaquin County goods movement system has performed strongly during recent years. Several large projects have and will continue to develop San Joaquin County's goods movement infrastructure, and new employers such as the Amazon fulfillment center in Tracy are attracted by the county's logistical advantages.

This Regional Analyst looks at the goods movement system in two parts. The first section examines the transportation infrastructure and its utilization, and the second section examines employment trends and patterns in the goods movement system.

Figure 1: San Joaquin County's Centrality to the Northern California Megaregion



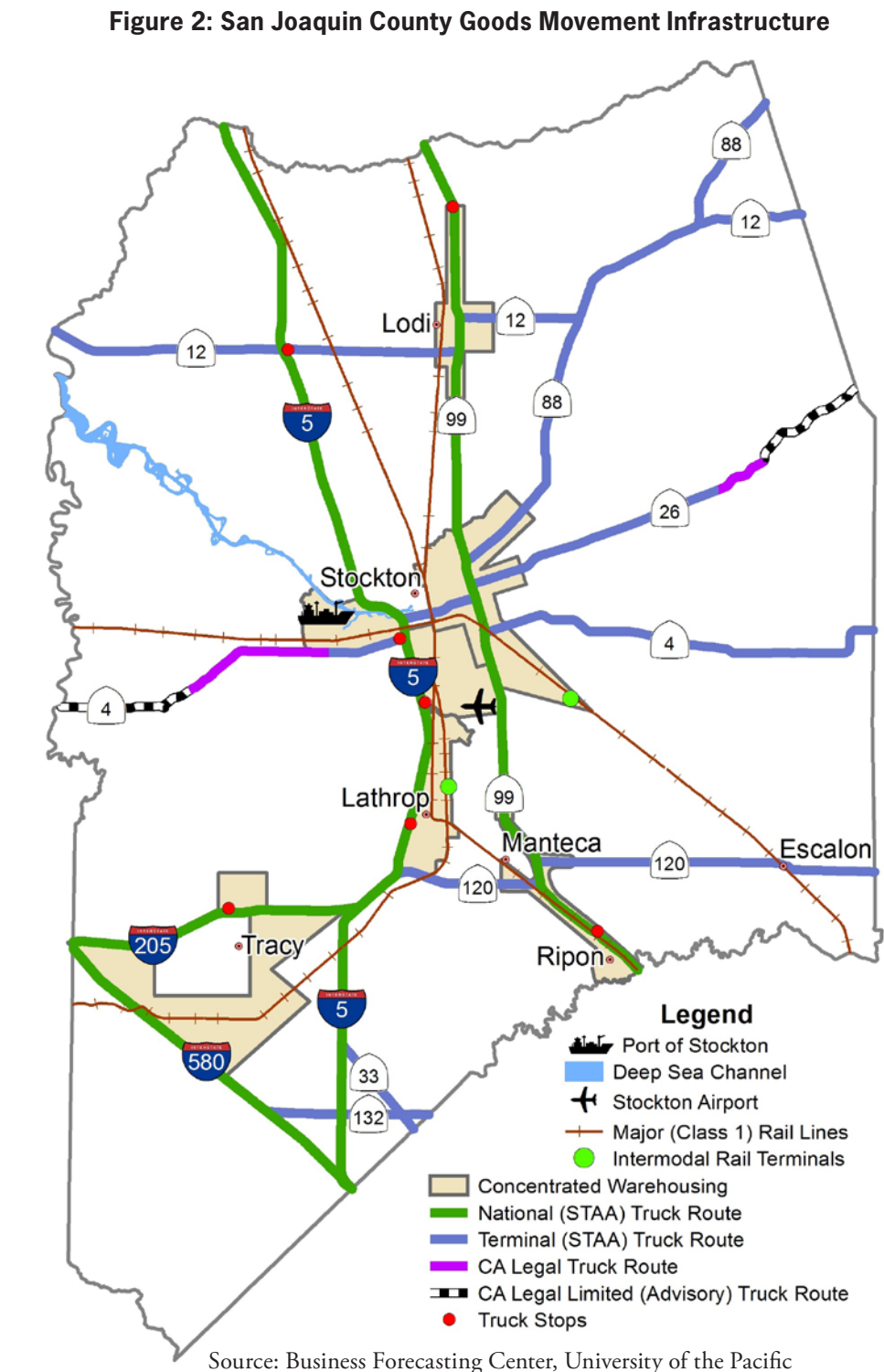
SECTION ONE: Transportation Infrastructure and its Utilization

San Joaquin County is a hub for activities relating to transport, logistics, and goods distribution across the northern California megaregion and the rest of California as well as nationally and internationally. Leveraging historic capabilities and resource complementarities, the county's goods movement system enjoys efficiencies across most modes of transport: road, water, rail, and air. The county has primary rail, highway, and marine transportation arteries in the northern California megaregion; an area with a population of over 14.5 million and a gross regional product of over \$800 billion.

Road

San Joaquin County's highway infrastructure forms the backbone of its goods movement system. California's primary north-south highways, Interstate 5 and Highway 99, converge in the county and are connected by Highway 4 in Stockton and Highway 120 in Manteca. Interstate 205 and 580 similarly provide a major transportation corridor to Oakland and the San Francisco Bay Area.

As shown in Figure 3, truck traffic in the county is concentrated along the Interstate 5 (I-5) and Highway 99 (CA-99) north-south corridors. I-5 between Tracy and Lathrop averages 40,000 trucks per day, by far the most truck traffic in the county. North of Lathrop up through Stockton, the I-5 averages between 25,000 and 30,000 trucks per day. CA-99 follows a comparable pattern with traffic at its greatest, around 11,000 average trucks per day, in the region from Stockton south to the Stanislaus County line. The I-205 & I-580 corridors are also principal areas of truck traffic in the county, with average daily truck traffic



around 12,000 and 5,000 on these routes respectively.

Water

The Port of Stockton is 72 nautical miles due east of the Golden Gate Bridge on the Stockton Deep-water Shipping Channel. The port's operations span 2,000 acres including 11,000 lineal feet of waterside docking

with shipside rail, 1.1 million square feet of dockside transit sheds, and 7.7 million square feet of warehousing. It is categorized as one of the principal ports of the United States by the U.S. Army Corps of Engineers. In the past decade, the port's commodity tonnage has averaged nearly 2.5 million annually of which more

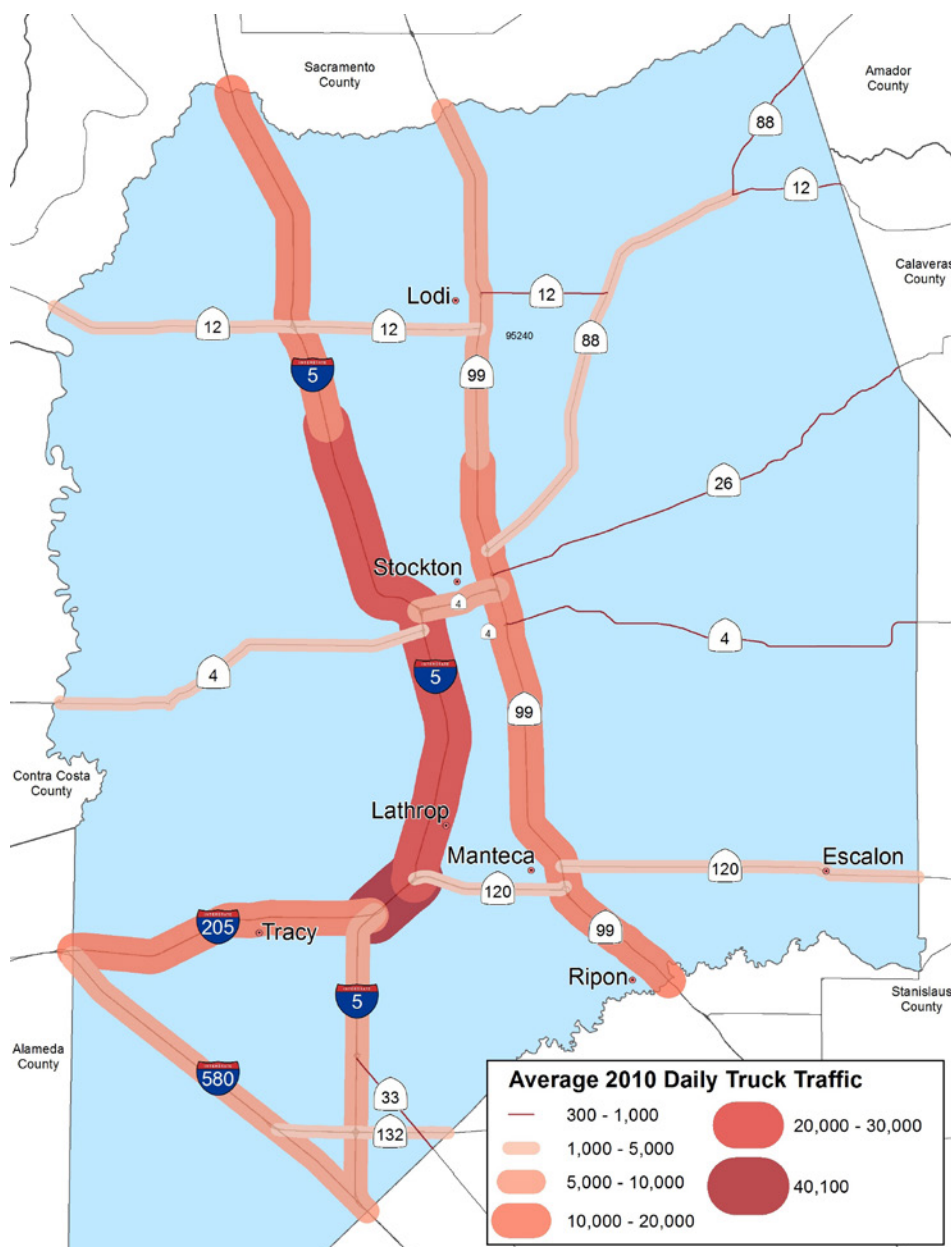
**BNSF's Stockton
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only 12 such facilities in
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than 95% was in overseas trade.¹ The Census Bureau's Harmonized System Port data shows the total real (2012) value of international goods through the port has risen steadily from \$227 million in 2003 to \$1.07 billion in 2011. While both imports and exports have grown, exports (in particular sulfur and iron ore) have been significant in the port's recent growth. This is illustrated by the fact that in 2006 the volume of imports was 15 times that of exports, but by 2011 exports exceeded imports by 1.4 times.

In the past year, the Port of Stockton has opened the M-580 Marine Highway which barges marine shipping containers between Stockton and the Port of Oakland. This project should reduce truck traffic along the I-205/580/880 corridors between Oakland and Stockton and enhance efficiency of container traffic movement across the northern California megaregion. The port's rail, road, and warehouse infrastructure make it a regionally important multi-modal goods movement center. County funds, along with recent state highway funding, will enable the expansion of the CA-4 crosstown

1 Source: USACE US Waterway Data. U.S. Army Corps of Engineers. Available www.navigationdatacenter.us/data/datapor.htm

Figure 3: County-Wide Annual Average Daily Truck Traffic



Source: Caltrans traffic volume data. Traffic Data Branch.

freeway past an adjoining residential neighborhood and further enhance the Port's multi-modal interconnectivity.

Rail

San Joaquin County is a confluence of two national (Class-1) rail lines, the Burlington Northern Santa Fe (BNSF) and Union Pacific Railroad (UPRR). As seen in Figure 4, within the county each railroad has a road-to-rail intermodal containerized freight terminal. BNSF's Stockton and UPRR's Lathrop intermodal freight transfer terminals are two of only

12 such facilities in California and two of only three inland facilities in the Central Valley. With intermodal containers forecast to become nearly two-thirds of all freight rail traffic by 2040,² these facilities represent critical infrastructure for the county's entire goods movement system. The CenterPoint Properties' proposed logistics center adjacent to the UPRR intermodal terminal is an example. With up to 3.1 million square feet of warehousing and distribution space, the facility could strengthen the

2 Draft CA State Rail Plan, February 2013

county's supply chain networks and expand local value-added services. In addition to this nationally integrated rail infrastructure, the county has two short line railroads: the Central California Traction Company and the Stockton Terminal & Eastern, which provide rail freight services to the county across approximately 100 miles of rail.

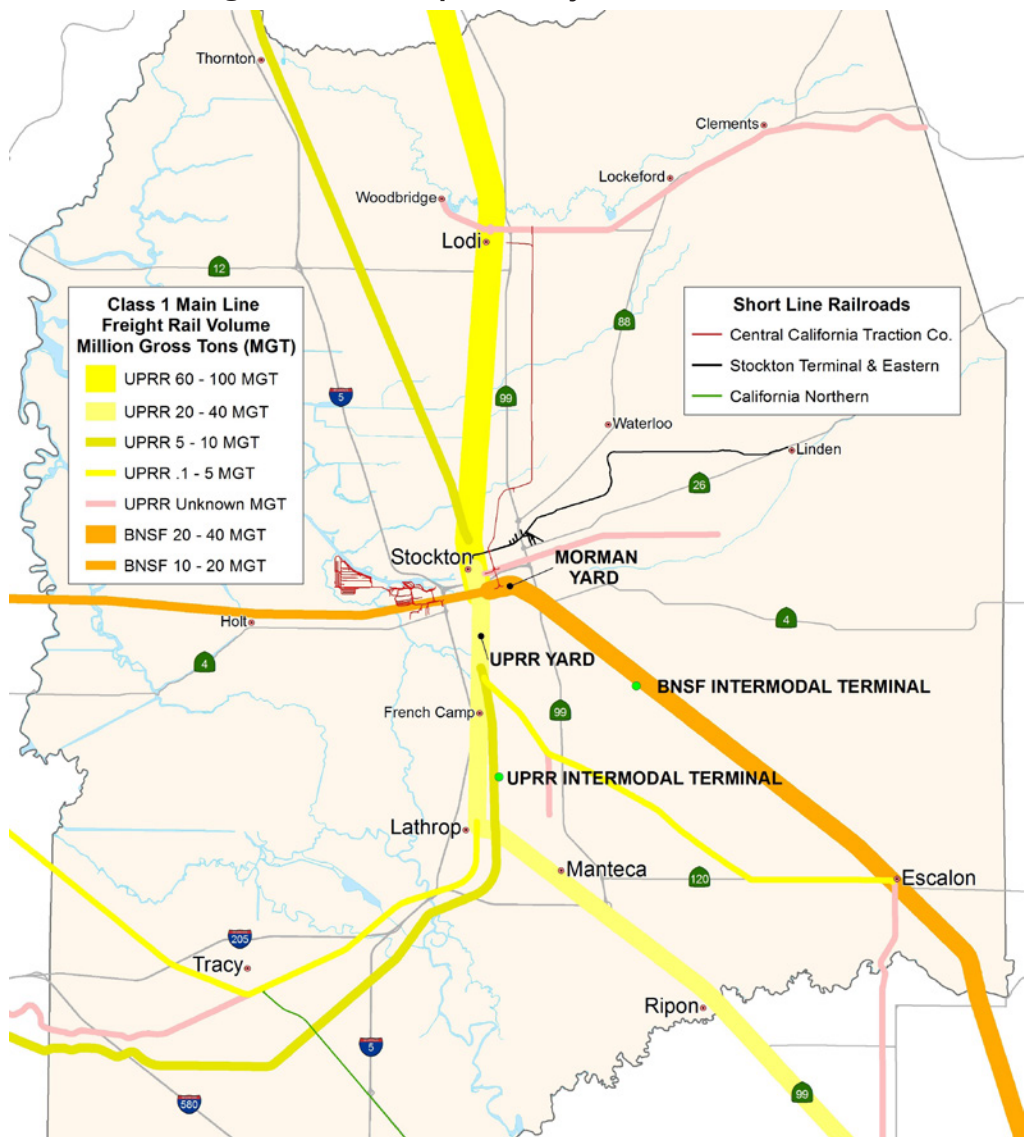
Air

Air freight services in the county are primarily served by the Stockton Metropolitan Airport. It can accommodate large jet transports via a 10,680-foot primary instrument runway and a 4,458-foot general aviation runway. Currently, air freight is a small component in the county's goods movement system, but increasing overseas exports of perishable agricultural products from the Central Valley is a market the county is well positioned for given its extensive multi-modal transport infrastructure. Building on these locational advantages the county is extending a primary access road north of the airport between I-5 and CA-99, which will facilitate access to the airport and surrounding warehouses and distribution centers. Complementing multi-modal interconnectivity in other modes of transport, the Airpark 599 master-planned business park has over 1 million square feet of air cargo facilities planned with direct runway access to the Stockton Metropolitan Airport.

SECTION TWO: Businesses and Employment in Goods Movement

With nearly 3,000 more jobs than in 2001, county-wide transportation and warehousing employment was 19,200 in 2011. The robustness of the county's goods movement industries is evident in Figure 5. Goods movement employment held steady in the county

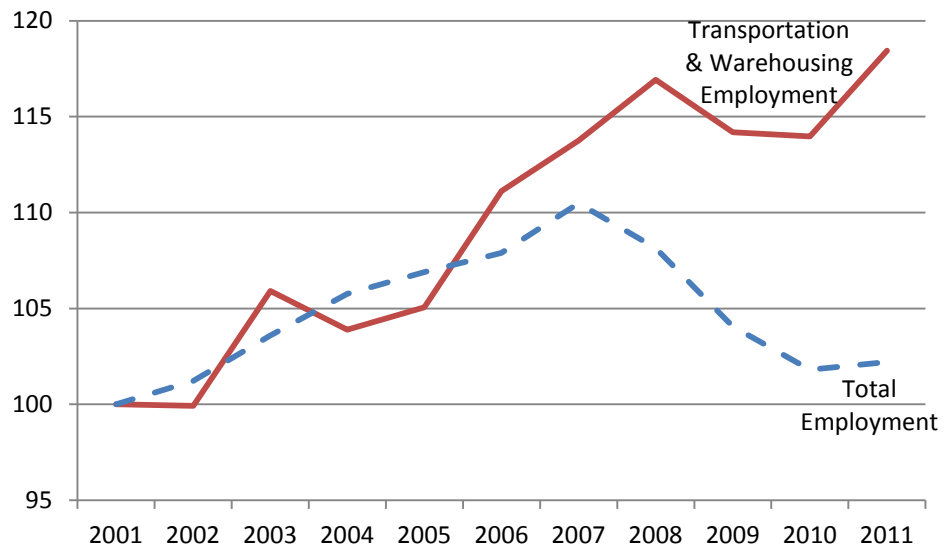
Figure 4: San Joaquin County Rail Infrastructure



Source: Business Forecasting Center, University of the Pacific

*Gross Ton-Miles from *Draft CA State Rail Plan, February 2013, Exhibit 6.7*

Figure 5: Index (2001=100) of County-wide Employment



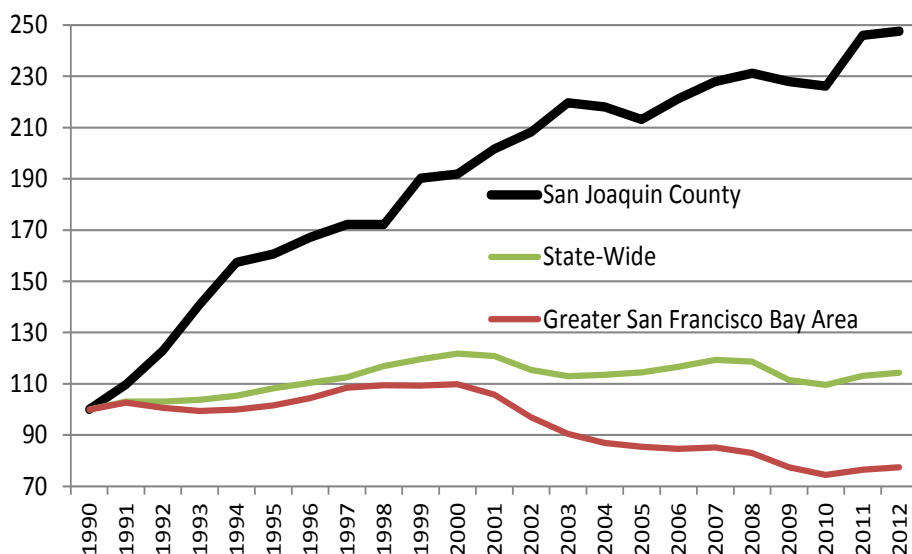
Source: U.S. Bureau of Economic Analysis Local Area Employment database

during the Great Recession, even as overall employment declined sharply and goods movement employment declined around the nation as the economy slowed. Self-employment accounts for about a quarter of these jobs, which is higher than the rate for the county as a whole and seemingly linked to independent trucking operators.

Since 2010, goods movement employment has started to grow rapidly again. Monthly employment data from California's Employment Development Department (EDD) indicates that transportation and warehousing employment in San Joaquin County has increased by 16.3% in the period from May 2010 to May 2013. In comparison, county-wide nonfarm employment during the same period increased by 4.4%.

As seen in Figure 6, this remarkable recent growth is consistent with longer term employment dynamics. The county's expansion is in marked contrast to the relatively static state-wide experience and especially divergent from that of the nearby Bay Area, where 2013 employment was down by nearly a quarter of its 1990 levels. Despite the high-level of sectoral aggregation, these broad trends suggest that there may be an

Figure 6: Index (1990=100) of Transportation, Warehousing and Utilities Employment



Source: California EDD Industrial Employment database

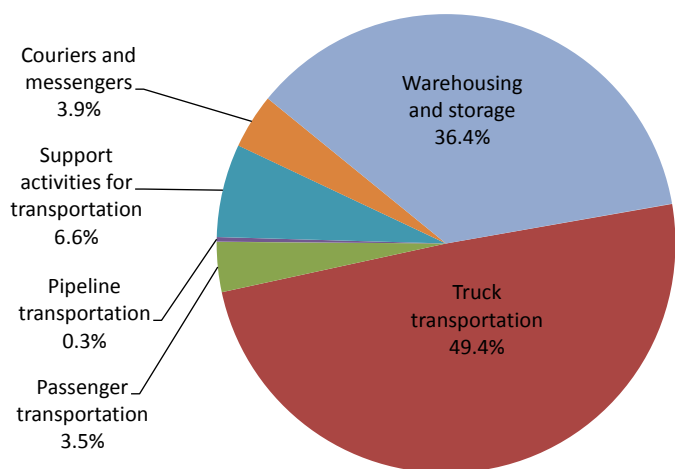
intra-regional migration of goods movement activity to San Joaquin County.

Transportation and warehousing directly accounted for 7.1% of all private nonfarm employment in the county during the past decade (2002 to 2011), roughly double the rate in the U.S. and California where transportation and warehousing accounted for 3.8% and 3.4% of employment. Dividing the county's share by the nation's and the state's we obtain ratios of 1.9 and 2.1 respectively.

This ratio is known as a **Location Quotient (LQ)**, and is a common way to identify specialization in a local economy. In San Joaquin County, the LQ_{USA} for transportation and warehousing has risen steadily in the past decade from 1.7 in 2001 to 2.1 in 2011. This suggests the increasing importance of goods movement to the county's economy.

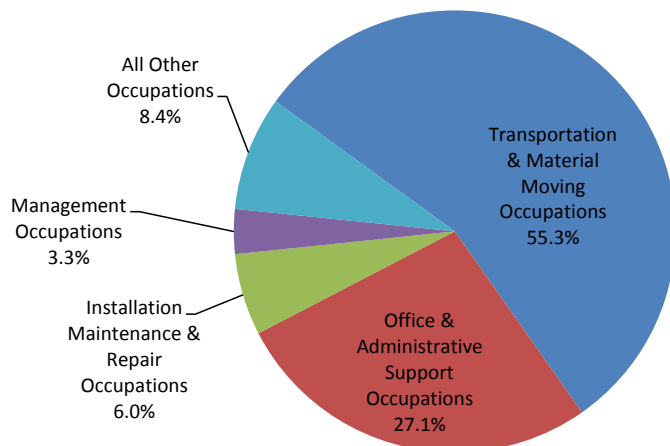
As shown in Figure 7, trucking is about half of all transportation and warehousing employment.

Figure 7: County's Transportation and Warehousing Sectoral Composition in 2011



Source: U.S. Census Bureau's County Business Patterns database

Figure 8: Occupations in the Transportation & Warehousing Sector Nationally, May 2012*



Source: U.S. Bureau of Labor Statistics Occupational Employment Statistics database.
* Sectoral Employment by Occupation is not available at the county-level.

Table 1: Composition of Goods Movement Jobs by Industry Nationally, May 2012*

Occupation/Sector	Transportation & Warehousing	Wholesale Trade	Retail Trade	Manufacturing	Admin. Services	All Other Industries	Total
Heavy Truck Drivers	58.4%	12.5%	2.9%	8.2%	5.1%	12.8%	100%
Light Truck/Delivery Services Drivers	31.6%	19.0%	22.0%	6.7%	4.3%	16.5%	100%
Industrial Truck and Tractor Operators	23.8%	16.1%	10.1%	32.5%	10.2%	7.3%	100%
Laborers & Freight Movers	22.2%	17.4%	14.8%	12.7%	21.0%	12.0%	100%
Packers and Packagers	9.2%	12.6%	27.6%	27.3%	18.6%	4.7%	100%
All Transportation and Material Moving Occupations	31.6%	12.8%	11.7%	11.3%	10.0%	22.6%	100%

Source: U.S. Bureau of Labor Statistics Occupational Employment Statistics database.

* Occupational employment by industry is not available at the county-level.

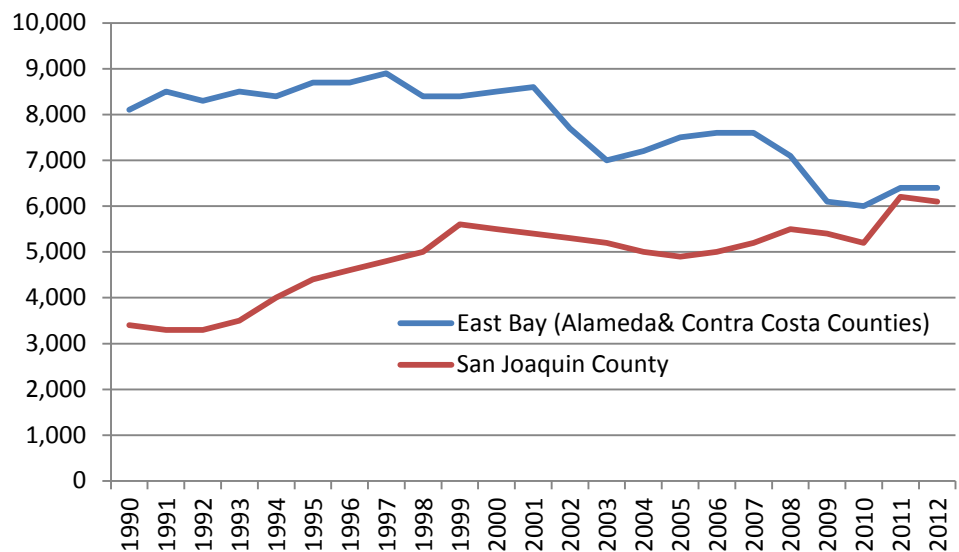
Table 2: County-wide Goods Movement Employment by Occupation

Occupation:	2005	2006	2007	2008	2009	2010	2011	2012
Heavy Truck Drivers	4,240	4,690	5,310	5,670	5,140	5,300	5,170	5,770
Light Truck/Delivery Services Drivers	2,090	1,920	1,680	1,570	1,640	1,670	1,420	1,440
Industrial Truck and Tractor Operators	2,620	2,510	2,420	2,640	3,040	3,110	2,670	2,360
Laborers & Freight Movers	5,240	5,130	5,760	5,990	5,910	5,480	5,630	5,370
Packers and Packagers	2,730	3,010	2,610	3,020	2,170	1,470	1,560	1,790
Other Transportation & Material Moving Occupations	5,710	5,900	5,610	6,070	5,140	4,860	5,040	5,860
All Transportation and Material Moving Occupations	22,630	23,160	23,390	24,960	23,040	21,890	21,490	22,590

Source: U.S. Bureau of Labor Statistics Occupational Employment Statistics database

Warehousing and storage is also an important component with 36% of all jobs in the sector in 2011, and support activities account for 7% of jobs. Some small transportation sectors not associated with the goods movement system make up about 5% of transportation and warehousing employment in the county.

Jobs in the transportation and warehousing sector are not limited to just goods movement occupations such as driving trucks and packing and moving freight; Figure 8 shows that nationally more than 30% of jobs in the transportation and warehousing sector are management, office, and administrative support. Similarly, many goods movement jobs exist within industries that maintain some internal goods movement capacity such as manufacturing, wholesale and retail trade. For example, Table 1 shows that far more packers and packagers are employed in the retail and manufacturing sectors than the

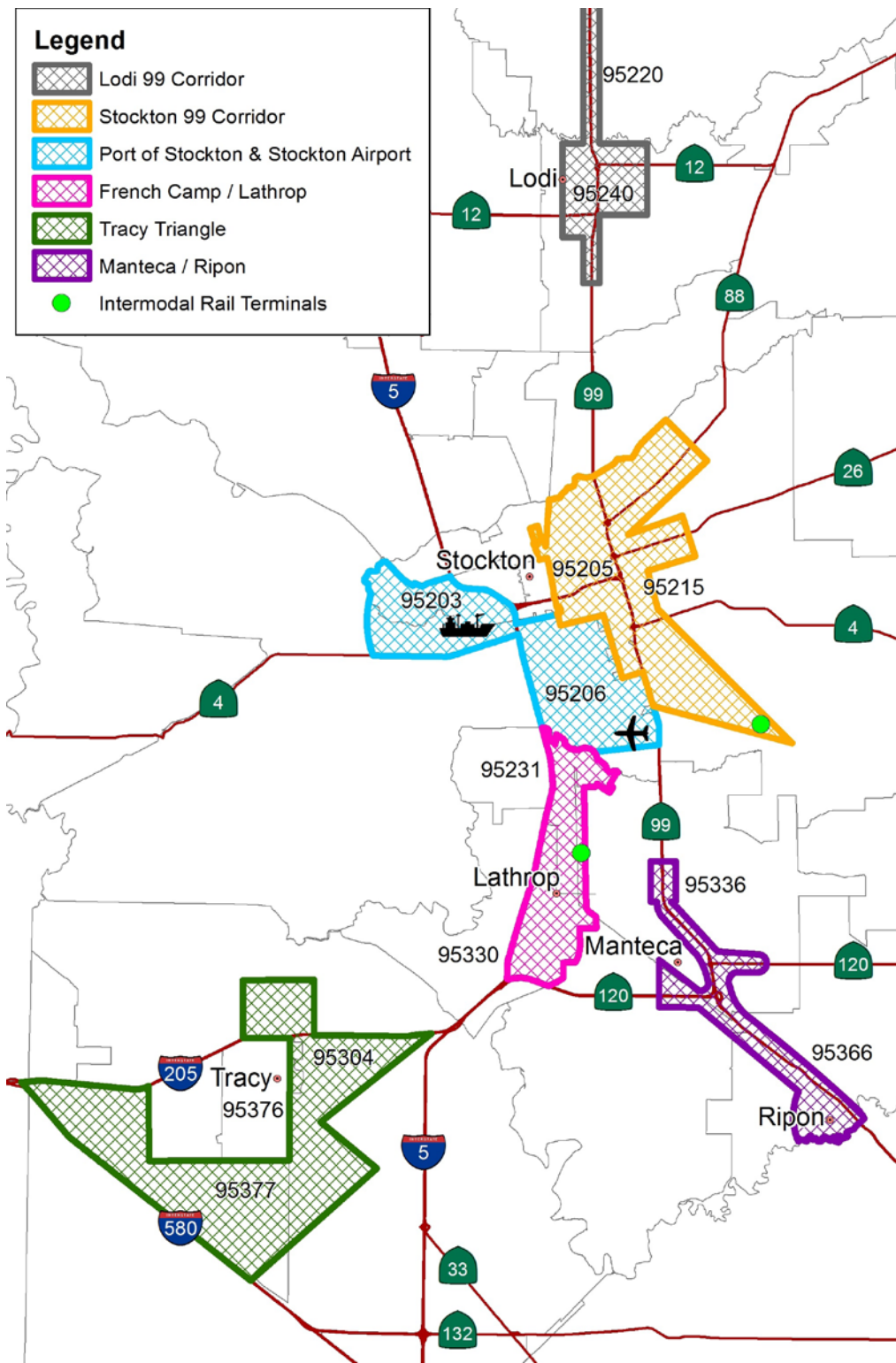
Figure 9: Contrasting Trends in the Truck Transportation Sector Employment

Source: California EDD Industrial Employment database

transportation and warehousing sector. County-wide data focused on occupations, rather than industry, captures these jobs and allows for another look at the composition of goods movement employment.

Occupational indicators presented in Table 2 do not include the self-employed, but nonetheless provide a useful overview of the distribution of goods movement jobs. The most robust growth among these occupations was that of truck drivers,

Figure 10: Goods Movement Areas in the County



Source: Business Forecasting Center, University of the Pacific

especially heavy truck drivers whose vehicles' gross weight is at least 26,000 lbs. Their employment has increased by 36% in the period between 2005 and 2012. However, this increase was off-set by declining employment of delivery service drivers and packers.

This suggests that job growth in the county's goods movement system may be increasingly reliant on the self-employed or that the growth has used occupations other than those of transportation and material movers.

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Trucking

Trucking is the largest industry in San Joaquin County's goods movement system and is the fastest growing source of jobs. Specifically, long-distance truck operators have been the fastest growing occupation in the county. Much of this growth appears to be a result of trucking jobs and companies relocating to San Joaquin County from the more expensive and increasingly congested Bay Area. Figure 9 shows this in terms of the inverse relationship between trucking employment in the East Bay and in the county.

The county's highway system and its multi-modal infrastructure are critical resources that create a competitive advantage and facilitate a concentration of trucking employment. As seen in Table 3, half-a-dozen areas in the county account for 80% of trucking employment. These areas are represented in Figure 10. The French Camp/Lathrop area along the I-5 corridor has the largest concentration, accounting for nearly a quarter of all trucking employment. In this area, trucking employment is 15% of all jobs equating to an LQUSA of 14.1. The CA-99 Corridor in Stockton is the second largest concentration; it accounts for about 17% of trucking employment in the county. The Port of Stockton and Stockton Airport area

has the third largest concentration of trucking employment with 12%. These are followed by the Manteca/Ripon area around Highways 99 and 120 with 10% of employment; the Tracy Triangle with 9% of employment and an LQ_{USA} of 4.4; and the Lodi Highway 99 Corridor with a further 6% of employment and an LQ_{USA} of 1.9.

As illustrated in Figure 11, the majority of trucking employment is in the long-distance freight trucking sub-sector. Long-distance freight trucking can be further distinguished between carriers who move single shipments (truckload) and carriers who combine multiple shipments (less-than-truckload). County-wide, over 80% of long-distant freight trucking employment is by carriers who make single shipments. Local freight trucking comprises another 17% of employment. Local freight carriers typically provide trucking services that involve same-day return trips. Local specialized trucking accounts for a further 16% of trucking employment. Specialized trucking involves transportation of freight which, because of inherent characteristics, requires specialized equipment, such as flatbeds, tankers, or refrigerated

Table 3: Goods Movement Areas with High Trucking Employment

Area:	Trucking		
	Area's % of Sector in County Employment	Employment LQ	Sector's % of Employment in Area
French Camp/ Lathrop	24%	14.1	15%
Stockton - CA 99 Corridor	17%	4.6	5%
Airport & Port of Stockton	12%	3.1	3%
Manteca/ Ripon	10%	2.4	3%
Tracy Triangle	9%	4.4	5%
Lodi - CA 99 Corridor	7%	1.9	2%
Goods Movement Sub-Total	80%	4.1	4%
Source: U.S. Census Bureau's County Business Patterns database. LQ stands for Location Quotient.			

trailers. It includes trucking of livestock, agricultural products, and bulk liquids. The remainder of the county's trucking employment is in long-distance specialized trucking (10%) and moving companies (2%). Trucking companies in the county tend to be small establishments with 51% having four or fewer employees. A further 40% of firms have between 5 and 49 employees. Only 10% of carriers have 50 or more employees.

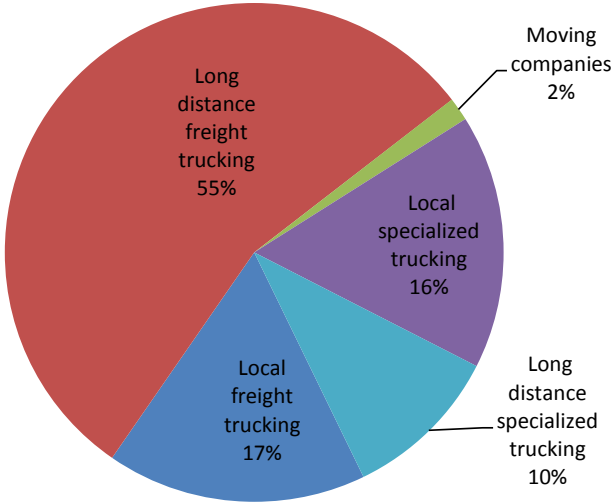
In freight trucking, it is also notable that from 1998 to 2008 long-distance trucking increased in San Joaquin County from 70% to 78% while local trucking declined. This is opposite the

national trend where long-distance trucking declined from 84% to 80%. Coupled with a rise in single load shipments from 60% to 83% of the county's long-distance freight trucking, it suggests that a significant source of goods movement growth has been in dedicated inter-regional trucking.

Warehousing, Distribution and Logistics

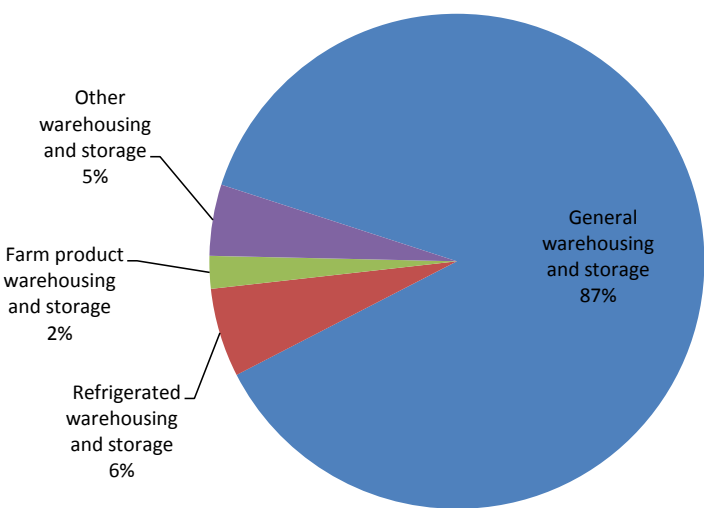
Firms in this component of the goods movement system provide facilities for the storage of merchandise and may also offer services related to the distribution of goods. These services

Figure 11: Structure of County Trucking Employment, 2011



Source: California EDD Industrial Employment database

Figure 12: Structure of County Warehousing Employment, 2011



Source: California EDD Industrial Employment database

Table 4: Goods Movement Areas with High Warehousing Employment

Area:	Warehousing		
	Area's % of Sector in County Employment	Employment LQ	Sector's % of Employment in Area
Tracy Triangle	67%	51.8	22%
Airport & Port of Stockton	12%	5.1	2%
French Camp/ Lathrop	10%	9.8	4%
Manteca/ Ripon	6%	2.4	1%
Stockton - CA 99 Corridor	4%	1.7	1%
Lodi - CA 99 Corridor	0.20%	0.1	0.02%
Goods Movement Sub-Total	99%	8.4	4%

Source: U.S. Census Bureau's County Business Patterns database.

can include: labeling, breaking bulk goods, inventory control and management, light assembly, order entry and fulfillment, and transportation arrangement. In San Joaquin County, the vast majority (87%) of its employment is in general warehousing and storage, which is not specialized on any particular type, size, or quantity of goods.

San Joaquin County has several locational advantages that make it an attractive location for warehousing, distribution, and logistics facilities. These include: 1) its central location relative to large consumer markets in the Bay Area and more generally across the northern California megaregion; 2) extensive and interconnected transportation networks; and 3) regionally competitive labor and facility cost. Given these advantages it is not surprising that 3.7% of all county employment is in warehousing compared to 0.58% nationally, which equates to an LQ_{USA} of 6.3. Warehousing in the county is highly concentrated in the Tracy area and is clearly focused on serving the Bay Area.

The six areas identified in Figure 10 encompass over 99% of all warehousing employment in the county. Table 4 indicates that the Tracy Triangle area alone has over two-thirds of the county's warehousing employment. In that

area, warehousing accounts for 22% of all jobs equating to an LQ_{USA} of 51.8. The recently announced Amazon fulfillment center will further cement the area as the county's leader in warehousing. The Airport and Port of Stockton area has another 12% of county-wide warehousing employment with an LQ_{USA} of 5.1. Warehousing is also concentrated in the French Camp/Lathrop area with a another 10% of county employment and an LQ_{USA} of 9.8.

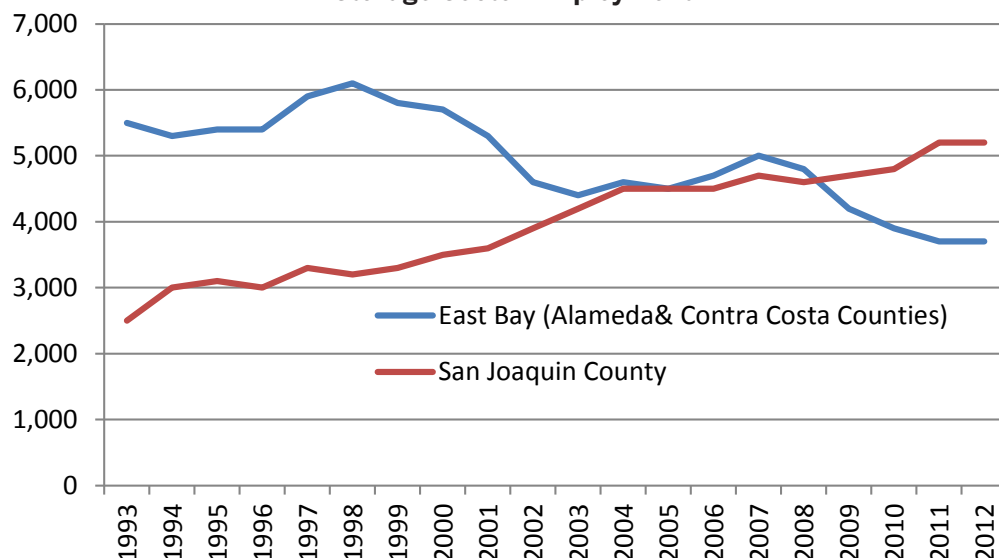
Further evidence of an intra-regional relocation of goods movement activity to the county is seen in Figure 13. The land intensity of warehousing and

While growth slowed in the county during the Great Recession, its continued expansion in contrast to the East Bay again suggests intra-regional movements to be key drivers of the county's goods movement system development.

lower property cost in San Joaquin County compared to the East Bay are probably central to this movement. While growth slowed in the county during the Great Recession, its continued expansion in contrast to the East Bay again suggests intra-regional movements to be key drivers of the county's goods movement system development.

Support Services

San Joaquin County also has significant capabilities in the transportation support sector. It consists of a range of activities including maintenance and repair services for aircraft, rail cars, and ships

Figure 13: Contrasting Trends in the Warehousing and Storage Sector Employment

Source: California EDD Industrial Employment database

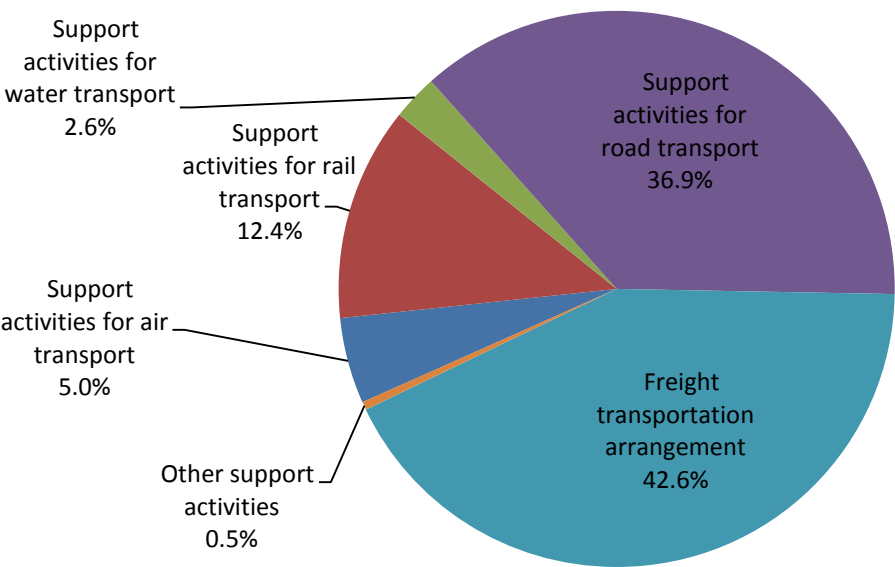
and barges, as well as emergency road services for trucks. It also encompasses cargo loading and unloading services. Establishments that arrange transportation of freight between

shippers and carriers are classified in this sector; as well as firms engaged in packing, crating, and otherwise preparing goods for transportation. As such, the sector forms part of a

soundly operating goods movement system.

In 2011, the county’s share of total employment in this sector was slightly above the rate nationally with an LQ_{USA} of 1.3. As seen in Figure 14, the largest component of employment was in freight transportation arrangement enterprises (43% and LQ_{USA}=1.4), followed by road transport support (37% and LQ_{USA}=3.7), and rail transport support (12% and LQ_{USA}=3.3). Between 1998 and 2011, these three components grew from 67% of the sector’s employment to 92%. The largest contributor for this growth was freight transportation arrangement enterprises, where employment increased from under 100 employees in 1998 to over 450 in 2011. Since, firms in this sub-sector consist of freight forwarders, shipping agents, and customs brokers its growth suggests that freight transportation services are increasingly being provided within the county.

Figure 14: Structure of County’s Transport Services Employment, 2011



Source: U.S. Census Bureau’s County Business Patterns database.

Table 5: Goods Movement Areas with High Transport Support Employment

Area:	Transport Support Activities		
	Area’s % of Sector in County Employment	Employment LQ	Sector’s % of Employment in Area
Stockton - CA 99 Corridor	38%	6.2	2%
Airport & Port of Stockton	18%	2.7	1%
French Camp/ Lathrop	16%	5.5	2%
Manteca/ Ripon	8%	1.1	0.40%
Tracy Triangle	6%	1.7	1%
Lodi - CA 99 Corridor	4%	0.7	0.20%
Goods Movement Sub-Total	89%	2.8	1%

Source: U.S. Census Bureau’s County Business Patterns database.

The six areas identified in Figure 10 are also important centers for transportation support activities, accounting for 89% of the county’s employment in this sector. The Stockton Highway 99 Corridor has the largest concentration, with 38% of county-wide employment and an LQ_{USA} of 6.2. The Airport and Port of Stockton area has another 18% of county-wide transportation support employment with an LQ_{USA} of 2.7.

Table 6: County's Employment and Wages in Goods Movement Occupations, 2012

Occupation title	Employment	Median hourly wage	Mean hourly wage	Annual mean wage
All Occupations in County	194,870	\$16.86	\$20.90	\$43,470
Heavy Truck Drivers	5,770	\$19.84	\$19.84	\$41,260
Light Truck/Delivery Services Drivers	1,440	\$16.13	\$17.41	\$36,210
Industrial Truck/Tractor Operators	2,360	\$17.44	\$16.93	\$35,220
All Transportation and Material Moving Occupations	22,590	\$16.74	\$16.91	\$35,180
Laborers and Freight Movers	5,370	\$13.20	\$14.58	\$30,330
Packers and Packagers	1,790	\$9.29	\$10.81	\$22,480

Source: U.S. Bureau of Labor Statistics Occupational Employment Statistics database.

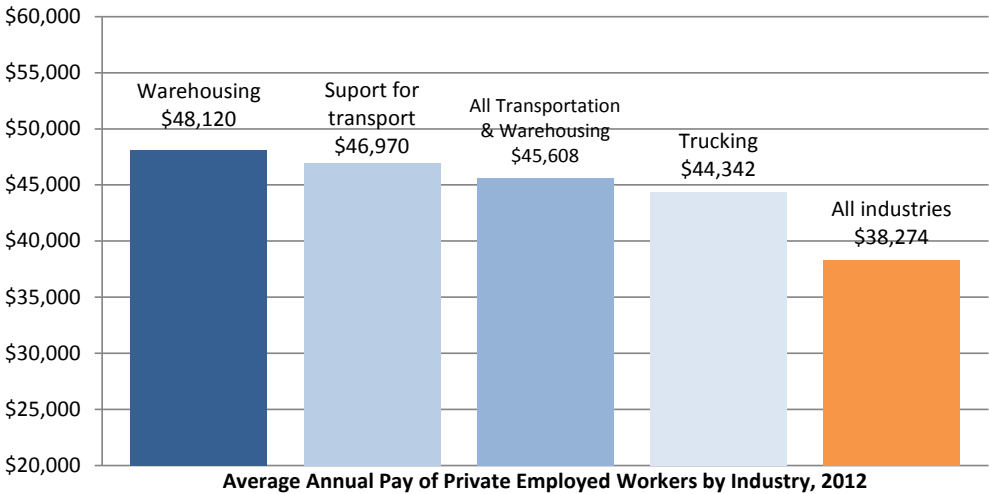
Another area with a large share is French Camp/Lathrop, with a further 16% of the county’s employment in the sector and an LQ_{USA} of 5.5.

Wages in the Goods Movement System

Wages in the goods movement system may be assessed by occupation and industry. In 2012, available county-wide data, which excludes the self-employed, shows that there were 22 different transportation and material moving occupations. The five largest of these occupations accounted for three-quarters of all goods movement employment.³ Table 6 reports wages, gross pay exclusive of retirement and premium pay, for these occupations. While the median hourly wage for transportation and material moving occupations is nearly identical to that of all occupations in the county, employment growth in higher paid occupations such as heavy truck drivers coupled with declines in lower paid occupations like packers and packagers

³ Goods movement occupational employment and composition was reviewed in Table 2 and the accompanying text.

Figure 15: County’s Mean Annual Pay in Goods Movement and All Industries



Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment & Wages database.

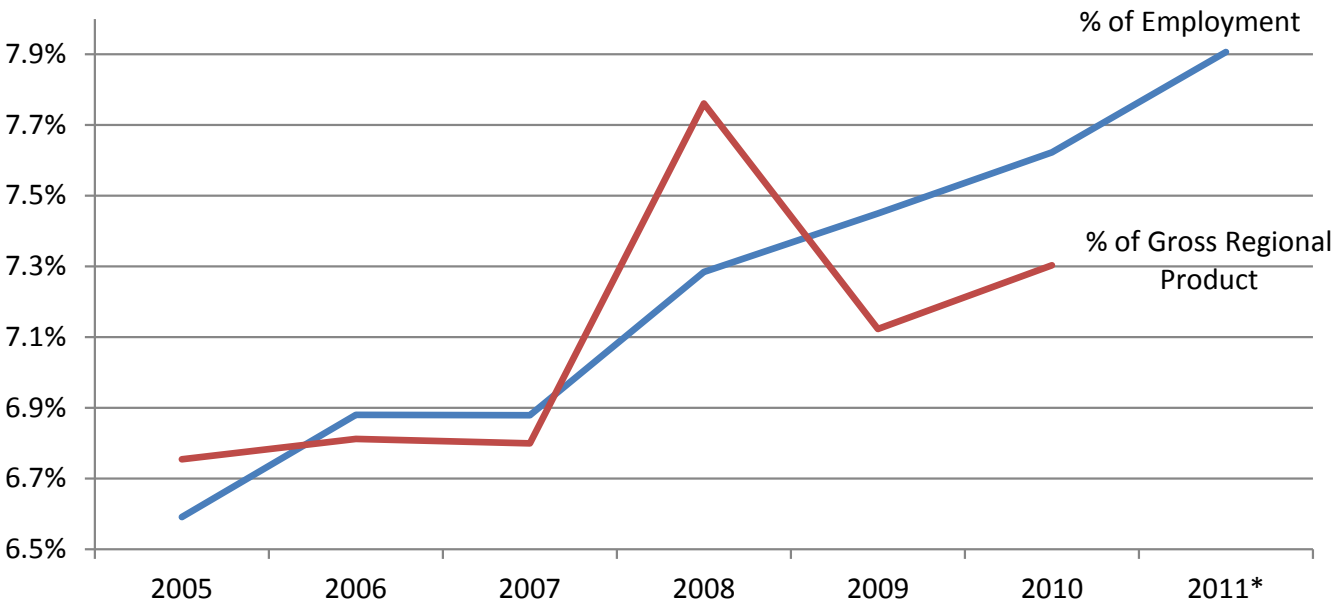
has increased wages in these goods movement occupations from 95% of the county-wide occupational wage in 2006 to over 99% in 2012. In addition, self-employment among heavy truck drivers indicates that goods movement occupational incomes could be higher than suggested in Table 6. While data is not available at the county level, a national survey of self-employed truck drivers in 2012 found their reported median net income to be \$50,000

annually,⁴ while the mean annual wage for employee truckers was \$40,360 nationally.⁵

While county occupational

⁴ OOIDA Foundation (2013), *Owner-Operator Independent Drivers Profile 2012*, Grain Valley, Missouri: Owner-Operator Independent Drivers Association (OOIDA). Available at: www.ooida.com/OOIDA%20Foundation/index.asp
⁵ U.S. Bureau of Labor Statistics Occupational Employment Statistics database.

Figure 16: Transportation & Warehousing as a % of the County’s Private Nonfarm GRP & Employment



* Note: Comparable County GRP data for 2011 has not yet been released

Source: U.S. Bureau of Economic Analysis Local Area Employment & GDP database



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employment statistics are not reported by sector, there is county-level data on earnings by sector. However, this sectoral earnings data, which is reported in Figure 14, is measured slightly differently as it covers the private sector and includes retirement earnings excluded from the occupational wage data. The sectoral data shows that county-wide wages in transportation and warehousing as well as its subsectors are significantly higher than the average of private sector jobs in San Joaquin County. While this may seem inconsistent with the below average earnings for many goods movement occupations, the relatively high wages in the transportation and warehousing sector is explained by the data previously discussed in Figure 7 and Table 1. These data found that a large share of employment in the transportation and warehousing sector involves jobs, such as managers that are not strictly speaking goods movement occupations. In addition, the goods movement jobs in the transportation and warehousing sector are dominated by the relatively high-paying heavy truck driving occupations rather than lower-paying occupations such as packers.

Conclusion

The San Joaquin County goods movement system has experienced broad and sustained growth. Between 2001 and 2011, the transportation and warehousing sector increased from 6.6% of all private non-farm employment to 7.9%. Similarly, between 2001 and 2010, its share of the county's gross regional product rose from 6.8% to 7.3%. This growth has continued, if not accelerated, in recent years.

Geographically, the goods movement system is predominantly located in the southern half of the county. While concentrated around road, rail, and water transport infrastructure, extremely high concentrations of warehousing in the Tracy area and other evidence indicates that the county's goods movement system is playing an increasingly important role across the greater Bay Area. In this regard, it suggests another dimension of integration and linkages within the northern California megaregion.

The analysis has also shown that within the county's goods movement system there are half a dozen areas where goods movement activities are concentrated. This clustering creates positive externalities and leverages the

county's multi-modal infrastructure to further enhance competitiveness of the goods movement system. While increasing growth may eventually create congestion and other negative externalities that erode this competitiveness, currently the county's goods movement system appears to be well positioned for continued growth and development.

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