

## Sector Profile

# Advanced Transportation

## What makes up the Advanced Transportation Sector?

The definition of the advanced transportation sector relates to the intersection of vehicles, technologies and fuels. Within California, this sector focuses on the impact attributable to this intersection, i.e. the extent to which advanced transportation reduces petroleum dependence and greenhouse gas emissions. More broadly, advanced transportation includes transportation on land, sea, and air; however, this brief will focus on land transportation, including on- and off-road modes, and specifically three technologies/systems (shown to the right).

- (1) **Advanced Technology Vehicle (ATV)** that is “a vehicle that combines new engine/power/drivetrain systems to significantly improve fuel economy” (the U.S. Department of Energy).
- (2) **Alternative Fuel Vehicle (AFV)** that refers to “any dedicated, flexible-fuel, or dual-fuel vehicle designed to operate on at least one alternative fuel” (the U.S. Department of Energy).
- (3) **Alternative Transportation Systems** that focus on the movement of people or goods from one place to another either via road or rail, utilizing any form of advanced or alternative vehicle technology. Land planning, public administration and support services related to alternative transportations systems are also captured here.

## Why Advanced Transportation?

The advanced transportation industry cluster plays a vital role in the lives of Californians and the state’s economy. According to the California Air Resources Board, vehicles account for nearly 40% of the greenhouse gas emissions in the state. The implementation of advanced transportation technologies and systems not only reduces the negative impacts on the environment and the health of the population, but also creates sustainable employment opportunities. And with more organizations and businesses adopting higher fuel and efficiency standards, workforce needs are transforming. Both incumbent workers and those just starting on a career path will need up-to-date training and education to sustain employment in advanced transportation.

### INSIDER PERSPECTIVE

“Today’s challenge is how to get an aging shop owner and technician workforce to adopt and embrace alternative transportation. Training and education is needed to overcome fears and misconceptions while highlighting obvious economic opportunities. Community college automotive programs are currently the most used training venues for shop owners and their technicians. Affordability and flexible hours make them highly sought out for training. Expanded funding for advance vehicle training at the community college level will reach the largest segment of the automotive workforce.”

— Patrick Cadam, Owner  
Pat’s Garage, Inc. & Green Gears, Inc.

### Quick Facts

- There are more than 64,000 businesses related to advanced transportation across the state.
- In 2011, the advanced transportation industry cluster generated \$212 billion in revenue.
- Already accounting for close to 900,000 jobs in California, advanced transportation is projected to add more than 62,000 jobs by 2016.
- In 2012, there were over 1,300 online postings for jobs requiring alternative fuel and advanced transportation related skills.

## What is Driving Growth?

Since the 1990s, a combination of factors have played a role in accelerating the adoption of advanced transportation technologies in California and across the U.S., these include:

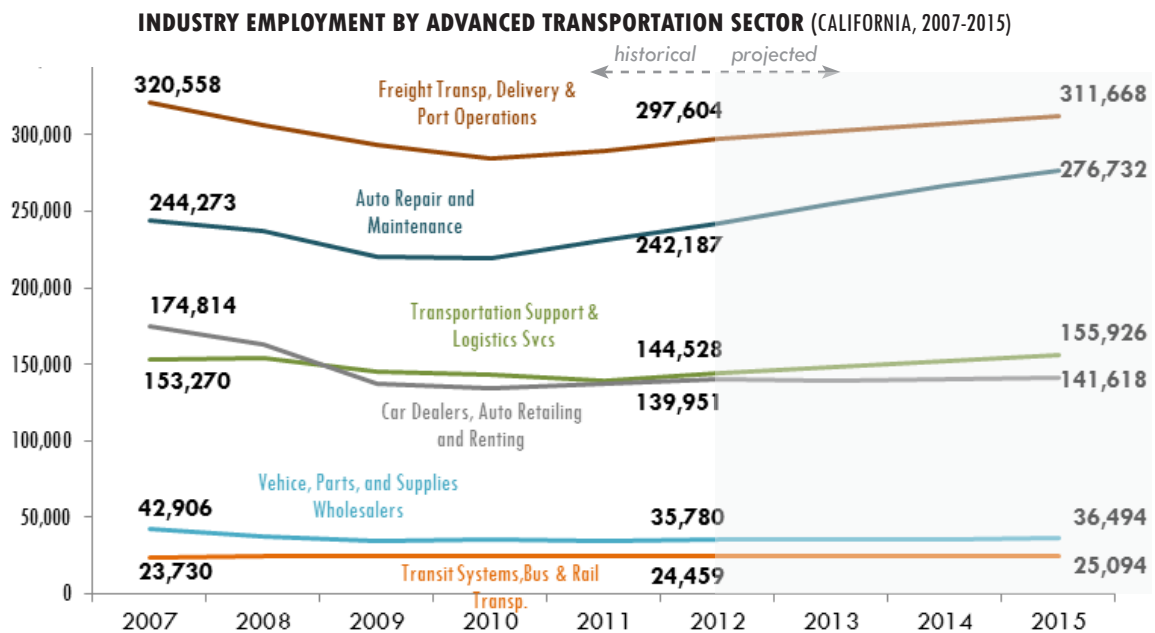
**Economy** — According to a Harris Interactive poll, 50% of those interested in purchasing an alternative fuel vehicle indicated the primary reason was a desire to save money on fuel.

**Environment** — Environmental impact has found its way into the consumer social consciousness; 25% of those interested in purchasing an alternative fuel vehicle attributed concern about the environment as the primary reason.

**Legislation** — With the Global Warming Solutions Act and the Alternative and Renewable Fuel and Vehicle Technology Program, among other other local, state and federal initiatives, government is the largest driver pushing technology and manufacturing of alternative fuels and advanced vehicles forward.

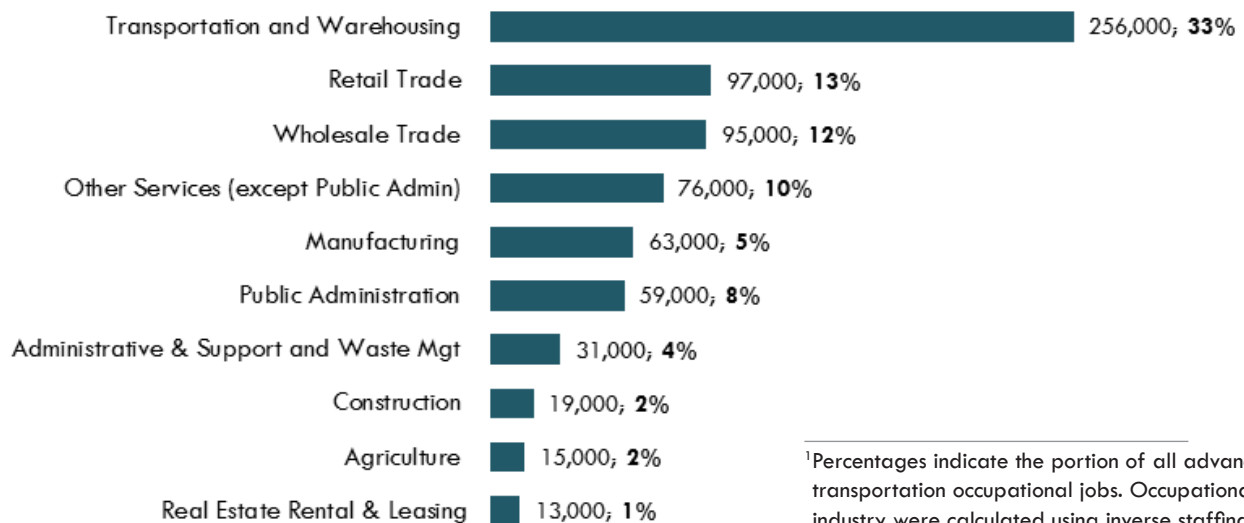
## What is the Industry Outlook?

The traditional advanced transportation industry cluster and all the business activities that it comprises currently employ about 900,000 people in California. This includes all types of jobs within the industries. Overall, the cluster is expected to grow by 7% in the next three years, adding about 62,000 new jobs. The largest sub-clusters by industry employment are freight transportation, delivery, and port operations (298,000 jobs), auto repair and maintenance (242,000 jobs), and transportation support and logistics services (145,000). Although most of the advanced transportation industry sub-clusters had lost jobs through 2009, many of them started to add jobs back in 2010. The auto repair and maintenance industries are expected to add the most jobs, with a growth rate of 14% for a three-year period (about 35,000 new jobs). The figure below features historic and projected employment trends data for all industry sub-clusters of the advanced transportation industries cluster.



Advanced transportation occupational jobs can be found across many industry sectors in California's economy. Figure 7 demonstrates the sectors with 1% or more of these occupational jobs. One-third (33%) of the advanced transportation occupational employment can be found in transportation and warehousing industries (256,000 jobs). Retail trade and wholesale trade sectors are also responsible for a significant proportion of these jobs — 13% and 12% respectively.

**ADVANCED TRANSPORTATION OCCUPATIONAL EMPLOYMENT BY SECTOR<sup>1</sup>**  
(CALIFORNIA, 2012)



<sup>1</sup>Percentages indicate the portion of all advanced transportation occupational jobs. Occupational jobs by industry were calculated using inverse staffing patterns.

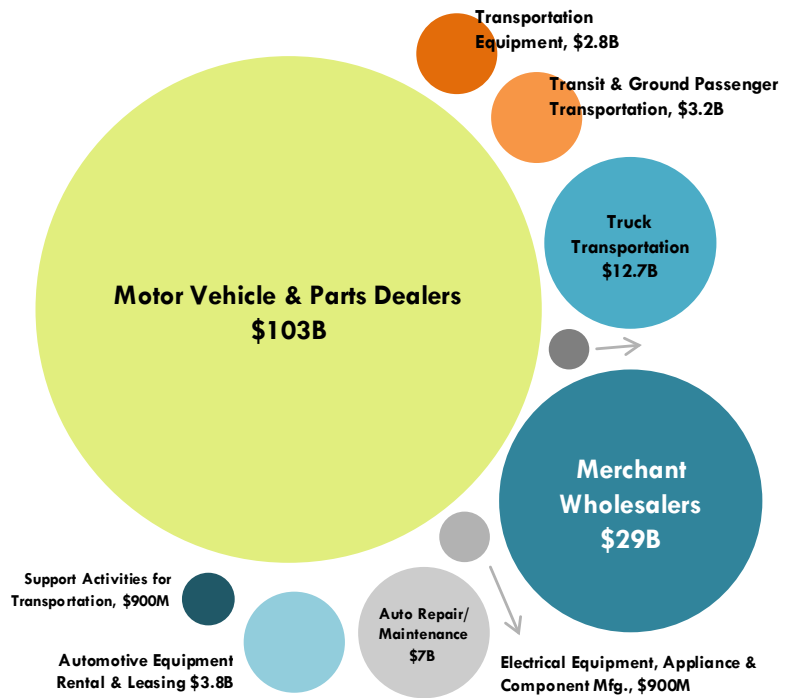
## What Clusters are Driving Economic Activity?

In 2012, the California advanced transportation sector generated roughly \$172 billion in revenue. Motor vehicle and parts dealers recorded the highest sales volume by far (\$103 billion), accounting for nearly 60% of the sector's revenue.

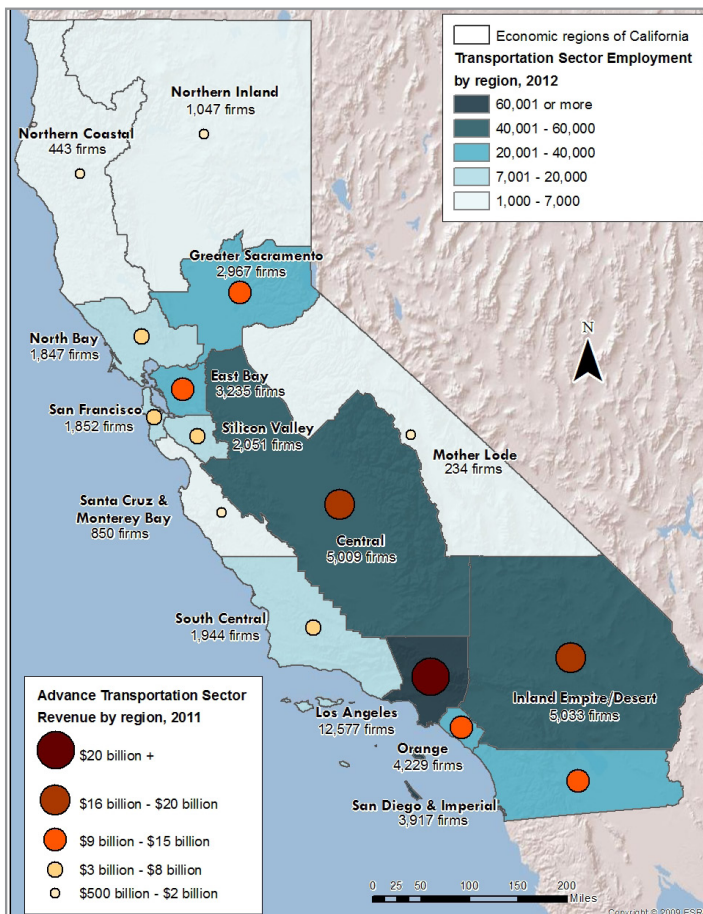
## Where are the "Hot Spots"?

Los Angeles and Orange counties together account for 36% of all advanced transportation jobs in the state (over 237,500). These counties also account for a third of the sales revenue of this cluster — about \$61 billion, combined. Other regions with significant advanced transportation cluster employment and sales revenue include San Diego, San Bernardino, Alameda, Riverside, Santa Clara, and Sacramento Counties. The advanced transportation activities differ somewhat from region to region. Bay Area counties have higher concentrations of urban transit systems, port operations, and electrical vehicle projects. Los Angeles/Orange and Inland Empire counties have a relative advantage in goods movement, port operations, freight transportation, and natural gas vehicles and infrastructure.

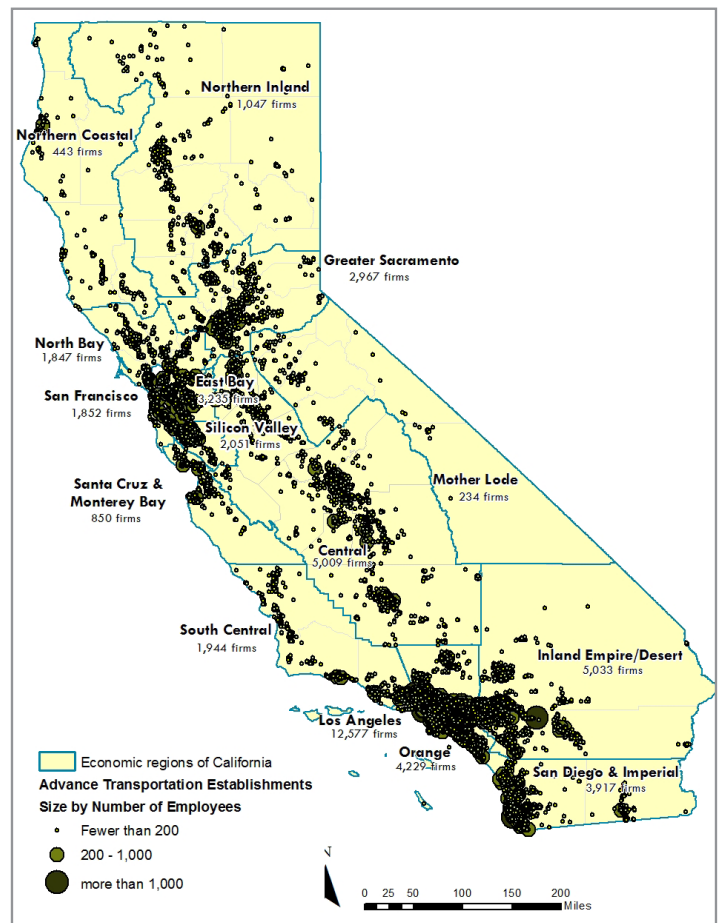
## 2012 REVENUE BY INDUSTRY CLUSTER



## TRANSPORTATION EMPLOYMENT & REVENUE BY REGION



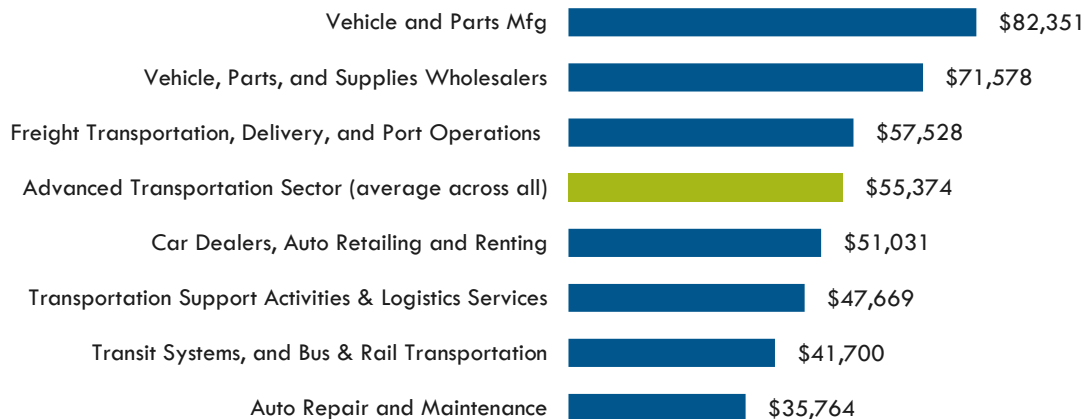
## LOCATION OF TRANSPORTATION FIRMS



## How Much Does It Pay?

Average annual salaries paid by the advanced transportation sector in California in 2012 vary greatly by industry subsector. The highest paying subsector is vehicle and parts manufacturing, with annual average earnings of \$82,351, followed by vehicle, parts and supplies wholesalers (\$71,578) and freight transportation, delivery and port operations (\$57,528). Earnings per worker averages are not specific to job type (therefore not the same as occupational wages); rather, they are an average of all earnings across an industry sector – from CEO to maintenance staff, etc.

### ADVANCED TRANSPORTATION: EARNINGS PER WORKER AVERAGES BY SUBSECTOR (CALIFORNIA, 2012)



## What Jobs are in Demand?

In the next three years, the advanced transportation sector will need professionals with varying levels of education. The table below shows projected demand for a workforce skilled in several fields of transportation, including sales, manufacturing, logistics, and repair/maintenance. Data provided in the table below is sorted by the number of job openings, which includes new and replacement jobs. In 2012, firms posted more than 38,000 online job advertisements. Individual occupational totals are shown in the column on the far right.

### JOB OPPORTUNITIES IN ADVANCED TRANSPORTATION

Job Title	2012 Jobs	3-year Change	% Change	Openings	Median Hourly Wage	Minimum Education Level	Online Job Postings
Heavy & tractor-trailer truck drivers	207,357	12,553	6%	25,128	\$17.56	Short-term OJT	14,035
Light truck or delivery services drivers	105,276	1,746	2%	8,575	\$14.71	Short-term OJT	6,570
Automotive service technicians & mechanics	79,237	992	1%	7,578	\$16.91	Postsecondary non-degree award	5,100
Shipping, receiving and traffic clerks	90,275	(1,004)	(1%)	7,573	\$14.35	Short-term OJT	3,220
Industrial truck and tractor operators	59,028	1,223	2%	6,523	\$16.15	Short-term OJT	1,570
First-line supervisors of mechanics/repairers	41,323	1,158	3%	4,450	\$32.45	Related work experience	4,530
Bus drivers, transit and intercity	28,229	971	3%	2,836	\$20.42	Moderate-term OJT	920
Parts salespersons	18,453	468	8%	2,577	\$15.35	Moderate-term OJT	280
Mobile heavy equipment mechanics	15,519	1,312	3%	2,533	\$23.19	Long-term OJT	655
Bus & truck mechanics/diesel specialists	22,199	420	2%	1,925	\$21.19	Postsecondary non-degree award	1,010

The top **skills/knowledge areas** included:

- repair
- inspection
- equipment operation
- sales mgmt.
- business planning
- accounting
- scheduling
- vehicle operation
- automotive sales
- invoice/contract preparation
- product sale/delivery

**Employers** posting the most openings included:

- Central Refrigerated
- Swift Transportation
- Gordon Trucking
- Sammons Trucking
- Schneider National Inc.
- Ryder System Inc.
- Con Way Transportation
- CDL Link
- Autonation Inc.
- Yellow Roadway Corp.

**Data notes and sources:** Data and information included in the Sector Profile were compiled from the following public and proprietary sources: U.S. Bureau of Labor Statistics, CA Employment Development Department; Economic Modeling Specialists, Inc.; The Conference Board - Help Wanted Online; Burning Glass - Labor Market Insight; InfoGroup, Inc.