

APPENDIX B-3-1: AIR CARGO

An efficient air cargo network is essential to competing in today’s global marketplace. California is home to 12 of the top 100 cargo-carrying airports in North Americaⁱ. Los Angeles International Airport alone processed more than 1.9 million tons of cargo valued in excess of \$91.6 billion in 2013ⁱⁱ. By transporting far more value per ton than any other mode, air cargo significantly contributes to economic vitality.

Air cargo commodities typically travel a long distance, have a high value-to-weight ratio, are time-sensitive, and usually cost more to send than other modes. Some manufacturing and service businesses rely on quick delivery of components to avoid inventory storage and to prevent assembly line production shut-downs.

GENERAL INFORMATION

Virtually all of the State’s 245 public airports transport air cargo in some form (e.g., mail / documents / packages). In addition to aircraft,

landed goods require ground transportation (mainly trucks) to reach their final destinations. Over 99 percent of California’s air cargo (by value and weight) is transported through the top 12 busiest cargo airportsⁱⁱⁱ (see below). FedEx and United Parcel Service (UPS) continue to dominate the air cargo market^{iv}. International freight is mostly carried in the cargo holds of passenger aircraft (as “belly cargo”).

As can be seen in the table below, between 2012 and 2013, total air cargo transported at these airports dropped by 9,489 tons and overall North America rankings improved at four airports and fell at one.

The table at the top of the following page represents the 2012 leading freight categories of total air mode (including air-truck) flows, and the subsequent three tables reflect import and export statistics.

Top Twelve California Air Cargo Airports

Airport (Airport Code)	2012 Short Tons	North America Rank in 2012	2013 Short Tons	North America Rank in 2013
Los Angeles International Airport (LAX)	1,949,917	5	1,922,542	5
Oakland International Airport (OAK)	550,207	13	555,473	13
Los Angeles Ontario International Airport (ONT)	455,758	15	461,500	15
San Francisco International Airport (SFO)	419,749	17	401,015	17
San Diego International Airport (SAN)	143,141	30	160,693	30
Sacramento International Airport (SMF)	75,622	50	74,787	49
Bob Hope (Burbank) Airport (BUR)	53,816	60	53,763	62
Sacramento Mather Airport (MHR)	51,321	63	54,632	61
Norman Y. Mineta San Jose International Airport (SJC)	41,808	68	46,810	64
Long Beach Airport (LGB)	26,975	78	26,861	77
John Wayne (Orange County) International Airport (SNA)	17,332	84	17,821	84
Fresno International Airport (FAT)	11,601	94	11,861	94
TOTAL	3,797,247		3,787,758	

Red denotes loss in rank, Green denotes gain in rank

Source: 2013 North America Airports Council International preliminary results (converted and rounded metric tons)

2012 Top Ten California Air Cargo Categories by Value and Ton-Miles

Category	Millions of Dollars	Rank	Total Ton-Miles	Rank
Electronics	\$22,563.99	1	268.0	1
Machinery	\$7,500.15	2	125.6	3
Precision Instruments	\$6,704.51	3	103.8	5
Transport Equipment	\$5,220.71	4	22.5	--
Miscellaneous Manufactured Products	\$3,044.83	5	170.6	2
Textiles/Leather	\$1,220.16	6	116.6	4
Pharmaceuticals	\$1,008.85	7	77.7	7
Motorized vehicles	\$988.01	8	51.9	9
Chemical Products	\$768.61	9	43.9	10
Articles-base metal	\$692.85	10	75.5	8
Nonmetal mineral products	\$679.38	--	82.2	6

Source: 2012 Numbers from Federal Highway Administration (FHWA) Freight Analysis Framework Version 3 (FAF3)

2012 Top Ten California Air Cargo Foreign Exports by Destination and Value

Destination	Category	Millions of Dollars
Eastern Asia	Electronics	\$265.72
Mexico	Machinery	\$193.38
Eastern Asia	Machinery	\$154.53
Mexico	Electronics	\$125.65
Eastern Asia	Precision Instruments	\$111.27
Eastern Asia	Transport Equipment	\$80.25
Canada	Machinery	\$59.17
Canada	Electronics	\$56.57
Eastern Asia	Miscellaneous Manufactured Products	\$43.27
Canada	Precision Instruments	\$34.39

Source: 2012 Numbers from FHWA FAF3

2012 Top Ten California Air Cargo Foreign Imports by Origin and Value

Origin	Category	Millions of Dollars
Eastern Asia	Electronics	\$14,484.73
Eastern Asia	Machinery	\$12,251.87
Europe	Electronics	\$4,712.02
Europe	Machinery	\$4,142.84
Eastern Asia	Precision Instruments	\$2,557.78
Eastern Asia	Miscellaneous Manufactured Products	\$2,500.64
Southeast Asia and Oceania	Electronics	\$2,282.79
Southeast Asia and Oceania	Machinery	\$2,071.25
Eastern Asia	Mixed Freight	\$1,740.46
Eastern Asia	Textiles/Leather	\$1,426.81

Source: 2012 Numbers from FHWA FAF3

2012 Top California Air Cargo Imported and Exported Categories by Location

Location	Imports by Value	Imports by Weight	Exports by Value	Exports by Weight
Canada	<ul style="list-style-type: none"> • Electronics • Pharmaceuticals • Mixed Freight • Precision Instruments 	<ul style="list-style-type: none"> • Electronics • Machinery • Mixed Freight • Precision Instruments 	<ul style="list-style-type: none"> • Machinery • Electronics • Precision Instruments • Transportation Equipment 	<ul style="list-style-type: none"> • Machinery • Electronics • Articles made from base metal • Basic Chemicals
Mexico	<ul style="list-style-type: none"> • Machinery • Electronics • Miscellaneous Manufactured Products • Mixed Freight 	<ul style="list-style-type: none"> • Electronics • Machinery • Other Agriculture Products • Textiles/Leather 	<ul style="list-style-type: none"> • Electronics • Machinery • Precision Instruments • Transportation Equipment 	<ul style="list-style-type: none"> • Other Agriculture Products • Machinery • Electronics • Chemical Products
Rest of Americas	<ul style="list-style-type: none"> • Machinery • Electronics • Miscellaneous Manufactured Products • Precision Instruments 	<ul style="list-style-type: none"> • Textiles/Leather • Electronics • Machinery • Live Animals/Fish 	<ul style="list-style-type: none"> • Electronics • Machinery • Precision Instruments • Transportation Equipment 	<ul style="list-style-type: none"> • Other Agriculture Products • Machinery • Electronics • Chemical Products
Europe	<ul style="list-style-type: none"> • Electronics • Machinery • Miscellaneous Manufactured Products • Precision Instruments 	<ul style="list-style-type: none"> • Electronics • Machinery • Textiles/Leather • Precision Instruments 	<ul style="list-style-type: none"> • Electronics • Machinery • Precision Instruments • Transportation Equipment 	<ul style="list-style-type: none"> • Other Agriculture Products • Machinery • Electronics • Articles made from base metal
Southwest and Central Asia	<ul style="list-style-type: none"> • Machinery • Electronics • Miscellaneous Manufactured Products • Precision Instruments 	<ul style="list-style-type: none"> • Textiles/Leather • Electronics • Machinery • Live Animals/Fish 	Not Available	Not Available
Eastern Asia	<ul style="list-style-type: none"> • Electronics • Machinery • Miscellaneous Manufactured Products • Precision Instruments 	<ul style="list-style-type: none"> • Electronics • Machinery • Textiles/Leather • Precision Instruments 	<ul style="list-style-type: none"> • Electronics • Machinery • Precision Instruments • Transportation Equipment 	<ul style="list-style-type: none"> • Other Agriculture Products • Machinery • Electronics • Chemical Products
Southeast Asia and Oceania	<ul style="list-style-type: none"> • Electronics • Machinery • Textiles/Leather • Precision Instruments 	<ul style="list-style-type: none"> • Electronics • Machinery • Miscellaneous Manufactured Products • Precision Instruments 	<ul style="list-style-type: none"> • Electronics • Machinery • Precision Instruments • Transportation Equipment 	<ul style="list-style-type: none"> • Other Agriculture Products • Machinery • Electronics • Chemical Products

Source: 2014 Numbers from FHWA FAF3

Based on the data from the previous tables, electronics and machinery are both the leading California imports as well as exports. Most of this trade reflects imports from Eastern Asia. The value of commodities coming into California is over 40 times the value of products being exported to other destinations, which indicates a significant negative trade imbalance.

According to Los Angeles World Airports, the top import commodities moved through Los Angeles International Airport (LAX) in 2013 were computers; diamonds (not mounted); cellular, landline phones, and parts; computer chips; and, imports of returned exports worth over \$27.8 billion. Primary LAX import trade partners include China, Japan,

Thailand, and Germany. On the export side, the top commodities were civilian aircraft, engines, and parts; un-mounted diamonds; computer chips; cellular, landline phones, and parts; and computers valued at over \$17.8 billion. Top export trade partners were Japan, China, India, Hong Kong, and Germany^v. With regard to air cargo, LAX ranks first in California, fifth in the nation, and in 2013 ranked 14th on the world cargo traffic list^{vi}.

Air cargo trade within the United States by value is displayed below. According to the Federal Highway Administration's (FHWA) Freight Analysis Framework (FAF), the total value of domestic goods flown nationwide by air (including truck-air) for 2012 was around \$163.3 billion.

California's leading trade states, projected by FHWA FAF3, by total trade value and top commodity are shown below.

2012 Top Ten California Inbound Air Cargo

Domestic Trading States by Total Value and Top Trade Commodity

State	Millions of Dollars	Top Trade Commodities
Missouri	\$2,074.43	Transportation Equipment
California	\$2,066.40	Electronics
Arizona	\$1,347.54	Machinery
Colorado	\$1,147.31	Transportation Equipment
New York	\$1,086.24	Miscellaneous Manufactured Products
New Jersey	\$1,043.33	Miscellaneous Manufactured Products
Texas	\$1,001.09	Electronics
Illinois	\$934.16	Electronics
Florida	\$719.93	Electronics
Massachusetts	\$691.96	Pharmaceuticals

2012 Top Ten California Outbound Air Cargo

Domestic Trading States by Total Value and Top Trade Commodity

State	Millions of Dollars	Top Trade Commodities
Texas	\$5,046.59	Electronics
Georgia	\$2,672.78	Electronics
California	\$2,066.40	Electronics
Florida	\$1,376.09	Electronics
Illinois	\$1,282.16	Electronics
Ohio	\$1,068.60	Transportation Equipment
Indiana	\$1,067.45	Electronics
New York	\$1,021.30	Electronics
Hawaii	\$1,001.36	Motorized Vehicles
South Carolina	\$847.64	Electronics

UPS' west coast international hub and gateway with China is located at Los Angeles Ontario International Airport (ONT). The FedEx regional hub at Oakland International Airport (OAK) processes up to 100,000 pounds (280,000 packages) of freight each day and has its own import clearance center.

CONSTRAINTS AND ISSUES

- Noise abatement flight procedures restrict operations at most of California's leading cargo-carrying airports
- Many airports have residential sound insulation programs in place to mitigate noise impacts
- Some of the worst highway bottleneck areas in California are near airports
- Heavy trucks used to haul freight accelerate deterioration of highway pavement conditions
- Surrounding incompatible land uses and encroachment by development restricts airport capacity growth
- Planning for sea level rise at affected coastal airports is needed to ensure ongoing freight and passenger accessibility
- Air freight activities sometimes create impacts to surrounding communities such as noise, traffic, and air pollution

TRENDS

- Imports are expected to continue to exceed exports
- China/Asia is projected to be the principal driver of air cargo growth over the next two decades
- International air freight transported via belly cargo is expected to continue dominating over goods flown by all-cargo carriers

CALTRANS ISSUES

Data collection and education:

- Freight planning integration into Caltrans manuals and processes
- Establishment and ongoing collection of accurate statistics for planning
- Development of dependable transportation freight forecasting models
- Education of the public and decision-makers on the importance of air freight to our economy and preservation of compatible land uses

Policy and regulatory:

- Encourage business- and freight-friendly policies
- Reduce or eliminate fees that create leakage
- Ensure new regulations that may impact freight are carefully considered and minimally intrusive
- Support dedicated funding for freight projects

Economic:

- Support funding flexibility for freight projects
- Encourage agricultural freight
- Expand international trade
- Support innovative technology
- Invest in freight facilities
- Reduce traffic congestion around airports
- Support and encourage business clusters with the same supply chain to maximize utility of the airport

Environmental:

- Encourage quieter aircraft to reduce noise impacts
- Support more efficient fuels and aircraft to reduce greenhouse gases
- Support plans to reduce affects of sea level rise

ⁱ Airports Council International (ACI) North America, 2013 preliminary results

ⁱⁱ Los Angeles World Airports, Los Angeles International Airport Air Cargo website: http://www.lawa.org/welcome_lax.aspx?id=776.

ⁱⁱⁱ ACI North America, 2013 preliminary results.

^{iv} Air Cargo Mode Choice and Demand Study (2010), prepared for Caltrans by TranSystems:

http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/Air_Cargo_Mode_Choice_&Demand_Study_080210.pdf.

^v Los Angeles World Airports, Los Angeles International Airport Air Cargo website:

http://www.lawa.org/welcome_lax.aspx?id=776

^{vi} ACI North America, 2013 preliminary results.