



**BAY AREA
ECONOMIC
FORUM**

*A Partnership of the Association
of Bay Area Governments
and the Bay Area Council*

**INTERNATIONAL TRADE AND
THE BAY AREA**

**AIR CARGO, TECHNOLOGY AND
THE ECONOMY OF SILICON VALLEY**

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*The Bay Area Economic
Forum was founded in 1988 to
promote the economic vitality
of the Bay Area. It is governed
by the leaders in business,
government, labor, higher
education and the community*

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The knowledge-based economy of the Bay Area is led by high technology, much of it concentrated in Silicon Valley. Innovation and technological development, coupled with national and global demand for its products, provide the essential foundation for the strength and vitality of the economy of Silicon Valley and the Bay Area. Global access to imports and imported components, and access to global markets for exported products and services, are a vital interest of the Bay Area in a global economy that is increasingly integrated. Products must be shipped and received, just as executives and engineers must travel for face-to-face meetings with partners and clients in overseas markets.

Air Cargo

Total cargo through the Bay Area's three major international airports is expected to double from 1.75 million tons currently to 3.2 million tons by 2005 and triple to 5.5 million tons by 2020 – reflecting an average annual growth rate of 6.2%.

The November 2000 report by the Bay Area Economic Forum, *Air Transport and the Bay Area Economy*, identified a number of specific issues related to air cargo and regional airport capacity:

- Time to market: in a competitive market environment, for many companies moving new products to consumers as rapidly as possible is critical to market share;
- Committed release dates: Many companies, particularly in the technology sector, announce a release date for new products in advance. Missed release dates can impact customers and investors perceptions of company reliability;
- Reduced cycle times: To improve efficiency, reduce costs and deliver better customer service, many manufactures work to shorten order cycles – the total transaction time from customer order to final delivery and payment. Efficient shipment is critical to this process;
- Supply chain integration: Integration of the manufacturing process in a continuous flow of materials, components, subassemblies and finished products, with delivery of each on a “just-in-time” basis, lowers overhead and carrying costs by reducing inventories. This strategy requires a high level of precision in shipment planning, tracking and delivery, as even small delays can impact production. Air express, which represents 60% of the U.S. air cargo market and is growing at a rate of 25% annually, accounts for a significant portion of time-sensitive supply chain traffic.¹
- Perishables: Shipments of fresh produce, fresh cut flowers, meat and seafood, pharmaceuticals, photochemicals and other products requiring either simple refrigeration or sophisticated temperature controls are time-sensitive, affecting product shelf life at the point of destination.

Each of these business strategies and planning considerations is highly dependent on efficient air cargo operations and capacity. The significance of air transport to the technology sector and to the maintenance of agile manufacturing processes and supply chains is further reflected in research findings at the Institute of Public Policy at George Mason University that, on average, metropolitan regions with hub air cargo operations generate significantly more high-tech jobs than regions without hubs.²

Oakland International Airport currently accounts for the largest share of air cargo operations of the three major Bay Area Airports (San Francisco, Oakland and San Jose), carrying 70% of domestic air freight and 25% of domestic mail. Nearly 70% of its cargo business comes from FedEx, which uses Oakland as its West Coast hub. UPS accounts for another 20% of Oakland's air cargo. More than 80% of San Jose International Airport's cargo is handled by FedEx, UPS and other integrators. Air cargo at San Jose is largely domestic, with a small but growing volume of international traffic carried mainly on passenger flights to Tokyo, Taipei, Toronto, Paris and Mexico City. Airfield and facilities congestion currently constrain domestic air cargo development at SFO. As a result, future growth in domestic air cargo, as well as in domestic passenger volume, is expected to occur primarily at Oakland and San Jose International Airports.

Perishable products may be the exception. Most perishable products moving by air – agricultural products, biomedicines, and some chemicals – are shipped through SFO because of its non-stop service to 57 cities and its frequent flight schedules. SFO also handles all international mail, and more than two-thirds of domestic mail into and out of the Bay Area.

International Air Cargo

In contrast to domestic air cargo, San Francisco International Airport is the principal regional airport for international air cargo and is expected to remain so. International shipments through SFO take place principally in the holds of widebody passenger jets, as well as in jet freighters operated by international airlines. While SFO is the preferred gateway for most freight forwarders, larger forwarders often truck their cargo to Los Angeles International Airport (LAX) due to its wider choice of services and schedule, and opportunities for consolidation of Northern and Southern California cargoes.

Of \$58.3 billion in exports through the San Francisco Customs District in 1999, 79% was shipped by air through SFO. SFO handled \$46 billion in U.S. exports in 1999, of which approximately \$27 billion (58%) can be classified as high technology. Major categories of technology exports include computer and electronic equipment and parts, telecommunications equipment, medical equipment and pharmaceuticals. Of \$69.1 billion in imports through the San Francisco Customs District in the same period, SFO handled \$48 billion (69%), of which approximately \$21 billion (30%) can be classified as high technology.³

1999 Exports by Bay Area Companies: Technology

(\$ Billions)

Component	San Jose	San Francisco	Oakland
High Technology	26,671,496	5,828,123	4,637,140
Total Exports	28,255,739	9,034,987	6,709,494

*Source: U.S. Department of Commerce, International Trade Administration;
U.S. Census Bureau, Export Location Series. Data aggregated by Metropolitan Statistical Area (MSA)*

Asia and Europe are the Bay Area's major markets:

- Europe: In 1999 Bay Area companies exported \$11 billion in merchandise goods to Europe.
- Asia: In 1999 Bay Area companies exported more than \$23 billion in merchandise goods to Asia, of which \$6.7 billion was destined for Japan and \$1 billion for China.

1999 Exports by Bay Area Companies: Europe and Asia

(\$ Billions)

Destination	San Jose	San Francisco	Oakland
Europe	6,726,877	2,470,445	1,808,985
Asia	15,213,193	4,581,156	3,338,888
Japan	3,744,505	1,870,810	1,110,418
China	636,214	291,498	153,672

*Source: U.S. Department of Commerce, International Trade Administration;
U.S. Census Bureau, Export Location Series. Data aggregated by Metropolitan Statistical Area (MSA)*

International Trade and the Bay Area: Air Infrastructure

The San Francisco Bay Area ranks as the second largest exporting region in the nation, second only to New York-New Jersey, and ahead of all other major metropolitan areas including Seattle, Los Angeles, Detroit, Chicago, Houston, Boston, Miami and Philadelphia, making access to global markets essential to Bay Area employment and business revenues. Approximately 25% of the Bay Area's economy is directly or indirectly linked to trade, and export growth has been a major contributor to job and economic growth in the last decade.

Silicon Valley companies generate 70% of the Bay Area's technology exports. This amount does not include services (which are also dependent on airfield capacity for passenger travel) or packaged software (a major Bay Area export), neither of which is accounted for in Federal trade statistics.

While air transportation is vital to the movement of trade nationally, this is emphatically the case in the San Francisco Bay Area due to the region's technology economy and the high value of its technology exports. While this is an issue for the Bay Area generally, issues of airfield and air cargo capacity will most directly affect the economy of Silicon Valley, which depends heavily on international air cargo for the export of its products. In contrast to seaports, which generally accommodate heavier, bulk or less time-sensitive shipments, the lighter, high value-added products of Silicon Valley are most often shipped by air, principally through SFO.

Transportation of 1999 Exports and Imports through San Francisco Customs District (\$ Billions)

<u>Transport</u>	<u>Exports</u>	<u>Imports</u>
Air Transport	46,200,000	48,200,000
Sea Transport	12,000,000	20,600,000
Other	136,000	236,000
<u>Total</u>	<u>58,336,000</u>	<u>69,136,000</u>

Source: U.S. Census Bureau

While international air cargo is not subject to major capacity constraints currently, with the anticipated tripling of air cargo by 2020 – 80% of that volume with Asia - it is critical to the export community and to the high technology sector in particular that the San Francisco Bay Area sustain the capacity to efficiently meet future air cargo demand. With SFO expected to retain its dominant position in international air passenger and international air cargo traffic for the foreseeable future, capacity issues there must be recognized and addressed now to ensure the Bay Area's future economic competitiveness.

¹ Kasarda, John D. *Time-Based Competition & Industrial Location in the Fast Century*. Real Estate Issues, Winter 1998/1999, p. 244.

² Button, Kenneth and Roger Stough, *The Benefits of Being a Hub Airport City: Convenient Travel and High-Tech Job Growth*. Fairfax, VA: Institute of Public Policy, George Mason University, November 1988.

³ U.S. Census Bureau, *Merchandise Trade Imports and Exports*, 1999.

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