

Aviation in California: Benefits to Our Economy and Way of Life



JUNE 2003

Executive Summary

To examine and quantify the benefits of the entire aviation system to California, the California Department of Transportation (Department) Division of Aeronautics retained Economics Research Associates (ERA) in association with JD Franz Research, Incorporated. This report, prepared by ERA with assistance from JD Franz and Aeronautics staff, verifies the importance of aviation in this state by describing the state's system of public use airports and commercial space industry, reviewing the most significant recent trends in aviation, providing an estimate of the overall impact of aviation on the state's economy, and reviewing the many ways aviation contributes to life in California.

California has 250 public use airports that range from limited use landing strips to international gateways like Los Angeles International (LAX) and San Francisco International (SFO). These airports are categorized as commercial (scheduled passenger) service or general aviation airports. The state's 29 commercial service airports are further divided into large hubs, medium hubs, small hubs and nonhubs, and the 221 general aviation airports are classified as metropolitan, regional, community, or limited use.

RECENT TRENDS IN AVIATION

The California economy, the fifth largest in the world, grew very rapidly during the decade of the 1990s. Coupled with a vibrant national economy, this growth accelerated demand for air travel. However, by early 2001 the state and national economies had begun to slow as the “dot com” sector collapsed. Demand for air travel, already weakened by the slowing economy, received a major jolt with the September 11, 2001 terrorist attacks. This horrific act further weakened demand for air travel in two ways. Initially, passengers stayed away by the thousands due to fear of other acts of terrorism, and subsequently, the heightened security measures lengthened the time needed for, and the “hassle factor” of, airplane trips (particularly those flights originating from high-volume large hub airports).

In response to air passenger's reluctance to pay high fares (especially premium-priced business fares) in a weak economy and extended time required to fly out of busy large hub airports, traveling behavior changed in several ways. The underlying economic trends, further pushed by the events of September 11th, have impacted and continue to affect the aviation industry nationwide and in California. These changes include:

- Improved relative market position for the newer, lower-cost commercial carriers that concentrate on short-haul service from less impacted airports like Oakland and Long Beach
- Increased demand by the airlines for smaller 30–100 passenger aircraft (regional jets)
- Financial difficulties for the more established long-haul commercial carriers that served the large hub airports and charged premium fares
- Growing demand for business, corporate and chartered aircraft, strengthened by fractional ownership programs that spread a fixed cost over a larger user group

- Increased usage of smaller hub and metropolitan general aviation airports
- The growth of airports that specialize in cargo service

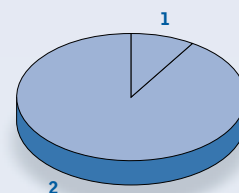
At some of the smaller airports, there is a need for increased airport capacity. Many airports in need of expansion face a number of issues including infrastructure and capacity constraints, encroachment of incompatible land uses, concerns over airport noise and safety, and congested or insufficient ground access to major urban, suburban and even rural airports.

ECONOMIC IMPACT ON CALIFORNIA

The aviation sector plays a substantial and vital role in California’s economy. The overall contribution to the California economy (including their direct, indirect and induced impacts) amounts to nearly 9 percent of both total state employment and of total state output. In 2001, aviation contributed close to \$111 billion of total output of goods and services to California’s total Gross State Product (GSP) of over \$1.3 trillion. Employment in California totaled 19.5 million in 2001, and 1.7 million jobs were supported by the aviation sector.

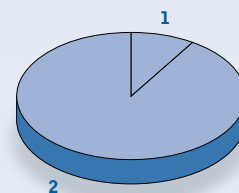
ECONOMIC IMPACT OF AVIATION ON CALIFORNIA GROSS STATE PRODUCT: AVIATION-RELATED OUTPUT IN CALIFORNIA – 2001

Category	Output (in \$)	Percent of Total
1 Aviation-Related Output	110.7 billion	9%
2 Rest of Gross State Product	1.2 trillion	91%
Total	1.3 trillion	100%



AVIATION-RELATED EMPLOYMENT IN CALIFORNIA – 2001

Category	Employment (in millions)	Percent of Total
1 Aviation-Related Employment	1.7	9%
2 Other Employment	17.8	91%
Total	19.5	100%

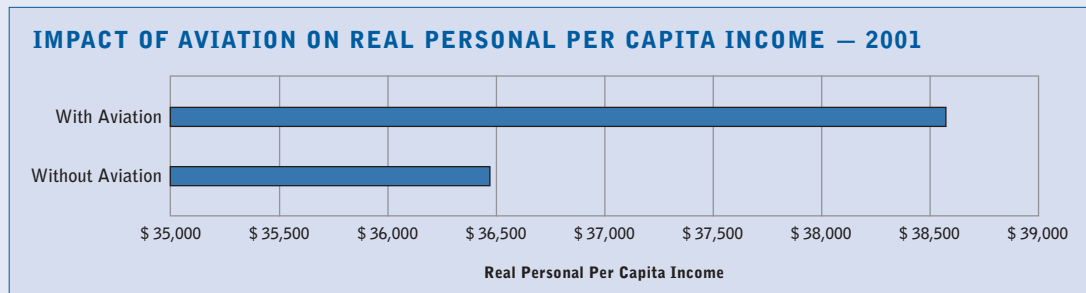


The key economic contributions of this sector can be summarized as follows:

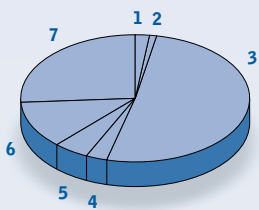
- In today’s international and technology-oriented economy, essentially every business sector gains operating efficiency because of air service. Trends such as just-in-time production and delivery and the fast-paced technology sector rely upon quick goods movement over long distances. Air transportation reduces the time and storage cost of doing business.
- A vast majority of long-haul tourists, conventioners, and business travelers to California, who often have the highest per capita spending, arrive via commercial air service. The California tourism sector, including hotels, convention facilities, restaurants, retailers, and major amusement attractions, is substantially better off due to convenient and affordable air travel.

- With the increased integration of the global economy, California firms not only sell goods but also provide a wide variety of professional services to overseas clients. Face-to-face contacts made possible via air travel are essential to establishing the trust necessary to initiate a business relationship in several industries.
- The airlines, airports, and businesses that support airports provide jobs and income throughout the state.
- Several government agencies that are responsible for functions such as fire suppression, disaster response, and law enforcement rely upon air service and airports to effectively carry out their missions.
- California has a number of firms that manufacture aircraft components and provide aircraft repair service.
- California’s commercial space sector, a leader in the nation, contributes high-level jobs and income in addition to the advancement of scientific knowledge.

Because of the aviation sector, the state economy is stronger and individual Californians, on average, earn more income.



Aviation also generates tax revenue for the State through a variety of mechanisms, including personal property taxes, taxable aviation gasoline revenues, taxable aircraft jet fuel, excise tax revenues, possessory interest tax, and sales tax on general aviation aircraft. Total tax revenue generated as a result of aviation in FY 2002 was slightly over \$250.2 million.



Type of Tax	Tax Revenue Generated (in millions of \$)	Percent of Total
1 Excise Tax Revenue – Aviation Gasoline	\$ 5.2	2%
2 Excise Tax Revenue – GA Jet Fuel	\$ 2.4	1%
3 Sales & Use Tax – Jet Fuel for Airlines	\$ 128.3	51%
4 Sales & Use Tax – Jet Fuel for General Aviation	\$ 7.0	3%
5 Sales & Use Tax – Aircraft Sales	\$ 12.7	5%
6 Possessory Interest Tax – Airlines	\$ 29.0	12%
7 Personal Property Taxes	\$ 65.7	26%
Total Tax Revenue Generated	\$ 250.2	100%

IMPACT ON CALIFORNIA LIFE AND COMMUNITIES

In addition to tangible benefits, aviation greatly enhances the quality of business, personal and family life for all Californians. Air transportation allows an average citizen to reside anywhere around the world and still keep in touch by reaching their destination faster than any other mode. People travel to and from the state for various reasons including business, tourism, family vacations, reunions, weddings, other celebrations and events, funerals, work or just to keep in touch. All this can be accomplished quickly because of aviation.

Although the major economic impacts of the aviation sector come through the large and medium hub airports, aviation enhances many aspects of California life in smaller communities as well. Because of aviation, the agricultural products grown in the Central Valley reach overseas markets while still fresh. The wine-growing regions benefit from tourists flown in by aircraft, the use of remote sensing from aircraft and satellite for quality control, and pest control from crop dusters. The entertainment industry (so vital to the economy of Southern California), transports film stars and crew to remote locations all over the world to shoot movies or television shows. By providing time-efficient linkages to centers of technology growth, airports and air service allow many smaller communities, like Chico, Hollister, Auburn and San Luis Obispo, to participate in California's economic transformation. During off-peak periods, many smaller communities use airport grounds or buildings for local community events. Japan Airlines trains its pilots at Napa County Airport, and test pilots from around the world train at Mojave Airport's experimental flight and test training center.

Aviation affects life in California in numerous ways, including the following:

- **Catalyst for Economic Development**—California corporations continue to decentralize their operations by moving to smaller, more economical communities to be more competitive. Many companies locate in a community because of the presence of an airport, and adjacent industrial parks. An increasing number of companies and executives are avoiding the “hassle factor” of commercial airports and airlines by opting to use corporate charter air services for business travel, typically operating from smaller airports.
- **Convenient Venues for Business Activities**—Airports that offer convenient schedules to and from multiple destinations are efficient meeting venues for government officials, executives, managers and decision-makers to whom time is of great value. General aviation airports serve as offices to “brief-case businesses.”
- **International Gateways**—California exported almost \$107 billion in goods worldwide to 219 different countries and is the nation's top exporter to Asia. Air transport in California is critical for the increasing integration of the global economy, especially as a gateway to the Pacific Rim and Mexico. Computer and electronic products account for nearly half of all California exports by value.
- **Air Cargo Services**—In 2000, the value of air cargo moved through California's airports was \$173 billion. Air cargo, consisting mainly of high-value, time-sensitive documents and goods plays a significant role in the vitality of the state's economy. Speedy delivery of goods and services is essential to many manufacturing, e-commerce, catalog and service businesses. Postal services depend on air transportation for timely delivery of mail and small packages, and dedicated air cargo carriers such as Federal Express, Airborne Express, DHL, and United Parcel Service provide air express service, often with overnight delivery.
- **California Agriculture**—California is the country's overall agriculture production leader (growing more than half of the nation's fruits, nuts and vegetables) with specialty crops such as almonds, clingstone peaches, olives, plums and walnuts, which are almost exclusively grown here. Annually,

\$6.5 billion in food and agricultural commodities are shipped around the world (Canada and Japan being the top two destinations), much by air due to the perishable nature of the products. In 2001, the state's gross cash income from agriculture amounted to \$27.6 billion. If California were a nation, it would be the sixth leading agricultural exporter in the world, shipping approximately 14 percent of the state's production to foreign countries. The top four counties in agriculture production are Tulare, Fresno, Monterey and Kern Counties. The leading export products are almonds, cotton, wine, table grapes, milk/cream, oranges, processed tomatoes, rice, beef, and lettuce. California's airports contribute greatly to the success of its agriculture industry, providing services for export shipment, corporate travel, crop dusting, crop storage facilities, and aerial photography.

- **The Wine Industry**—Wine is California's number one finished agricultural product in retail value, and its production ranks fourth in the world. With around 850 commercial wineries in the state, California boasts 98 percent of wine shipments from the United States. Large and small airports play important roles in the success of our "award-winning" wine industry, contributing to export shipments, pest control, local tourism and industry corporate travel. The industry employs 145,000 people in the state and pays \$4.3 billion in wages. The majority of wineries are in Napa, Sonoma and San Luis Obispo Counties with a concentration also found in Mendocino, Santa Cruz, Santa Barbara, Monterey, and Alameda Counties.
- **The Entertainment Industry**—California's entertainment industry (movies, television production, recording studios, amusement parks and concerts) generates \$28 billion in direct spending and directly employs 226,000 people. Though most of its economic impact is concentrated in Los Angeles County, other California counties also benefit from some of the industry's decentralized activities with several airports facilitating entertainment industry needs.
- **Tourism in California**—As the most visited state in the country, California has 12 percent of the U.S. travel market, which translated into approximately 317 million domestic and international travelers during 2001. Travel and tourism expenditures amount to \$75 billion each year, providing employment for over one million residents. While much of the tourist travel is to the major metropolitan areas like Los Angeles, San Francisco, San Diego and Orange County, the state's system of airports has been critical to the success of California's tourism industry in less urbanized parts of the state. Because California is well known for its outdoor and recreational activities such as hiking, sightseeing, camping, fishing, skiing, and mountaineering, and venues for these activities are typically located outside of major urban areas, general aviation airports located in smaller communities play an important role in tourism.
- **Disaster Preparedness and Emergency Response**—California's airports are critical for providing emergency response services to natural disasters including fires and earthquakes. They also play an important role in disaster preparedness and response, both natural and terror-related. The 13 California Department of Forestry and Fire Protection (CDF) bases located at airports play a major role in fighting wildland fires.
- **Medical Services**—Many lives have been saved as a result of emergency and critical medical services provided through aviation, particularly in more remote communities. Examples include medical and life flights, flights carrying donated organs, and the retention of world-class medical professionals in smaller communities.
- **Law Enforcement and Public Safety**—Local, state, and federal law enforcement agencies rely upon aviation to enforce laws and maintain public safety in California. Agencies such as the California Highway Patrol, the U.S. Coast Guard, the U.S. Drug Enforcement Agency, the U.S. Border Patrol, and local county sheriff's departments rely upon aviation and airports to carry out their law enforcement duties.

- **Education and Training**—Many of California’s smaller airports serve aviation-related training and education functions that are at the forefront of technological innovation. The students and visitors that take part in these training programs spend dollars in local hotels, restaurants, shops and service establishments. There are also several airports throughout the state that have aviation-related museums.
- **Airports as Important Civic Partners**—Many California airports provide services that contribute to their local communities in ways beyond transportation. Some hold annual air shows and organize fundraising events that benefit local charities. Others provide space for meetings and services for local non-profit and civic organizations, and several cooperate with local schools and youth groups providing educational aviation information and events for youth.
- **Managing Airports as a System**—When airports in a region are managed and operated as a system, there is opportunity to integrate the use of various sizes and types of airport facilities to meet the range of air transportation needs. The system of five airports managed by Sacramento County is a good example. Sacramento County’s airport system serves the state capital and a region extending as far north as Redding, south to Modesto, east into the Sierra Nevada foothills and west into Yolo, Solano and Napa Counties. It provides a wide range of custom air services to several of the state’s rapidly growing communities along the I-80, I-5, Highways 50 and 99 corridors. The region abuts the heavily used San Francisco Bay Area’s network of airports and offers Bay Area travelers and shippers an attractive alternative to the congested Bay Area airports. The county airport system supports business from high technology manufacturing to small companies. It serves the agriculture and biotech industries, hospitals, universities, law enforcement, traffic reporting, medical evacuation, fire fighting, the California National Guard, U.S. Coast Guard, aircraft maintenance, flight training and recreation.
- **Redevelopment of Former Military Airfields**—The Department of Defense (DOD) closed 29 military installations in California during the four rounds of Base Closure and Realignment (BRAC) from 1992-2001. The economic impact of these closures on California’s economy totaled \$9.6 billion in annual revenue reduction, and the loss of almost 100,000 high-paying jobs throughout the state. In many cases, the closed military installations included an airfield that was converted to civilian aviation uses. By looking at former military air fields that are now public use airports, it can be seen how these new facilities are increasing the capacity of the state’s airport system in addition to providing opportunities to improve the state’s intermodal transportation system. Converted airfields also serve as catalysts for business and employment opportunities that stimulate economic revitalization and growth for their communities and the state.

THE ROLE OF AVIATION IN GOVERNMENT SERVICES

The government sector relies on and influences aviation in California. A number of government agencies have responsibilities and activities related to aviation that range from airport operations to the regulation of commercial and general aviation. Many government agencies are also finding that aircraft operations and aviation facilities are of increasing importance to their primary mission. For example, the U.S. Forest Service and the California Department of Forestry and Fire Protection use light aircraft to spot fires and aerial tankers and helicopters to suppress fires. Aircraft can respond to fires in remote and rugged mountainous areas much more quickly than ground personnel. The California Highway Patrol and federal agencies like the Customs Service, Drug Enforcement Administration, Border Patrol and Marshal Service all find that aircraft use is essential to the performance of their law enforcement functions.

Federal agencies use aircraft and aviation facilities for a number of activities including fighting fires, enforcing laws, and facilitating international trade. A major benefit of having these agencies located here is the economic return due to their presence. Federal agencies that rely on aviation to carry out their responsibilities or that are involved with aviation include the following:

- The Federal Aviation Administration
- National Aeronautics and Space Administration
- Transportation Security Administration
- U.S. Customs Service
- U.S. Forest Service
- U.S. Drug Enforcement Administration
- U.S. Border Patrol
- U.S. Coast Guard
- U.S. Marshal Service
- U.S. Postal Service

State government agencies also utilize aircraft and aviation facilities for a diverse group of responsibilities and needs from fire fighting, to law enforcement, to tracking wildlife. State agencies that rely on or are involved in aviation include:

- California Department of Fish and Game
- California Department of Forestry and Fire Protection
- California Department of Justice
- California Department of Transportation (Division of Aeronautics)
- California Highway Patrol

In addition, local government agencies are generally responsible for their own airport operations and planning and use airports for local law enforcement. Some governmental agencies use airports to help spur economic activity through promoting and expanding their airports.

CALIFORNIA'S SPACE INDUSTRY

California has more aerospace manufacturers than any other state. It has three of the six international satellite manufacturers, two of the five federal spaceports, and is one of four states to have a commercial spaceport. One of the most critical and dramatic aspects of the commercial space industry is the launching of satellites and other payloads on massive rockets. Spaceports house launch pads and runways as well as provide the equipment and fuel needed to prepare launch vehicles and their payloads prior to launch. California has the highest concentration of launch facilities and enjoys unique and unparalleled access to space. Vandenberg Air Force Base and Edwards Air Force Base in California are two of the five U.S. federal spaceports and the California Spaceport at Vandenberg is one of four commercial spaceports in the U.S. In addition, Sea Launch, based in Long Beach, is the world's only ocean-based launch services company providing a direct route to geosynchronous transfer orbit for commercial satellites.