

Southern California Association of Governments

SCAG

Regional Aviation Plan
for the
2004 REGIONAL TRANSPORTATION PLAN

April 2004



SCAG MISSION STATEMENT

REGIONAL COUNCIL MEMBERS

Leadership

Vision

Progress

Leadership, vision and progress which promote economic growth, personal well-being, and livable communities for all Southern Californians.

The Association will accomplish this Mission by:

- Developing long-range regional plans and strategies that provide for efficient movement of people, goods and information; enhance economic growth and international trade; and improve the environment and quality of life.
- Providing quality information services and analysis for the region.
- Using an inclusive decision-making process that resolves conflicts and encourages trust.
- Creating an educational and work environment that cultivates creativity, initiative, and opportunity.

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9.07.04

An aerial photograph of an airport terminal and control tower, serving as a background for the document. The terminal is a long, modern building with a glass facade, and the control tower is a tall, cylindrical structure with a glass-enclosed top. The tarmac is visible in the foreground, with several aircraft parked at gates.

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EXECUTIVE SUMMARY

The 2004 Regional Aviation Plan, as a component of the 2004 Regional Transportation Plan indicates the following:

- Air passenger demand in the SCAG region will more than double, to 170 million passengers in 2030.
- Air cargo will more than triple, to 8.7 million tons in 2030.
- A decentralized airport system is needed that maximizes use in the Inland Empire and North Los Angeles County, including former military air bases and joint use facilities.
- Airport development should be focused on the underutilized airports rather than expanding existing urban airports.

There are several critical regional aviation issues affecting the future regional aviation system that SCAG has examined, or is examining, as part of the Regional Aviation Plan that may impact its implementation:

- Future population and employment growth.
- Regional demand versus capacity. There is limited available capacity at urbanized airports, but significant available capacity at closed military airports, or joint-use facilities.
- Multiple airport authorities.
- LAX modernization in a built out, urban environment.
- Ground access alternatives, including Magnetic Levitation (MAGLEV) high speed rail technology.
- Regional airspace requirements.
- The role of general aviation (including corporate aviation) at the commercial airports, and other urban airports.



Implementation of the Regional Aviation Plan will be challenging. SCAG has broad federally mandated transportation planning powers but no aviation implementation power. However, SCAG recommends a number of steps towards implementation of the plan, including:

- Increased airport cooperation through integrating master plans, and developing memoranda of understanding between airport owners and operators.
- A greater role for Los Angeles World Airports (LAWA) in attracting more international service at Ontario and building a robust flight portfolio at Palmdale.
- Formation of a Regional Airport Consortium that helps to coordinate airport master plans and capital improvements, consistent with the Regional Aviation Plan.
- Close coordination between the Consortium and the MAGLEV Joint Powers Authority to ensure system integration.
- Specific phasing goals for Short Term, Medium Term and Long Term implementation to ensure that the Regional Aviation Plan is realized.

REGIONAL AVIATION PLAN (2030)		
	Passengers (in Millions)	Air Cargo (Thousands of Tons)
Bob Hope	10.7	87
John Wayne	10.8	43
LAX	78	2340
Long Beach	3.8	137
March	8	1117
Ontario	30	2252
Palm Springs	3.2	128
Palmdale	12.8	1024
San Bernardino	8.7	1092
Southern CA Logistics	4	504
TOTAL	170.0	8,724

REGIONAL AVIATION PROFILE

The SCAG Region has 57 public use airports, including six established commercial service airports, 45 general aviation, two recently closed military air bases (one certified as a commercial service airport), two commuter airports, and two joint-use facilities.

In all, almost 79 million annual passengers (MAP) were served in the Region in 2003, almost double the number served in 1980. The level of air passenger demand is forecast to double again before 2030. While none of the individual airports is the largest in the U.S., the Region's airports taken together make Southern California the busiest of all regions in the country in terms of total aircraft operations.

There are eight airport governing bodies responsible for planning the ten commercial service airports in the regional airport system. These airports are:



- Bob Hope (BUR)
- John Wayne (JWA)
- Los Angeles International (LAX)*
- Long Beach (LGB)
- March Inland Port (MAR)
- Ontario International (ONT)*
- Palm Springs (PSP)
- Palmdale Regional (PMD)*
- San Bernardino International (SBD)
- Southern California Logistics (SCL)

**Operated by Los Angeles World Airports*

Air Passengers

Currently, six established commercial service airports handle the majority of passenger air traffic: Bob Hope, John Wayne/Orange County, Long Beach, Los Angeles International, Ontario International and Palm Springs. Limited commercial service exists at Oxnard and Imperial County airports. Passengers are currently concentrated at urban airports with LAX serving almost 70 percent of the regional total. This air service concentration at LAX creates severe airport ground access problems. With worsening highway congestion in the future, LAX will become increasingly difficult to access for passengers and air cargo.

Both the recent recession and the impacts of September 11, 2001 (9/11) are still being felt in the aviation industry. The terrorist acts fundamentally changed the way airports think about security and safety, while the recession changed the way business passengers purchased air travel. After 9/11 the number of regional air travelers dropped dramatically. Beginning in 2002 airports in the region started to show signs of recovery. Smaller regional airports like Bob Hope, Ontario and John Wayne are close to pre-9/11 passenger numbers, while Long Beach has had tremendous growth. At LAX, international travel suffered the greatest from 9/11 and more recently the SARS outbreak. These events have slowed passenger activity at LAX. However, LAX has shown a recent upsurge in passenger and cargo growth and should soon be back to pre 9/11 levels.

HISTORICAL ANNUAL PASSENGERS (IN MILLIONS)							
	1975	1980	1985	1990	1995	2000	2003
Bob Hope	1.6	1.9	2.9	3.5	5.0	4.8	4.7
John Wayne	1.8	2.4	3.3	4.6	7.2	7.8	8.5
Long Beach	0.3	0.2	1.1	1.5	0.4	0.6	2.9
Los Angeles	23.7	33.0	36.3	45.9	53.9	67.7	55.0
Ontario	1.3	2.0	3.6	5.4	6.4	6.7	6.5
Palm Springs	0.3	0.5	0.6	0.9	0.9	1.3	1.2
TOTAL	29.1	40.0	47.8	61.8	73.9	88.9	78.9

Air Cargo

Airports play an important role in goods movement, as air cargo is transported in either passenger aircraft belly-holds or in dedicated freight aircraft used primarily for high value, time sensitive shipments. In 2003, 2.7 million tons of air cargo were handled by the region's airports.

Regional air cargo has grown at an average annual rate of 6.6% since 1965. Los Angeles International and Ontario International are the major cargo handling airports, transporting about 96% of all regional air cargo, with LAX alone accounting for 75% of the traffic. Ontario air cargo traffic has increased by seven times since 1979, while LAX has doubled in the same period. Bob Hope, John Wayne and Long Beach handle substantially less cargo.

HISTORICAL AIR CARGO TONNAGE (In Thousands)							
	1975	1980	1985	1990	1995	2000	2003
Bob Hope	0	0	7	20	36	37	48
John Wayne	0	0	0	0	16	18	15
Long Beach	0	1	4	19	27	52	56
Los Angeles	715	882	929	1,284	1,761	2,249	2,004
Ontario	3	5	176	246	387	511	587
Palm Springs	0	0	0	0.4	0.2	0.1	0.1
TOTAL	718	887	1,116	1,570	2,227	2,867	2,710

The air cargo industry was significantly impacted by the 2001 terrorist attacks. The Transportation Security Administration (TSA) mandated that U.S. mail over 16 ounces could no longer be carried in the belly compartments of passenger aircraft. This restriction, as well as a recent tightening of the “known shipper” requirement, has limited the amount of air cargo carried on passenger aircraft.

Another key issue is surface congestion. While the majority of regional air cargo is only served by two airports, the ability of the already crowded surface transportation infrastructure to accommodate air cargo demand is limited. Orange County, which generates about 30% of regional air cargo serves less than three percent of this amount. To complicate matters, the San Diego region sends about 75% of its air cargo to SCAG regional airports for shipping.

The focus of new airports such as March, Southern California Logistics, and San Bernardino International on initially serving freight helps to relieve the pressure on LAX and Ontario, as well as relieving surface congestion, and serves the goal of decentralizing regional air services.

More than 70% of all air cargo in the region is now shipped on dedicated freighter aircraft, as compared to 59% in 1994. The continuing shift of cargo from the belly holds of passenger planes to dedicated all cargo freighters has enhanced the ability of suburban airports to serve cargo in the all cargo mode.

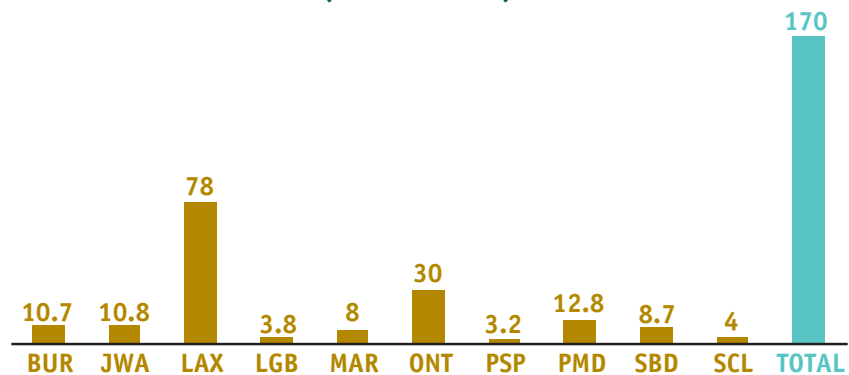
2030 REGIONAL AVIATION PLAN

Passenger Aviation Forecast

Despite the recent downturn in air traffic, urban airports should reach their physical or legal capacity within the forecast period. The airports are all encroached and have little room to expand without generating significant environmental impacts and community opposition. While urban airports are all highly constrained, suburban airports all have available capacity, that is sufficient to serve projected regional growth in demand.

The economic costs of doing nothing are substantial. For every one million regional air passengers, it is estimated that there is a positive regional economic impact of \$620 million (in 1998 dollars) and 4,475 jobs. SCAG estimates that under a fully constrained aviation system, only 141 million passengers would be served in 2030.

2030 AIR PASSENGERS
(In Millions)



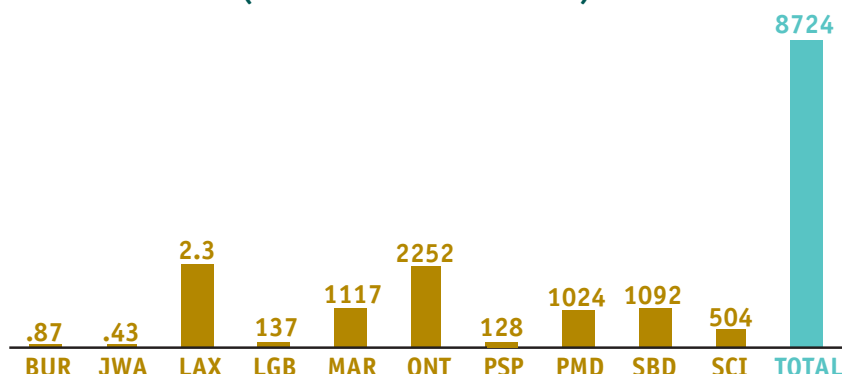
2003 AND 2030 REGIONAL AVIATION PLAN AIR PASSENGERS

	BUR	JWA	LAX	LGB	MAR ¹	ONT	PSP	PMD	SBD	SCL	TOTAL
Existing Conditions (2003)	4.7	8.5	55.0	2.9	0	6.5	1.2	0	0	0	78.9
Regional Aviation Plan (2030)	10.7	10.8	78.0	3.8	8.0	30.0	3.2	12.8	8.7	4.0	170.0

¹Air Force Reserve Activity at March is projected to remain at 51,426 annual operations. The primary objective of the commercial airport is cargo operations. SCAG projections assume commercial passenger service not yet contemplated by the March Joint Powers Commission. SCAG has a long standing policy to give priority to military and national defense needs.

SCAG has updated its regional growth forecast and has developed a new aviation demand forecast and plan that maximizes airport efficiency on a regional scale. Under the plan, there is a forecast regional demand of 170 million passengers in 2030, which results in an economic benefit of \$18 Billion and 131,000 jobs over a constrained system.

2030 AIR CARGO (In Thousands of Tons)



Under the Regional Aviation Plan, future demand for air travel will be largely served by using available capacity at airfields located in the Inland Empire and north Los Angeles County where forecast population growth will be best served, rather than relying on expanding constrained urban airports. Cooperation between airport authorities is necessary to ensure efficient usage of capacity. Using this available capacity promotes a decentralized system that relieves pressure on constrained airports, minimizes environmental impacts, and reduces stress on the region's surface transportation infrastructure.

The Regional Aviation Plan attempts to distribute long haul and international service to suburban airports, particularly Palmdale. With international service established at Palmdale and Ontario airports, the region would have a balanced system of three international airports, similar to the San Francisco Bay Area and New York regions. The Regional Aviation Plan incorporates the proposed MAGLEV system, which will strategically connect the major airports and augment a balanced distribution of aviation demand and services in the region.

REGIONAL AVIATION PLAN ECONOMIC IMPACT

Variation	Passengers (Millions)	Economic Impact (1998 Dollars)	Jobs	Economic Benefit (compared to Constrained)
Constrained	140.8	\$ 87 Billion	630,000	—
Regional Aviation Plan	170.0	\$105 Billion	761,000	\$18 Billion / 131,000 Jobs
Fully Unconstrained	192.0	\$119 Billion	859,000	\$32 Billion / 229,000 Jobs

The 170 total MAP served by the Regional Aviation Plan in 2030 is slightly higher than the 167.3 MAP that was forecast to be served by the 2001 adopted aviation plan by 2025. Given a lower aviation demand forecast resulting from the events of September 11, 2001, and the recent economic downturn, it can be concluded that the new assumptions and concepts incorporated into the Regional Aviation Plan alleviates the substantial loss of future capacity associated with removing the former MCAS El Toro from the regional system.

Air Cargo Forecast

Under SCAG's Regional Aviation Plan, air cargo handling becomes more decentralized. LAX, while serving greater amounts of air cargo, drops from handling 74% of regional air cargo at present to 27% in 2030. Ontario's air cargo-handling jumps from 21% to nearly 26%. Other airports in Palmdale and the Inland Empire evolve from serving almost no air cargo to serving a combined 44%.

AIR CARGO DEMAND – 2003 AND 2030 (In Thousands of Tons)				
	2003		2030	
	Tons x 000	Percent of total	Tons x 000	Percent of total
BUR	48	1.7%	87	1.0%
JWA	15	0.6%	43	0.5%
LAX	2,004	73.9%	2,340	26.8%
LGB	56	2.1%	137	1.6%
MAR	0	0.0%	1,117	12.8%
ONT	587	21.7%	2,252	25.8%
PSP	0.1	0.03%	128	1.5%
PMD	0	0.0%	1,024	11.7%
SBD	0	0.0%	1,092	12.5%
SCL	0	0.0%	504	5.8%
TOTAL	2,710	100%	8,724	100%

GENERAL AVIATION

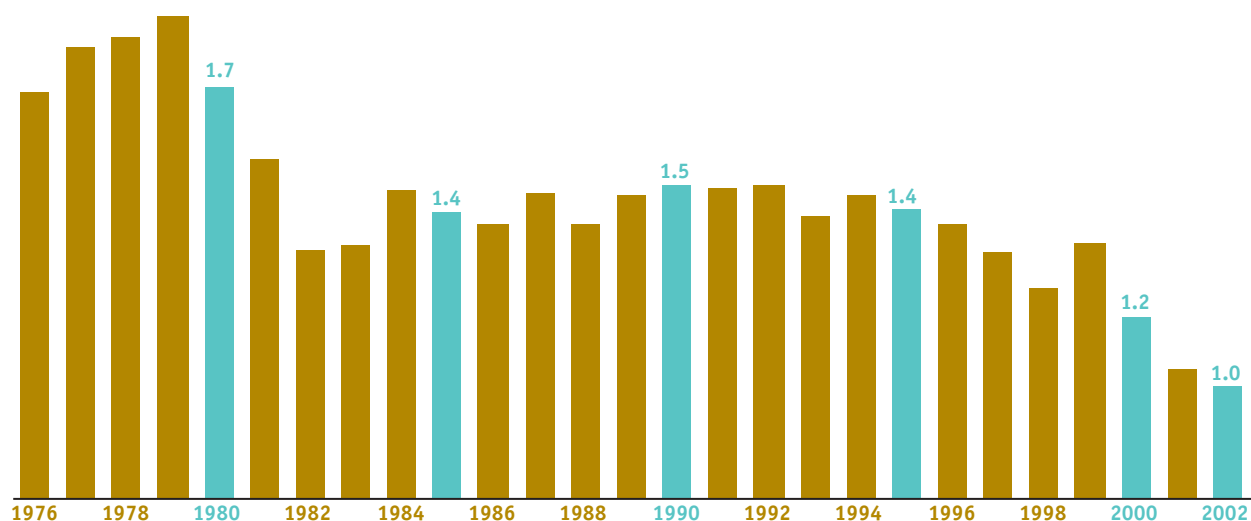
General aviation is an integral part of the regional aviation system as well as the regional economy. Smaller airports act as relievers to commercial airports, allowing commercial aircraft, business and personal aircraft to operate in a safer environment. Also, for areas that have a significant economic base, corporate aviation activity works to support the local economy.

However, general aviation does not exist separately from commercial aviation. Changes in the growth, or development, of the primary international and commercial reliever airports in a region have "ripple" effects on other regional airports. As an airport grows, reaches capacity and expands, market forces push off smaller, less efficient aircraft in favor of more efficient large aircraft that can handle a greater number of passengers or cargo. Market forces include increased costs associated with staying at the commercial airport, a more complex airspace environment and the safety factor of combining smaller propeller driven aircraft with multi-engine commercial jet aircraft.

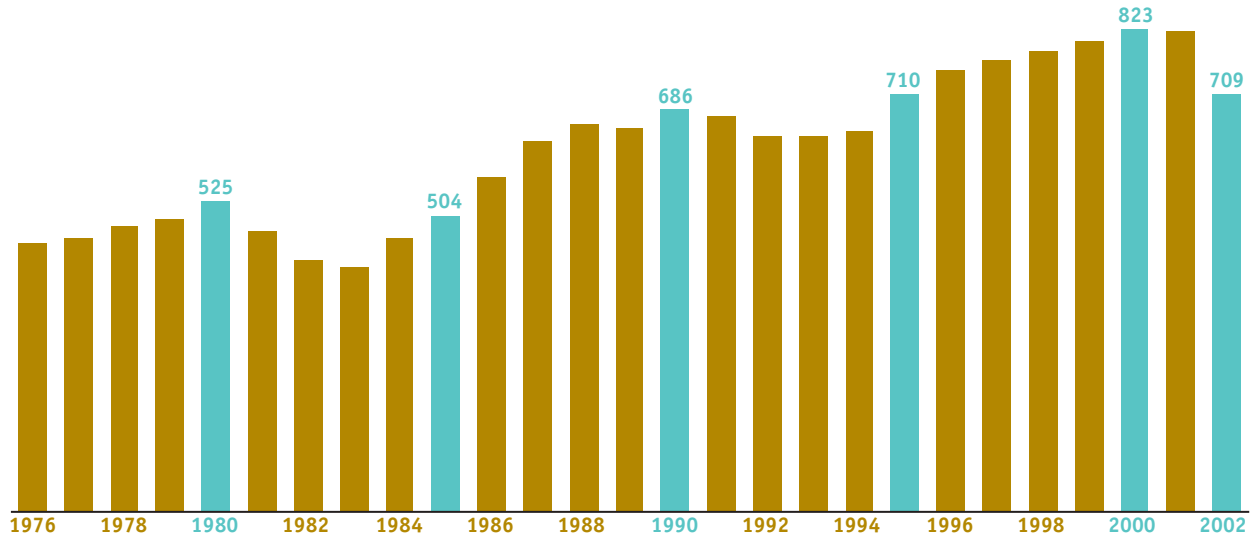
The ripple effect of SCAG commercial airports approaching their physical or legal constraints on smaller airports is already occurring. This can be seen in the decline of general aviation activity at regional commercial airports in the figures below. Exceptions are airports that have constrained commercial activity, such as John Wayne and Long Beach. Also, some larger urban general aviation airports are taking steps designed to preserve smaller (propeller driven) aircraft activity.

Under the Regional Aviation Plan, by 2030, urban commercial airports in the region will have reached their physical or legal capacity. Urban general aviation airports will also have reached

GENERAL AVIATION OPERATIONS AT SCAG COMMERCIAL AIRPORTS (In Millions)



COMMERCIAL OPERATIONS AT SCAG COMMERCIAL AIRPORTS (In Thousands)



capacity. Indeed, most urban general aviation airports already have reached (surface) aircraft handling capacity, and have waiting lists for hangars for based aircraft. Runway capacity is more independent of based aircraft dependent upon the number of transient activity. Therefore airport activity can increase, even though the airport cannot support any more based aircraft.

SCAG's commercial aviation plan assumes the growth of corporate activity at both suburban air carrier and large (urban and suburban) general aviation airports. Much of this corporate growth will be in the rapidly urbanizing portions of western Riverside and San Bernardino Counties, as well as the eastern portion of Los Angeles County.

GENERAL AVIATION FORECAST (Annual Operations)						
	2005	2010	2015	2020	2025	2030
Imperial	105,250	110,278	115,556	121,875	126,903	131,931
Los Angeles	2,130,999	2,282,557	2,432,018	2,380,123	2,467,284	2,780,316
Orange	340,088	356,189	372,255	388,306	404,456	420,965
Riverside	600,526	624,249	661,967	699,169	737,656	777,326
San Bernardino	766,859	811,508	858,893	906,961	956,308	1,008,278
Ventura	371,500	377,392	383,129	396,827	398,214	402,937
TOTAL	4,315,222	4,562,173	4,823,818	5,095,362	5,305,984	5,521,753

AIRPORT GROUND ACCESS

Ground access, or how people and goods get to and from the airport, is a critical key in the SCAG regional aviation strategy. Ground access is also a component of the Regional Transportation Plan (RTP), a federally mandated long-range transportation plan, which provides a framework where critical surface transportation infrastructure can be planned and implemented.

The Airport Ground Access study in the 2004 RTP took passenger and air cargo forecasts and converted the data into vehicle trips for each airport. This data was then added to the background traffic forecast made by the SCAG regional transportation model. Choke points near airports were identified, and projects were recommended for alleviating the congestion. Projects were divided into Phase 1 projects (included in the 2004 RTP), and Phase 2 projects (to be considered for future RTP's). Cost estimates and funding sources for the projects were also developed.

One critical component of the aviation plan is the proposed Intra- Regional Magnetic Levitation (MAGLEV) high-speed rail system. To meet future demands of regional growth, a high-speed rail Maglev system is being planned primarily to strategically connect the major airports and activity centers and to augment a balanced distribution of aviation demand. This system will also help to reduce the congestion, air pollution, noise and other impacts in the region.

When fully deployed, the Maglev system will ultimately cover a 275-mile network that would complement the existing state freeway system. SCAG has completed feasibility studies to evaluate each of the four proposed Maglev corridors in the region:

- Los Angeles International Airport (LAX) to March Inland Port in Moreno Valley in Riverside County
- LAX to Palmdale
- Los Angeles Union Passenger Terminal (LAUPT) to Anaheim in Orange County
- LAX to Irvine Transportation Center in South Orange County

The Maglev program also envisions future connections to San Diego and a connection between San Bernardino and Palmdale.



IMPLEMENTATION

The Regional Aviation Plan is designed to maximize efficiencies inherent in a coordinated and decentralized regional transportation system. The plan embraces a number of unique features to help promote a decentralized aviation system. Some of these features include the integration of airport master planning, seamless ground access connectivity, and the development of a Regional airport “Consortium”.

The integration of airport master plans (and all long range planning) is a very important first step in implementing the Regional Aviation Plan. By coordinating their master plan development, airports would be able to carve out service niches and not compete with each other, and truly work together as a system. The goal of integrating master plans is to maximize utilization of available airport capacities in the region. Los Angeles World Airports (LAWA) would play a key role in integrating master plans for the three airports it operates: LAX, Ontario and Palmdale.

Success of the Plan relies on passengers having adequate transportation access to reach decentralized airports in the Inland Empire, and north Los Angeles County. The implementation of the Maglev





system is vital to the success of the Regional Aviation Plan. The high speed rail system will draw passengers from urban cores, by being able to offer quick, convenient and predictable airport service. Coordinated planning of future Maglev deployment and airport capital improvements will ensure an efficient integration between the systems. In addition to Maglev, the implementation of local surface access projects identified in the 2004 RTP Airport Ground Access Analysis will also help relieve ground access congestion.

The Regional Aviation Plan requires that an airport “Consortium” be developed through memoranda of understanding between all of the airports in the regional system. The agreements will establish a common framework for coordinating all facility and ground access construction consistent with an adopted Regional Aviation Plan. The Consortium would focus on on-airport operations and facilities, and not have power of eminent domain. However, the Consortium will have the ability to act as a “broker” with airlines to provide a wide portfolio of service to suburban airports. The Consortium will be the primary mechanism for implementing the strategies central to the Regional Aviation Plan.

The broad strategies for implementing the Regional Aviation Plan will be carried out through specific measures that are described below:

- LAWA will develop an “Integrated Metropolitan Airport System Plan.” This plan will detail how LAX, Ontario and Palmdale will work with each other and other regional airports to efficiently meet regional aviation demand as defined in the Regional Aviation Plan.
- LAWA will provide needed financial support to Palmdale and Ontario airports to construct new facilities and establish long haul and international service through attractive pricing arrangements and other inducements.
- LAWA will broker cooperation from airlines to provide more robust flight portfolios at Palmdale and Ontario, including long haul and international service.
- Agreements between LAWA and non-LAWA airports will be developed to promote further decentralization of the regional aviation system. Different roles and market niches for airports will be defined, so as to reduce competition and increase cooperation and coordination between airports, and maximize utilization of available airport capacities in the region.

- The agreements will establish a common framework for a regional “Airport Consortium” that will coordinate all airport master planning and facility construction consistent with an adopted Regional Aviation Plan.
- The Regional Airport Consortium will coordinate with the Maglev implementing agency to ensure seamless Maglev connections to airports, and increase air passenger ridership through integrated fares and other market tools.

Phasing of Implementation Plan

Very short term (to 2006)

- LAWA finalizes integrated Metropolitan Airport System Master plan that integrates master plans for LAX, Ontario and Palmdale, and coordinates with plans for other airports in the region.

Short term (2006 to 2010)

- LAWA initiates discussions with airlines to broker services at Palmdale and Ontario. This will include start-up commuter and short haul service at Palmdale, and expansion of long haul and international service at Ontario.
- LAWA and non-LAWA airports initiate discussions to coordinate service and define complementary roles and market niches between airports.

Medium term (2010 to 2020)

- LAX approaches capacity constraints.
- LAWA coordinates with airlines to expand long haul and international service at Ontario Airport and initiates discussions on methods to establish long haul and international service at Palmdale Airport.
- LAWA and non-LAWA Inland airports finalize Memoranda of understanding and contractual agreements for forming a Regional Airport Consortium.
- Ontario Airport expands terminal facilities.
- Maglev Initial Operating Segment (IOS) from West L.A. to Ontario International Airport is completed.



Long term (2020-2030)

- Palmdale Airport constructs new international terminal facilities
- LAWA finalizes agreements with airlines to bring long haul and international service to Palmdale.
- LAX to Palmdale Airport MagLev segment is completed
- LAX to Irvine Transportation Center Maglev segment is completed.
- Union Station to Central Orange County (Anaheim) MagLev segment is completed.

Very long term (after 2030)

- Orange County to San Bernardino MagLev Segment completed
- San Bernardino to Victorville, Victorville to Palmdale, and March Inland Port to San Diego MagLev segments are completed.



SOURCES

Tables, Maps and Graphs

Regional Aviation Plan (2030)

SCAG Regional Transportation Plan, 2004

SCAG Commercial Service Airports

SCAG Regional Transportation Plan, 2004

Historical Annual Passengers (In Millions)

SCAG collected sources. See endnote.

Historical Air Cargo Tonnage (In Thousands)

SCAG collected sources. See endnote.

2030 Air Passengers (In Millions)

SCAG Regional Transportation Plan, 2004

2003 and 2030 Regional Aviation Plan Air Passengers

SCAG Regional Transportation Plan, 2004; and SCAG collected sources. See endnote.

2030 Air Cargo (In Thousands of Tons)

SCAG Regional Transportation Plan, 2004

Regional Aviation Plan Economic Impact

Extrapolated from the SCAG Aviation Economic Impact Study, 2000.

Air Cargo Demand – 2003 and 2030 (In Thousands of Tons)

SCAG Regional Transportation Plan, 2004, and SCAG collected sources. See endnote.

General Aviation Operations at SCAG Commercial Airports (In Millions)

SCAG General Aviation System Study, 2003

Commercial Operations at SCAG Commercial Airports (In Thousands)

SCAG collected sources. See endnote.

General Aviation Forecast (Annual Operations)

SCAG General Aviation System Study, 2003

Maglev System

SCAG Regional Transportation Plan, 2004

Endnote

All current and historical passenger, air cargo, and operations data is collected from each airport operator in the SCAG region: the Burbank-Glendale-Pasadena Airport Authority, Los Angeles World Airports, John Wayne Airport (County of Orange), Long Beach Airport, Palm Springs International Airport, Ventura County Airports, and Imperial County Airport.

SCAG MANAGEMENT

Mark Pisano, Executive Director

Jim Gosnell, Deputy Executive Director

Heather Copp, Chief Financial Officer

Hasan Ikhata, Director, Planning and Policy

Huasha Liu, Interim Director, Information Services

Karen Tachiki, Chief Counsel

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Graphics

Carolyn Hart, Senior Graphics Designer

Photography

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AVIATION PLANNING STAFF

For more information about the aviation planning program, please contact:

Rich Macias, Manager, Transportation Planning and Programs
(213) 236-1805
macias@scag.ca.gov

Michael Armstrong, Lead Regional Planner
(213) 236-1914
armstron@scag.ca.gov

Alan Thompson, Senior Regional Planner
(213) 236-1940
thompson@scag.ca.gov

Ryan Hall, Associate Regional Planner
(213) 236-1987
hall@scag.ca.gov

Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435
(213) 236-1800 • www.scag.ca.gov



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818 W. Seventh Street, 12th Floor • Los Angeles, CA 90017-3435 • 213-236-1800 • www.scag.ca.gov