

ARIZONA HOUSE OF REPRESENTATIVES
Fifty-second Legislature – First Regular Session

SENATE COMMITTEE ON TRANSPORTATION
AND
HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

Report of Special Joint Meeting
Tuesday, January 20, 2015
House Hearing Room 1 -- 2:00 p.m.

Convened 2:03 p.m.

Recessed

Reconvened

Adjourned 4:17 p.m.

Senators Present

Dial
Miranda
Pierce
Burgess, Vice-Chair
Worsley, Chairman

Senators Absent

Ableser (excused)
Begay

Representatives Present

Ackerley
Andrade
Borrelli
Campbell
Fann
Fernandez
Steele
Stevens, Vice-Chairman
Gray, Chairman

Presentations

<u>Name</u>	<u>Organization</u>	<u>Attachments (Handouts)</u>
Garrick Taylor	Arizona Chamber Council	
Eve Ross	W.L. Gore	
Steve Banta	Valley Metro	1
Michael Keith	Downtown Tucson Partnership	
Ann Warner	Total Spectrum	
Jim Miller	Total Spectrum	
Kristine Ward	Arizona Department of Transportation	
Kevin Biesty	Arizona Department of Transportation	
Robert Shuler	Self	
Lance Jungmeyer	Fresh Produce Association of the Americas	
Joe Husband	Arizona Airports Association	2, 3, 4

Committee Action

None.



Andrea Allen, Chairman Assistant
January 22, 2015

(Original attachments on file in the Office of the Chief Clerk; video archives available at <http://www.azleg.gov>)



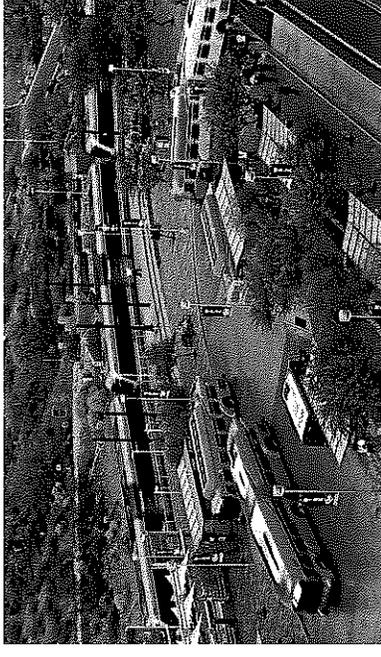
State of Transit

Joint Transportation Committee
Arizona House of Representatives

January 20, 2015

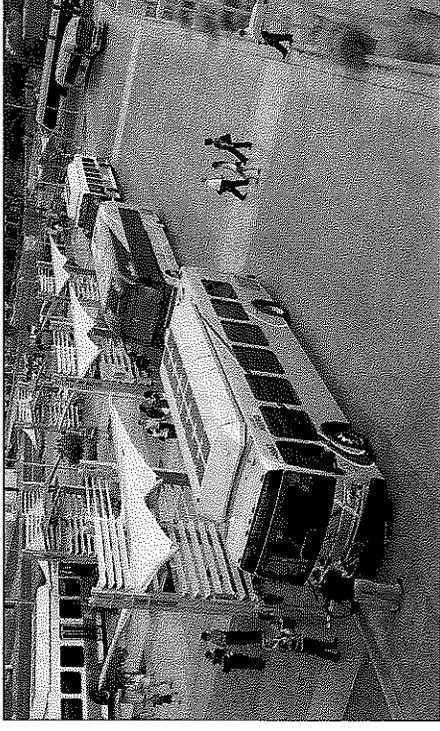
Total Transit Network

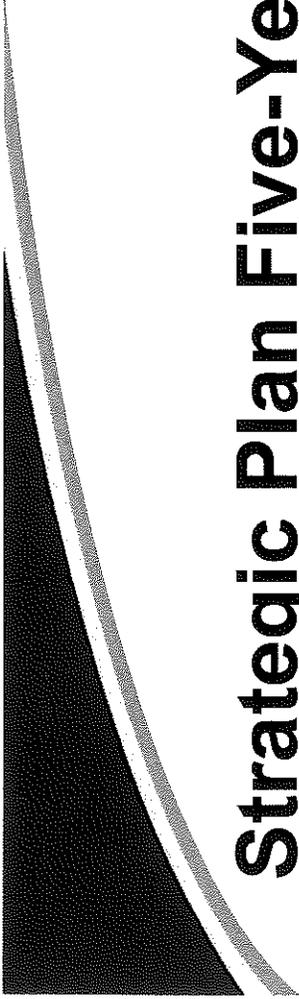
- Every transit mode serves a certain purpose and market.
- Many modes working in concert create a successful transportation network.
 - Enhancing quality of life and economic activity
- We have to continue to build and expand.



Growing System

- Operates 365 days a year
- 61 local/LINK routes
- 19 Express/RAPID routes
- 21 circulator routes
- 20 miles of light rail
- 412 vanpools
- 45 million revenue miles operated
- 74 million passenger boardings
- 91% of the fleet is alternatively fueled



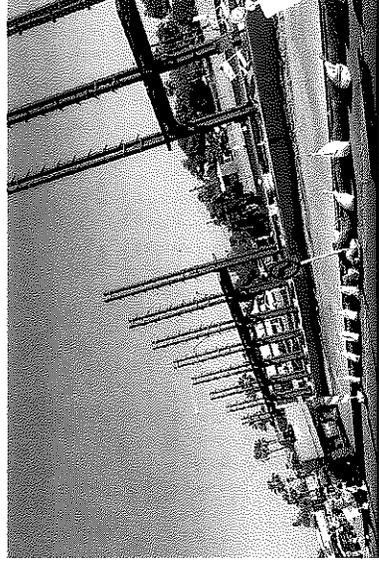
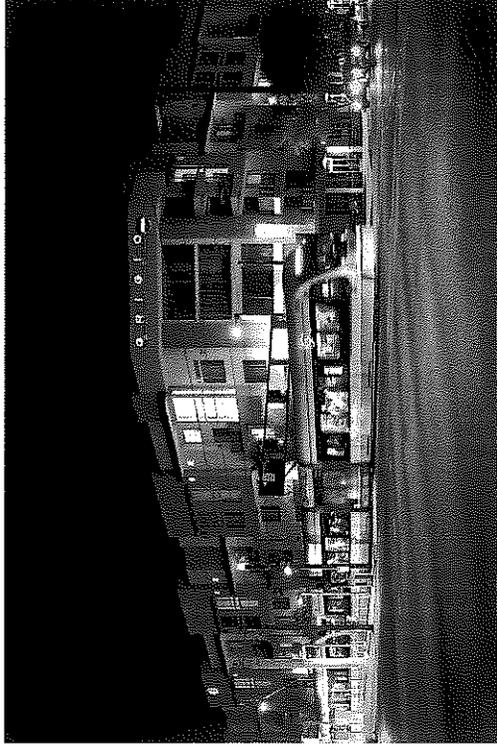


Strategic Plan Five-Year Goals

1. Increase customer focus
2. Advance performance based operation
3. Grow transit ridership
4. Focus on economic development, regional competitiveness and financial resources
5. Advance the value of transit

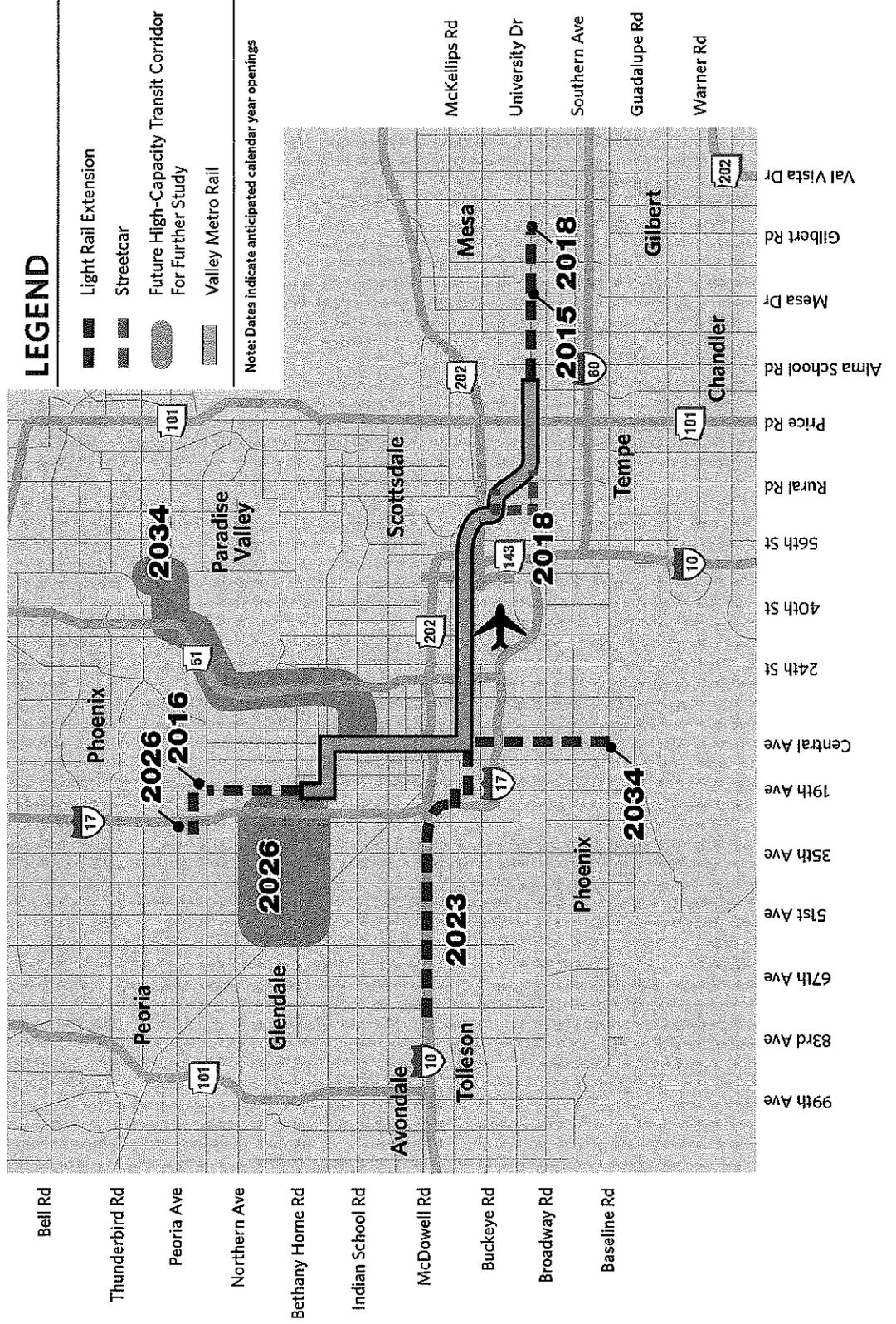
Economic Development Success

- \$6.9 billion in adjacent economic development
 - Private and public sector
 - 16,500+ residential units
 - 13M sq. ft. commercial
 - 3,400+ hotel rooms
- 5:1 return on investment
- Seeing early investment in future extensions



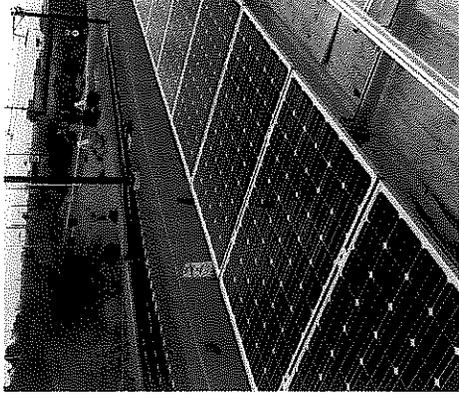
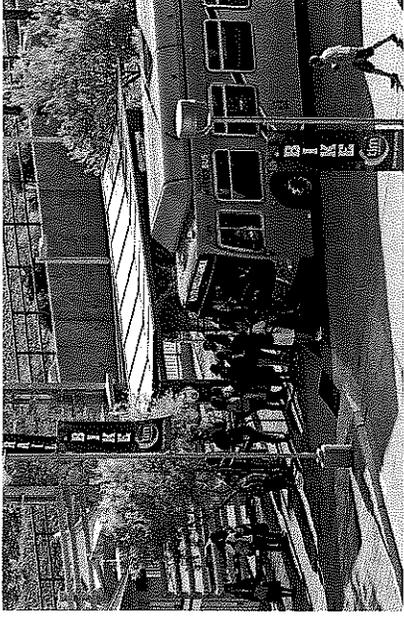


66-mile Future Rail System



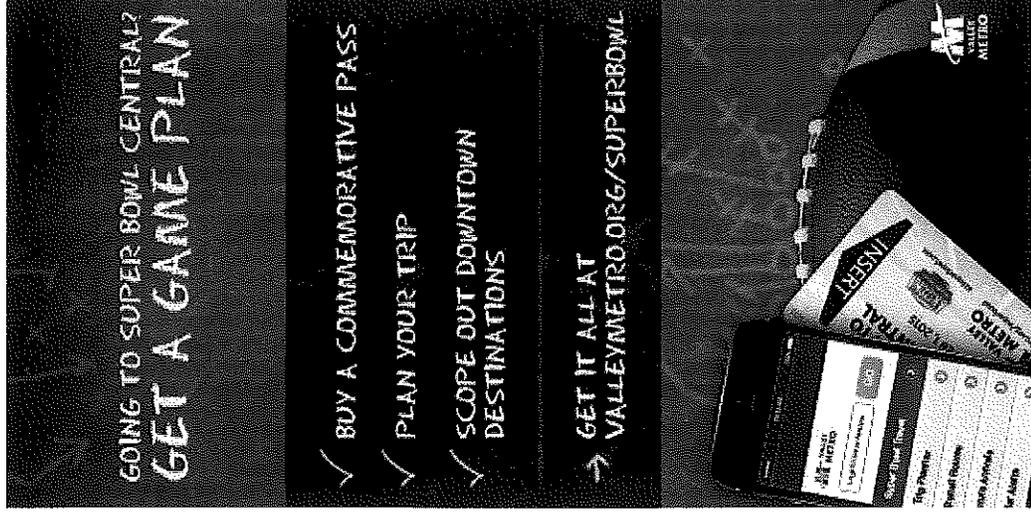
Important Transit Initiatives

- Performance-based service planning
 - Board-adopted policy
 - Seeking to improve high and low-performing routes
- East Valley bus unification
 - Savings, improved customer service
 - Seeking 7-year renewal
- Solar technology
- Passenger information



Super Bowl XLIX

- Expanded bus and light rail service in downtown Phoenix
- Expanded service in Glendale
- Enhanced security
- Customer and visitor communications





Steve Banta
Chief Executive Officer
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Arizona Airports

Serving all Arizona

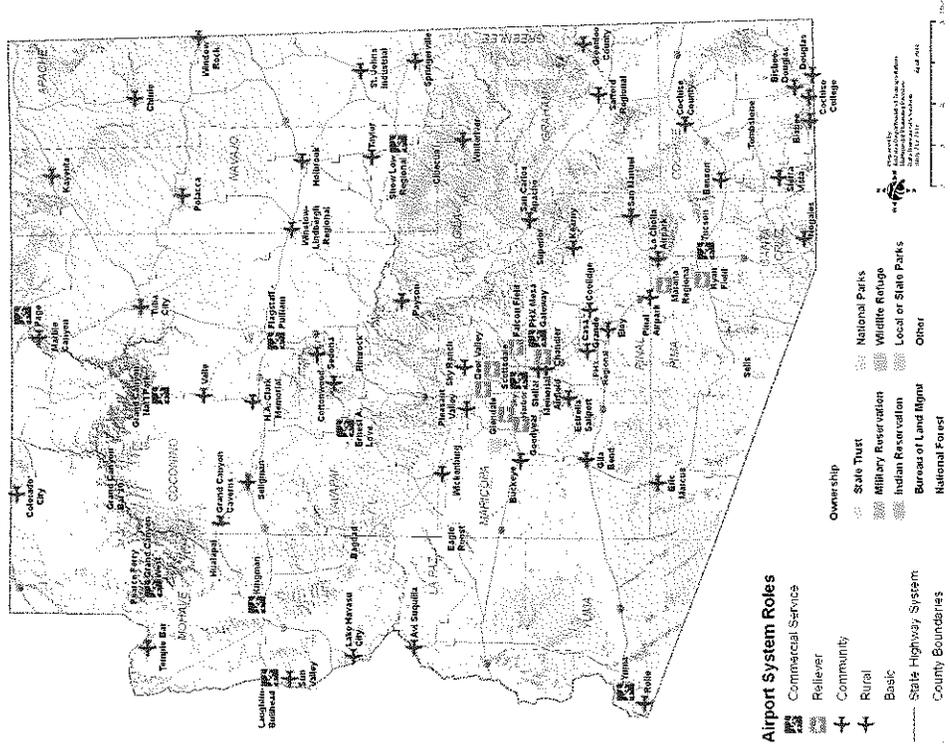




Arizona's Aviation Infrastructure

- + 83 public use airports in the State Aviation system
- + 12 Commercial Service
71 General Aviation
5 military
- + 43 million passengers
- + 680,000 tons of cargo
- + 5 of the nation's largest flight schools

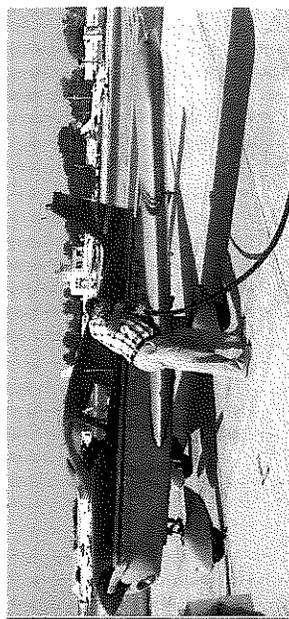
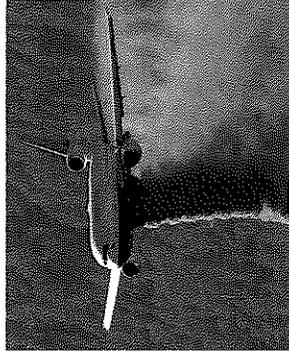
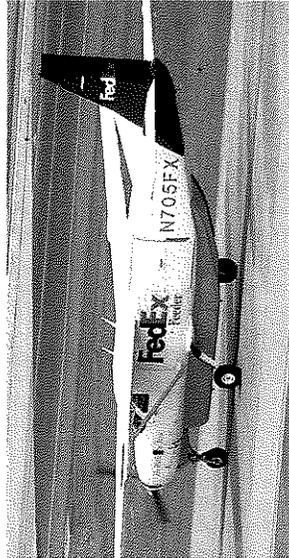
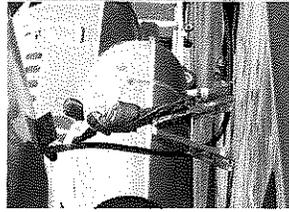
Arizona Airport System





Economic Impact of Arizona Aviation

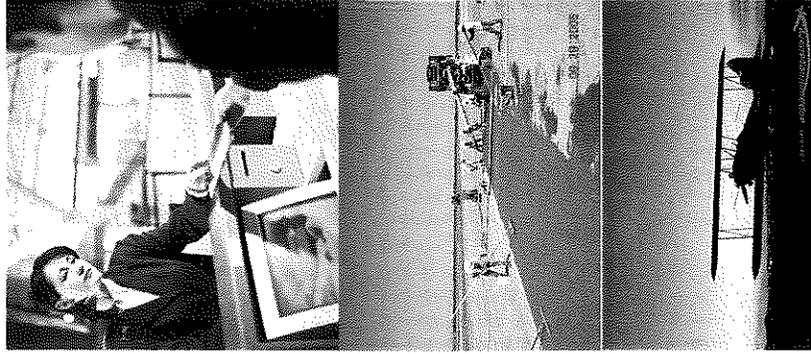
- + \$32 Billion in Direct economic activity
- + 185,000 Direct aviation jobs
- + 16.8% of all Arizona jobs are related to aviation
- + **\$58 Billion in Total Economic Impact (Direct and Indirect)**
 - Airlines • Business Aviation • Manufacturing • Military • Education
 - Tourism • Sport Aviation • Government Resource Management





User Funded State Aviation System

- + Federal Airport Improvement Program (AIP)
 - Fuel, cargo, airline tickets, international travel
 - Pays up to 90% of airport capital projects
- + State Aviation Fund
 - Fuel, aircraft, flight property
 - 5% federal grant match, pavement maintenance, system planning
- + Local Contribution
 - Fuel fees, tenant leases, landing fees, general fund and in-kind services
 - 5% federal grant match, 10% state grant match



Arizona Airports – Good for all Arizonans



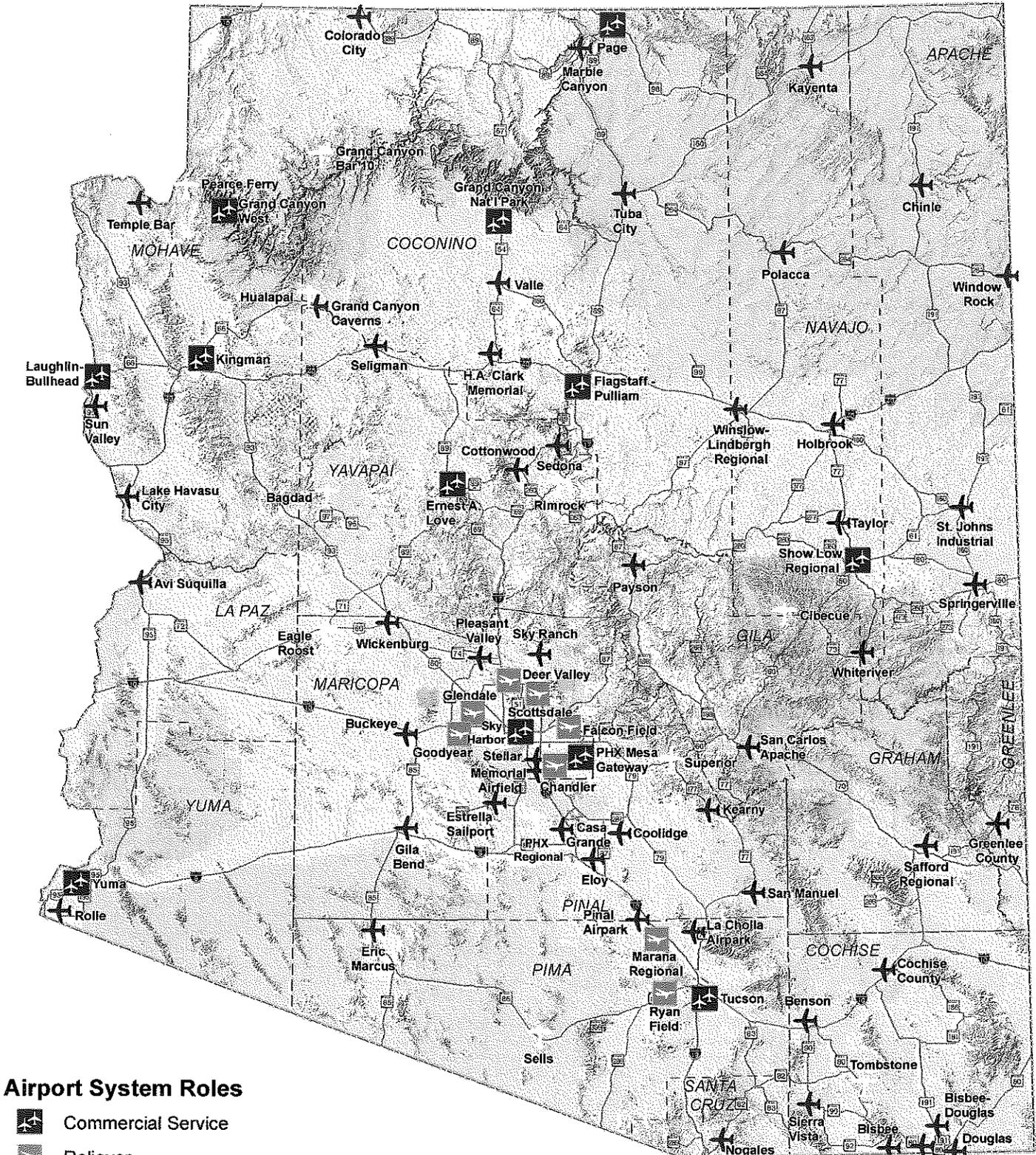
ARIZONA
AIRPORTS ASSOCIATION

Aviation Day at the Capitol

February 26, 2015

Join Us!

Arizona Airport System



Airport System Roles

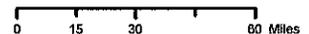
- Commercial Service
- Reliever
- Community
- Rural
- Basic
- State Highway System
- County Boundaries

Ownership

- State Trust
- Military Reservation
- Indian Reservation
- Bureau of Land Mgmt
- National Forest
- National Parks
- Wildlife Refuge
- Local or State Parks
- Other



Prepared by:
 Arizona Department of Transportation
 Multimodal Planning Division
 Data Bureau GIS Section
 (602) 712-7333 January 2015



DEDICATED TO HELPING BUSINESS ACHIEVE ITS HIGHEST GOALS.



AIRPORTS HANDBOOK

What You Need to Know About General Aviation Airports



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www.nbaa.org/airportshandbook



INTRODUCTION

Airports Are for Everyone

The ability to transport people and goods by air to all corners of the planet is a hallmark of life in the 21st century. In the mere 110 years or so since Orville and Wilbur Wright first took to the skies on the sands at Kill Devil Hills, air transportation has become faster, easier and safer – and an integral part of the economic and social fabric of every region of the world.

From transporting people and supplies to the farthest regions of the earth, to the daily lives of billions of urban residents who eat, wear and utilize products that have been shipped to them by air, airplanes are an essential part of everyday life – even for those who have never flown.

Dramatic advances in aviation technology have resulted in aircraft that are safer, speedier, more efficient, less noisy and more environmentally friendly. Airports and air navigation have also progressed exponentially from the first grass airstrips and bonfire beacons of times gone by. Today in the United States, a sophisticated fleet of civil aircraft – most of them general aviation (GA), or non-airline, non-military aircraft – uses satellite and other advanced technologies to transport passengers, freight, mail and supplies to communities nationwide, linking urban centers with rural outposts and many towns in between. None of this would be possible without airports.

A network of more than 5,000 public-use airports in the U.S. – and many more private-use ones – provides communities across the country with access to the national air transportation system. Of these, only about 500 are the large, commercial service airports served by the airlines. The largest commercial airports, such as Atlanta’s Hartsfield International Airport, serve as hubs in the hub-and-spoke systems of connecting airline flights. Together, the 30 largest hub airports account for two-thirds of all U.S. commercial passenger traffic and have very little GA activity. These are also the airports that are more prone to flight delays and congestion than smaller general aviation airports.

5,000

The total number of public-use airports served by general aviation, providing communities across the country with access to the national air transportation system.

General aviation – or all civil aviation activity other than that of the airlines – serves all 5,000 airports. This means that general aviation, which includes business aviation, flies to more than 10 times the number of airports than the airlines do, reaching many more thousands of locations across the nation, including cities, towns, rural regions and even remote sites such as research stations.

For the thousands of communities served exclusively by general aviation – and this means business aviation, law enforcement flying, agricultural application, air medical services, freight and package delivery, and more – their local airport is an essential community asset, providing significant economic and quality-of-life benefits. For example:

- **Economic Multiplier Effect:** Business aircraft travel to and from local airports across the country every day, bringing thousands of marketing, professional, technical, service and support staffers efficiently and quickly to their destination. These individuals in turn spend money in the local economy, stay in local hotels and eat at nearby restaurants and create what’s known as the economic “multiplier effect” in the area.
- **Essential Access:** The ability to move people and goods quickly to and from airports has tangible benefits for everyone, not just air travelers. Overnight mail and package delivery, the transport of fresh fruits, vegetables, flowers and more to locations that would not otherwise have that access, all would not be possible without an airport nearby.
- **Competitive Advantage:** Airports help keep existing employers in a community and attract new ones to a region because companies value the transportation and competitive business advantages offered by general aviation airports. Business developers look for ready access to air transpor-

“When an airport is closed or usage restrictions are imposed, a local community’s lifeline to the rest of the world is severed.”

tation when they make decisions on where to locate new businesses and facilities.

- **Lifesaving Services:** Emergency medical services and air ambulance operators provide critically injured people with timely access to specialized medical treatment through airlift operations, organ transports and more. Volunteer “Angel Flights” regularly transport sick patients to distant medical facilities for treatment.
- **Law Enforcement Services:** Federal, state and local law enforcement agencies use hundreds of airplanes and helicopters to search, apprehend and transport criminals, protect borders, and provide aerial security.
- **Agricultural Services:** Agricultural aircraft operators treat crops and sow seeds via aerial application.
- **Recreational Benefits:** Airports play an important role in recreation by providing easy access to vacation and resort destinations, helping generate significant tourism income. Many thousands of Americans fly their own airplanes for pleasure as well as business, positively impacting the local economy.

30

The number of largest hub airports accounting for two-thirds of all U.S. commercial passenger traffic, with very little general aviation activity.

Airports often provide green, open space and sometimes even recreation for the community (sightseeing flights, flight training, air shows, etc.). They provide jobs to the area, as well as a home for a variety of businesses. When an airport is closed or usage restrictions are imposed, a local community’s lifeline to the rest of the world is severed. It is important to preserve and protect our nation’s airports, which are essential elements of our way of life and economic health.



ECONOMIC IMPACT

Airports Are Economic Engines

Consider the following:

- At Chicago Executive Airport, a busy general aviation airport that also helps relieve air traffic from Chicago's O'Hare International Airport, direct economic impacts were estimated at about \$128 million and indirect impacts at more than \$17.6 million, which with the multiplier effect comes to about \$185 million. Taking into account employment and payroll at the airport, the total economic activity attributable to the airport was nearly \$330.8 million, according to a 2007 study.
- In the state of Georgia, the 104 publicly owned, public-use airports in the state – nine commercial service and 95 general aviation airports – accounted for 471,175 jobs, \$17.7 billion in payroll and \$62.6 billion in statewide economic impact in 2011.
- Castroville Municipal Airport, a rural Texas airfield, generated more than \$2.3 million in economic activity for the town of Castroville (population 2,664) in 2010. The airport – whose single runway is less than a mile long – provided more than \$675,000 in salary, wages and benefits to the 18 persons employed due to airport activities. In fact, the airport is only one of more than 250 general aviation airports in Texas.

DID YOU KNOW?

Business aviation contributes \$150 billion to the U.S. economic output and employs more than 1.2 million people nationwide.

AIRPORTS = JOBS + EARNINGS + ECONOMIC OUTPUT

It's a fact: No matter where they are – from the largest metropolitan-area airports to the smallest rural airfields – airports are an economic boon to their region. General aviation airports, in particular, have a direct impact on their regional economy, boosting jobs, local investment and directly and indirectly generating important tax revenue for their city or town, county and state. Here's how it works:

- **Calculating Economic Impact:** The economic impact of an airport is the sum of primary impacts – both direct and indirect – and induced economic activity that occurs because of the facility. Direct impacts include the aviation-related businesses on and near the airport, such as flight schools, airport and aircraft service providers, and aircraft manufacturers. Indirect impacts come from spending by visitors and those who pass through the airport, including revenue from nearby hotels, motels, restaurants and stores, ground transportation (such as taxi and limousine services, car rental companies), visitor travel services (such as tour operators), and even arts, entertainment and recreation centers such as sport complexes, theaters, golf courses and amusement parks. Positive indirect impacts are also generated by the flow of goods and services through the airport.
- **Defining the Multiplier Effect:** Induced economic activity attributed to an industry is always greater than simply those activities of the industry itself, due to the re-spending of money, or "multiplier effect." This happens when the people who work in and around an airport spend part of their incomes

locally, triggering successive rounds of economic activity throughout the local and regional economy.

Airports also help keep existing employers in a community and attract new ones to a region because companies are eager to capitalize on the transportation and other competitive advantages that an airport provides – primarily, easy access to regional, national and world markets. Companies and business developers look for ready access to air transportation when they make decisions on where to locate new businesses, offices and facilities.

As weather delays, air traffic congestion, crowded flights and other pitfalls associated with the major air carrier airports increase, businesses are choosing the flexibility and enhanced productivity that comes from utilizing smaller, less crowded, and more accessible GA airports. More than 11,000 U.S.-based companies – most of them small to mid-sized businesses – consider business aviation an essential tool.

"It's a fact: No matter where they are – from the largest metropolitan-area airports to the smallest rural airfields – airports are an economic boon to their region."

What's more, many firms specifically choose to locate an office or plant near a small public airport because of the efficient access it gives the company to the national air transportation system and markets across the world.

From large energy companies that use aircraft shuttles to transport their employees to and from distant offices and plants, to the small, Midwest marketing company that needs to meet frequently with clients in major East Coast cities, flying business aircraft from general aviation airports is a necessity – as well as a competitive edge – for thousands of companies of all sizes, all across the country.

CASE STUDY

A TALE OF TWO AIRPORTS AND THEIR VALUE TO THE COMMUNITY

- Brunswick Executive Airport opened in April 2011 as Maine's newest public-use airport (the facility is a former Naval Air Station). Less than two years later, the airport boasted more than six new on-site businesses (only several are aviation-related), with one expected to employ more than 100 people.
- Chandler Municipal Airport in Arizona, located just 18 miles southeast of Phoenix Sky Harbor International Airport, anchors a flourishing employment hub and is considered to be the "last frontier" for growth and new businesses in the space-constrained city of Chandler. The airport itself is currently home to 14 aviation-related companies including aircraft charters companies, flight schools and aviation maintenance and repair shops, but it also has 40 acres available for new commercial endeavors. This complements the many large aviation and non-aviation businesses that are located in the surrounding airpark area. These businesses are a perfect example of direct economic impact to the city of Chandler.



SOCIAL IMPACT

Airports Benefit Everyone

It's true that Chicago Executive Airport contributes more than \$330 million in economic activity to its local area, but it also does much more: the airport provides medical transport, aerial police patrol, traffic reporting services and more.

At Centennial Airport in the Denver, CO metropolitan area, the economic impact of the airport to the local area is nearly \$1 billion annually, as the airport is one of the top 25 busiest in the country. Yet Centennial provides more than tangible economic benefits: the airport is regularly used by Flight for Life and other medical flights, law enforcement and other humanitarian flying.

Statesboro-Bulloch County Airport in Georgia generates \$6 million in economic output a year, but its importance to the community is not just economic: the Georgia Aviation Authority maintains a base of operations at the airport with three aircraft to aid in forest fire fighting, and a based air medical operator has staff and one helicopter that provides emergency air medical services to the region. In addition, Angel Flight provides free air transportation for people who need medical attention in other locations.

General aviation airports play an essential role in helping communities and individuals in times of crisis. Not only can general aviation aircraft operate into outlying airports with small and sometimes unpaved runways, but sometimes these airports are the only way to transport food, supplies and medical specialists into a community or region that has been hit by severe weather or natural disaster. Business aircraft are uniquely suited for the task because of their ability to land in locations that are sometimes difficult to reach or inaccessible by larger aircraft, trucks and automobiles, and many business aircraft operators jump at the opportunity to help those in need.

General aviation operators utilize the nation's thousands of non-commercial airports for many humanitarian purposes, including:

- **Aeromedical Flights.** From air ambulances to emergency medical evacuation flights on specially equipped aircraft to businesses offering to fly cancer and other patients to medical care facilities for free, aeromedical flights are a large and important use of GA flights and airports. A large number of

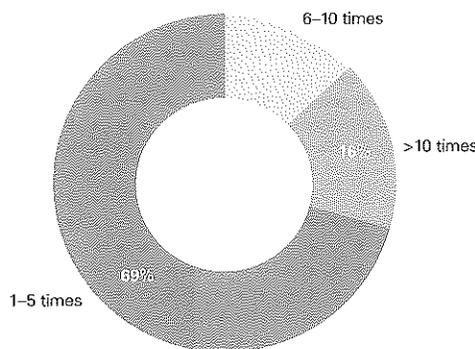
“General aviation airports play an essential role in helping communities and individuals in times of crisis.”

regional humanitarian and philanthropic organizations utilize general aviation aircraft and airports for critical, often life-saving missions. Many of these free flights take patients directly from their communities – usually departing from a smaller, regional airport – to the treatment centers that are often located in larger metropolitan areas. The Corporate Angel Network (CAN), for example, arranges free flights to treatment centers for cancer patients, using the empty seats on business aircraft. CAN has arranged more than 40,000 flights since its founding and today provides 3,000 patient flights per year.

REAL-WORLD EXAMPLE
SUPERSTORM SANDY

In the aftermath of Superstorm Sandy, which hit the New York/New Jersey coastlines in October 2012, business aviation operators donated their aircraft and time to fly food, medical supplies, water and other necessities to the communities that were hardest hit. By flying into smaller airports or even helipads, the supplies were able to get right to the areas where they were needed. For example, 20 helicopter flights were made from Linden Airport in New Jersey direct to Staten Island (NY) University Hospital, delivering 25,000 pounds of supplies to the medical facility.

NUMBER OF TIMES BUSINESS AIRCRAFT FLOWN FOR HUMANITARIAN REASONS



Source: Harris Interactive Survey, 10/2009

- **Search and Rescue, Disaster Relief.** The nation's general aviation airports are usually the ones used as staging areas for search and rescue and disaster relief operations. Members of the all-volunteer Civil Air Patrol, which is often utilized to find and rescue missing persons, operate out of smaller airports nationwide. And after a disaster like a hurricane or tornado, these smaller airports are often the first to get operational, sometimes before the larger commercial airports reopen. As such, these airports are essential lifelines for the transport of food, water, medical supplies and other equipment to hard-hit communities.
- **Emergency Diversionary Airport.** The many GA airports located all across the country provide pilots – commercial included – with an alternative place to land in case of a flight emergency or poor weather.
- **Fire Fighting Response.** Many fire fighting operations are staged out of general aviation airports.
- **Law Enforcement Services.** GA airports are often utilized by local, state or national programs as a base for their law enforcement efforts. Smaller airports are often cheaper than commercial-service airports for these agencies to base their fleets at, and they often are closer to the areas they serve.
- **Critical Functions Supported by Government Agencies.** More than 390 general aviation airports have been designated by the federal government to provide critical services, including national security and border control. Some of the U.S. agencies supported include the Post Office, Forest Service, Marshals Service, and Customs and Border Protection.

Many other uses of general aviation aircraft flying from non-commercial airports include: agricultural application; access to populations in remote locations such as national parks or islands; air taxi or charter flights; aerial surveying and observation; utility or pipeline patrol and inspection; express delivery service; oil and mineral explorations and surveying; sightseeing and access to special events; news and traffic reporting; and much more, thanks to the accessibility and strategic locations of these airports.



SAFETY AND SECURITY

Airports Are Good Neighbors

Safety is always the top priority in aviation – with pilots, aircraft and certainly on the ground at airports. Compared to any other mode of transportation, aviation is extremely safe – and that includes airports themselves. All those involved with the conduct of a flight – the pilots, maintenance technicians, dispatchers, aircraft manufacturers, based aircraft operators at the airport, flight departments that manage the flight operations, air traffic controllers and many more – are all operating in accordance with FAA regulations that govern everything from the altitude that planes can fly at, to the frequency that aircraft must be inspected and overhauled.

Even at the smallest airports without air traffic control towers, pilots are subject to FAA rules that delineate how they are supposed to take off and land at that airport, how pilots must communicate with each other, and myriad other regulations that have ensured the safety of U.S. skies and airports for decades.

Those who live or work near airports should be aware that aircraft operators at their airport – and itinerant flights passing through – are doing everything possible to make their community's airport as safe and secure as possible. This includes such standard safety practices as:

DID YOU KNOW?

Business aviation has a stellar safety record that is comparable to that of the major airlines.

- Using aircraft lights to increase visibility.
- Using “wing walkers” along with a tug operator (for larger aircraft) and completing an area risk-assessment before moving a plane.
- Exiting the runway as quickly as possible after landing.
- Placing chocks around the main and nose wheels of the aircraft to prevent it from moving.
- Ensuring that all mobile equipment is positioned to face away from aircraft.

These are just a few examples of the many air and ground procedures that are involved with a flight follow. Business aircraft, in particular, are among the most sophisticated aircraft flying and are equipped with the latest safety equipment. Examples include collision avoidance systems; ground proximity warning systems; severe-weather detection units; heads-up displays; and enhanced and synthetic vision systems. In addition to complying with stringent government safety and security regulations, many business flight departments participate in a variety of voluntary programs that also enhance safety and security, such as adoption of safety management systems (SMS) and participation in flight operational quality assurance programs. These programs collect and analyze data recorded during flight to improve the safety of flight, air traffic control procedures, and airport and aircraft design and maintenance.

The based airport operators on the ground, called fixed-base operators (FBOs), also have to follow specific procedures when towing, fueling or moving an aircraft into or out of a hangar. FBO personnel are professionals trained in safety and security procedures and are intimately familiar with all aspects of the airport.

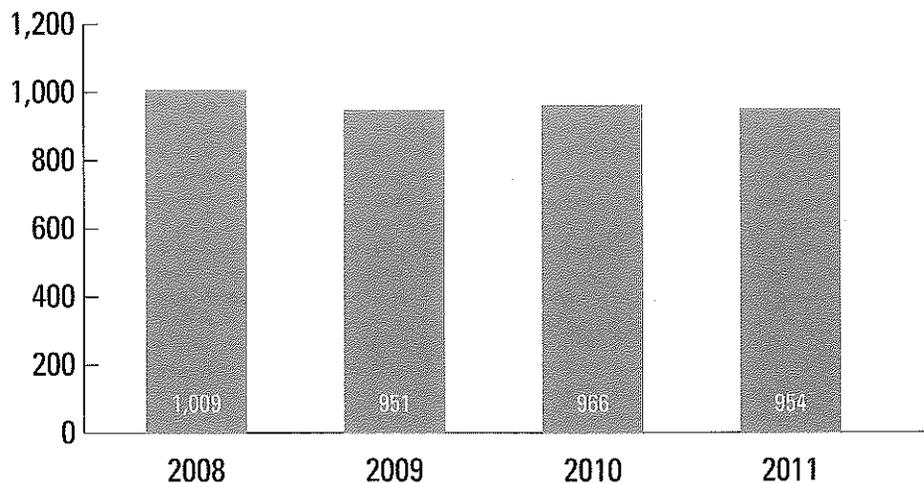
RUNWAY SAFETY CONTINUES TO IMPROVE

The good news is that runway safety, a key component of airport safety, continues to improve. An example is the decrease in runway incursions – defined as the incorrect presence of an aircraft, vehicle or person on a runway – as evidenced by the chart on this page.

Another example is the slow but steady addition of engineered materials arresting systems (EMAS) to the ends of runways at various airports around the country. EMAS has already proven itself a highly effective method of reducing runway overrun accidents. On the very rare occasion that an aircraft may overrun a runway (often due to runway surface conditions) either on landing or an aborted takeoff, the EMAS bed of crushable concrete blocks at the end of the runway will slow the aircraft, and in many cases, stop it completely – with little to no damage to the aircraft.

EMAS beds are most often installed at both commercial and general aviation airports that do not have adequately long runway safety areas (RSAs) at runway ends. An EMAS will very quickly decelerate an aircraft and has minimal environmental and operational impact. Nearly 90 EMAS installations are expected to be in place by mid-2014, with 90 to 95 percent of the funding typically coming from the FAA's Airport Improvement Program and the balance usually paid for by the airport from its own revenues.

TOTAL U.S. RUNWAY INCURSIONS, 2008–2011



Source: FAA

DID YOU KNOW?

Airport watch groups springing up around the country help ensure airport security. The Airport Watch Program encourages pilots at smaller airports to report suspicious activities to a toll-free number staffed 24/7 by TSA officials. Members of airport watch groups – which also operate at larger airports, like Chicago's O'Hare – help monitor aviation procedures, check the condition of fencing, look for wildlife activity, check parking lots and report suspicious behaviors. These individuals are often volunteers and may or may not be pilots.

AIRPORTS ARE SECURE

Along with safety, security – in the air and on the ground – is the highest priority for companies and individuals that rely on business aircraft. In fact, one of the reasons why companies utilize business aircraft is for the high level of security they provide.

Business aviation has been at the forefront of travel security for decades, and in the post-9/11 era, the industry has continued working to protect airports, aircraft, flight crews and passengers from any security threats. Some of the airport-related best practices for security include:

- Using fencing, gates, lighting and security patrols (if appropriate) to establish perimeter security.
- Requiring positive access control for all external gates and doors, which are normally locked.

REAL-WORLD EXAMPLE

BUSINESS AVIATION'S VOLUNTARY AND MANDATORY SECURITY MEASURES

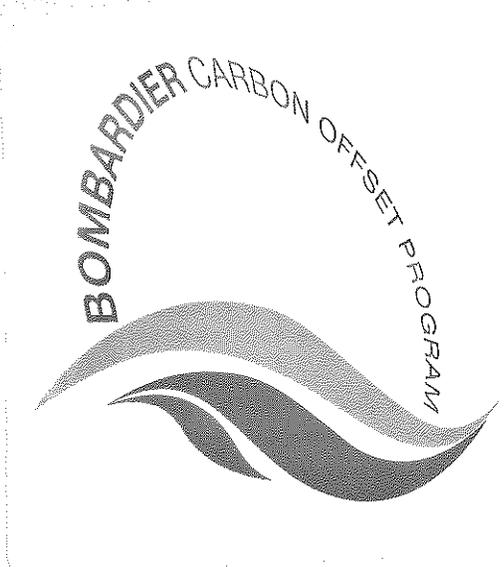
Business aircraft operators work with the aviation community as well as government agencies and have implemented a variety of voluntary and mandatory security measures, including:

- The TSA's Aviation Security Advisory Committee, consisting of government and industry security experts, develops best practices and recommendations to strengthen security at general aviation airports.
- Chartered business aircraft weighing more than 12,500 pounds must comply with TSA-mandated security procedures similar to those of the scheduled airlines.
- The aircraft manufacturing and sales community has procedures in place to report suspicious financial transactions during the purchase or sale of an aircraft.
- The FAA issues tamper-proof licenses for pilots, flight instructors, air traffic controllers and maintenance technicians.
- The flight-training industry complies with strict government standards that screen non-U.S. citizens seeking flight training in the United States. Almost all flight training takes place at non-commercial airports.

- Confirming the identity and authority of every passenger, vendor and visitor prior to giving them access to facilities and aircraft.
- Escorting all visitors on the ramp and in the hangar area.
- Having access control management systems for keys/passes.
- Closing and locking hangar doors when areas are unattended.
- Ensuring easy access to phones or "panic buttons" in various facility locations.
- Posting emergency numbers prominently around the facilities.
- Securing all important storage areas (food, parts, tools, etc.).

Even though federal officials, including the Department of Homeland Security inspector general, have found that general aviation "does not present a serious homeland security vulnerability," the business aviation community and the GA airports it uses are nevertheless continuing to work with federal security officials on existing security programs and helping the government allocate scarce resources where they can be most effectively utilized.

"Aircraft operators at their airport – and itinerant flights passing through – are doing everything possible to make their community's airport as safe and secure as possible."



BOMBARDIER CARBON OFFSET PROGRAM

QUIET FLYING, GREENER SKIES

Airports Are Committed to Reducing Noise and Environmental Impacts

It's no secret that all aircraft make noise, as do other modes of transportation, such as cars, trucks, trains and ships. While it is true that there will always be some noise associated with an airport, many communities have learned that the benefits – both economic and social – of having a nearby airport outweigh noise disturbances. These communities, towns and cities understand that the sound of aircraft is the sound of regional prosperity.

Noise impacts can be based on both acoustic factors – including noise levels, the number of events, maximum noise levels and event durations – and non-acoustic factors, such as predictability, attitude toward the noise source, avoidability and even trust. As such, individuals and communities will have differing reactions to real or perceived noise, which remains the primary source of adverse community reaction to airport operations or proposed expansions.

In general, noise at the 5,000 public-use general aviation airports around the country is not as great as the noise at the primary commercial-service airports; for the most part, the largest commercial jet aircraft simply make more noise, both on the ground and in the air.

The entire aviation industry is committed to continuing to reduce noise associated with aircraft operations. Below are some examples of industry efforts that have produced exceptionally quiet state-of-the-art business and commercial aircraft that are successfully mitigating aircraft noise:

- Aircraft manufacturers have significantly reduced the noise of aircraft over the years. Each successive generation of jet aircraft, in particular, has been equipped with quieter engines, and aircraft design can reduce noise levels, too. Many manufacturers of both airplanes and helicopters have also developed "quiet flying" procedures for their particular aircraft to minimize their noise footprint.
- Aircraft operators make noise-abatement procedures part of their routine when flying in and out of airports. Some of these procedures include: use of special arrival and departure routes that have been developed to reduce noise; using preferential runways whenever possible; for jet aircraft, only using the minimum reverse thrust necessary on landing; complying with any voluntary restrictions, such as nighttime curfews; for flight training, curbing the number of "touch and goes" made, especially at very noise-sensitive airports; and finally, utilizing NBAA's noise abatement guidelines.
- Across the country, many airports – both large and small – have instituted a wide variety of procedures, rules and initiatives to decrease noise to the surrounding communities. In some instances, the reduction in noise has been dramatic. For proven, real-world examples, see the sidebar on the following page.

AIRPORTS ARE WORKING TO BE EVEN GREENER

Airports understand the need for environmental stewardship and a commitment to sustainability. After all, in many metropolitan areas, airports are some of the last places with

DID YOU KNOW?

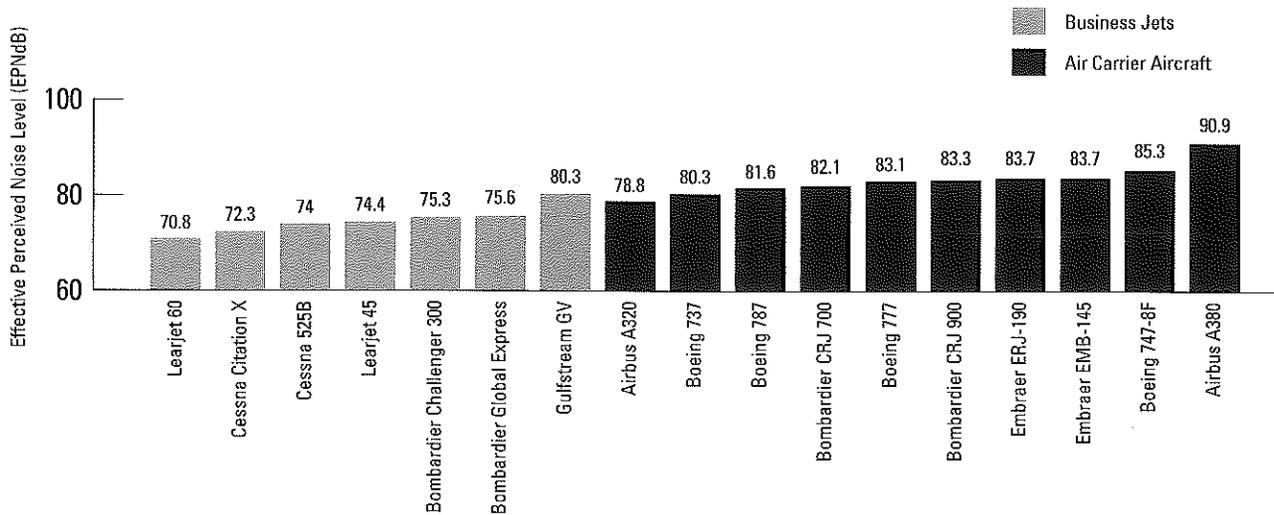
Between 1975 and 2000, the number of persons residing within the 65 DNL (the generally accepted measurement of significant noise exposure) "contour" around the nation's airports was reduced by 90 percent.

green fields and open spaces – in many cases, surrounded by dense development. Construction of new airports is extremely rare, so planning at and sustaining current airports takes on even more significance. Many airports have sustainability and land-use plans and are continually working on minimizing environmental impacts and using land resources wisely. Additionally, airports are subject to the same local, state and federal environmental regulations and restrictions as other entities when they upgrade or embark upon construction projects.

Nationwide, the general aviation community has demonstrated a commitment to environmental stewardship through years of leadership in developing and implementing technologies and procedures that reduce environmental impact. Examples include:

- Business aircraft manufacturers pioneered winglets for aircraft, which optimize performance and reduce fuel burn and emissions. Winglets are now standard equipment on a large number of general aviation and commercial aircraft.
- New technologies continue to improve engines, making today's aircraft engines cleaner, quieter and more fuel-efficient than ever. The fuel efficiency of business aircraft has improved 40 percent over the past 40 years.
- General aviation was at the forefront of the development of RNAV/RNP procedures and ADS-B (see following NextGen section), both of which enable optimal efficiencies in routing,

AIRCRAFT NOISE COMPARISON CHART



Airliners are generally noisier than business aircraft. | Source: FAA Advisory Circular 361-H, April 24, 2012.

DID YOU KNOW?

Aircraft being produced today are 75 percent quieter than those manufactured 50 years ago.

flight paths and approaches, all which help minimize fuel burn as well as noise. Implementation of NextGen will help business aviation meet its goals of continued emissions and noise reduction.

- Along with the American Petroleum Institute and the FAA, the general aviation community is working on a commercially viable, sustainable alternative aviation fuel to the 100 low-lead (100LL) aviation gasoline used today. Research and development of alternative fuels that could substantially reduce greenhouse gas emissions is underway, and the FAA recently announced that it plans to start testing new sample unleaded fuels.

NEXTGEN = QUIETER FLYING, GREENER SKIES

Aircraft noise levels for many will decrease, fuel will be saved, aircraft will fly more efficiently and a host of other benefits are on tap as the FAA continues rolling out its much-touted Next Generation Air Transportation System (NextGen). In addition, the FAA expects that NextGen will enhance safety, reduce flight delays and lessen aviation's environmental impact.

NextGen combines new and existing technologies such as satellite navigation and advanced digital communications. Navigational improvements will utilize global positioning system (GPS) satellite technology; ADS-B (automatic dependent

surveillance-broadcast) air traffic surveillance and separation, and datalink cockpit communications, are also planned.

For general aviation operators, NextGen includes expanded implementation of WAAS-LPV approaches and RNAV RNP, satellite navigation technologies that help aircraft operate more safely in low-visibility conditions and improve situational awareness of other aircraft, which is especially critical to runway safety. GA operators are the primary users of LPV procedures, and about 30 percent of the fleet is currently LPV-equipped. About 65 percent of general aviation aircraft that fly under instrument flight rules have WAAS receivers.

DID YOU KNOW?

General aviation aircraft, including those used for business aviation, account for just 0.6 percent of U.S. transportation carbon emissions and 0.2 percent of total global greenhouse gas emissions.

What all this means for airports is that accessibility, surveillance and safety will be improved, often without the need for expensive ground-based equipment. Many airports will be able to accommodate flight operations even in poor weather, which will enhance more efficient and safe operations. Many thousands more instrument approach procedures to airports are being implemented, and more precise flight paths between airports have the ability to help reduce noise, fuel burn and emissions. With ADS-B, expanding surveillance to airports without radar will also significantly improve capacity and safety.

REAL-WORLD EXAMPLE

SIX WAYS AIRPORTS ARE DECREASING NOISE IN THEIR SURROUNDING COMMUNITIES

- Instituting "Fly Friendly" or "Fly Quiet" programs that are widely promoted and disseminated to pilots and operators.
- Working closely with local, regional and federal aviation and elected officials – as well as land use planners – on such crucial topics as nearby land use and land acquisition, and appropriate development.
- Working with the FAA to modify flight paths to move flights away from noise-sensitive areas. This can include establishing voluntary use of preferential runways and/or special arrival and departure routes to minimize noise and overflights of noise-sensitive communities.
- Building facilities such as ground run-up enclosures or blast fences to mitigate noise at the departure end of runways.
- Working with the FAA and local governments to provide sound insulation in noise-sensitive structures – typically residences, churches and schools. Some airport owners even have a voluntary land or home acquisition program.
- Complying with voluntary restrictions in order to fly quietly and be neighborly. General aviation operators, including business aircraft users, have an outstanding record of this. Some airports even have award programs that recognize aircraft operators that never violate the airport's noise abatement program.

RESOURCES

As this handbook has shown, general aviation airports are gateways to the world, giving small communities access to a vast international transportation network. These portals not only facilitate commerce; they help deliver vital products and services that benefit everyone.

Numerous economic studies have demonstrated that airports are valuable engines for local economies, making them important community assets. No less important, airports enable a variety of life-saving medical flights, as well as emergency rescue, law enforcement and fire-fighting operations. In times of crisis, GA airports are crucial for first responders, enabling the rapid delivery of food, water, medicine and supplies closer to affected areas.

With all their positive economic and social impact, it's easy to see why general aviation airports are vital and essential infrastructure.

Want to find out more about general aviation airports and business aviation? The resources and links below will provide up-to-date facts, data and other useful information regarding U.S. airports and the business aviation industry.

NBAA RESOURCES

- An advocacy supplement to this *Airports Handbook*, the *Airport Advocate Guide*, provides useful guidance to help airport supporters communicate the benefits of their airport to audiences including community members, elected officials and the media – www.nbaa.org/airports handbook
- The *Business Aviation Fact Book* provides a clear and thorough presentation of the broad scope and value of the business aviation industry, with real-world information and data – www.nbaa.org/factbook
- The NBAA website at www.nbaa.org provides a wealth of information about business aviation, airports and more, including the following sections:
 - Airports – www.nbaa.org/airports
 - Safety – www.nbaa.org/safety
 - Security – www.nbaa.org/security
 - Noise Abatement Program – www.nbaa.org/quietflying
 - Environment – www.nbaa.org/ops/environment
 - Regional Resources – www.nbaa.org/regional
 - Humanitarian Emergency Response Operator (HERO) Database – www.nbaa.org/hero
 - Media Information – www.nbaa.org/portals/media

OTHER RESOURCES

- No Plane No Gain, facts about the value of general aviation to U.S. communities, companies and more – www.noplanenogain.org
- Alliance for Aviation Across America, state-by-state economic impact information and more – www.aviationacrossamerica.org
- National Association of State Aviation Officials, state economic impact studies, often airport-by-airport – www.nasao.org/Resources/EconomicImpactLibrary.aspx
- Federal Aviation Administration, "General Aviation Airports: A National Asset" – www.faa.gov
- Federal Aviation Administration, "The Economic Impact of Civil Aviation on the U.S. Economy" – www.faa.gov
- American Association of Airport Executives – www.aaae.org
- Airports Council International – North America – www.aci-na.org



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ABOUT NBAA

Founded in 1947 and based in Washington, DC, the National Business Aviation Association (NBAA) is the leading organization for companies that rely on general aviation aircraft to help make their businesses more efficient, productive and successful. Not a Member? Join today at www.nbaa.org/join/airports.