



U.S. Department  
of Transportation  
Federal Aviation  
Administration



## General Aviation Airports: A National Asset

*A fresh look at the many roles  
General Aviation Airports play in the  
National Air Transportation System*

May 2012

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## Message from the Associate Administrator for Airports

What do general aviation airports mean to you? That's exactly what we ask ourselves when trying to plan and make infrastructure decisions for our general aviation airports. Over the course of more than 100 years of flight, general aviation airports have evolved from simple landing strips to complex aviation centers. Yet, how we categorize them has not kept up.

Did you know that many general aviation airports provide flights to patients in need of critical medical care? Or that local, state, and federal law enforcement agencies use general aviation airports for easier access to our airspace? Or that many of these airports provide flight training which helps keep a steady supply of pilots available for our airlines and military. For policymakers, these different types of activities require different planning and infrastructure spending.

That is why we undertook an extensive 18-month study to examine the roles that general aviation airports play in our national aviation system to ensure we plan and invest wisely.

We applaud the local communities for their continuing support and commitment to aviation. It is important that we work together to ensure our aviation system truly operates as a system. While this report has given us a good foundation and starting point, we recognize that more work needs to be done. We pledge to continue working with our aviation stakeholders and local communities to ensure that our airports remain safe and efficient and meet the needs of the American public.

I invite you to read how we categorized general aviation airports.

Thank you for your interest in our nation's airports!

Christa Fornarotto

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# General Aviation Airports: A National Asset

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**Did you know that** tens of thousands of general aviation aircraft, including corporate jets, medical evacuation helicopters, and airplanes owned by individuals for business and personal use are flown in the United States? In fact, three out of every four takeoffs and landings at U.S. airports are conducted by general aviation aircraft, and most of these flights occur at general aviation airports.

## SUMMARY

There are over 19,000 airports, heliports, seaplane bases, and other landing facilities in the United States and its territories. Of these, 3,330 are included in the FAA's National Plan of Integrated Airport Systems (NPIAS), are open to the public, and are eligible for Federal funding via the Airport Improvement Program (AIP). When an airport's owners or sponsors accept AIP funds, they must agree to certain obligations (or grant assurances).

Most people are familiar with one or more of the 378 primary airports that support scheduled commercial air service, such as John F. Kennedy International, Chicago O'Hare International, or Los Angeles International, where U.S. and foreign airlines operate. We also rely on the other 2,952 landing facilities (2,903 airports, 10 heliports, and 39 seaplane bases) to support aeromedical flights, aerial fire fighting, law enforcement, disaster relief, and to provide access to remote communities. These 2,952 landing facilities are primarily used by general aviation aircraft and are, therefore, commonly referred to as general aviation airports.<sup>1</sup> Included in this group are 121 airports that also support limited scheduled air service boarding at least 2,500, but less than 10,000 passengers each year.<sup>2</sup>

In cooperation with the greater aviation community, the FAA conducted this groundbreaking 18-month review of these 2,952 landing facilities (for the purpose of this report, these landing facilities including mostly airports, but also some heliports and seaplane bases, are grouped together as general aviation airports).





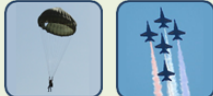
We documented many important aeronautical functions that are economically and effectively supported at these general aviation airports. As shown in Figure 1, these range from emergency preparedness and response to the direct transportation of people and freight and commercial applications such as agricultural spraying, aerial surveying, and energy exploration.

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<sup>1</sup> The FAA Modernization and Reform Act of 2012 defines a general aviation airport as a public airport that is located in a state and that, as determined by the Secretary of Transportation, does not have scheduled service or has scheduled service with less than 2,500 passenger boardings each year.

<sup>2</sup> Title 49 of the United States Code defines a commercial service airport as a public airport in a state that the Secretary of Transportation determines has at least 2,500 passenger boardings each year and is receiving scheduled passenger aircraft service. A commercial service airport that has more than 10,000 passenger boardings each year is considered a primary airport.

**Figure 1: Types of Aeronautical Functions Serving Public Interest**

<p><b>Emergency Preparedness and Response</b></p>	<ul style="list-style-type: none"> <li>▪ Aeromedical Flights</li> <li>▪ Law Enforcement/National Security/Border Security</li> <li>▪ Emergency Response</li> <li>▪ Aerial Fire Fighting Support</li> <li>▪ Emergency Diversionary Airport</li> <li>▪ Disaster Relief and Search and Rescue</li> <li>▪ Critical Federal Functions</li> </ul>	
<p><b>Critical Community Access</b></p>	<ul style="list-style-type: none"> <li>▪ Remote Population/Island Access</li> <li>▪ Air Taxi/Charter Services</li> <li>▪ Essential Scheduled Air Service Cargo</li> </ul>	
<p><b>Other Aviation Specific Functions</b></p>	<ul style="list-style-type: none"> <li>▪ Self-Piloted Business Flights</li> <li>▪ Corporate</li> <li>▪ Flight Instruction</li> <li>▪ Personal Flying</li> <li>▪ Charter Passenger Services</li> <li>▪ Aircraft/Avionics Manufacturing/Maintenance</li> <li>▪ Aircraft Storage</li> <li>▪ Aerospace Engineering/Research</li> </ul>	
<p><b>Commercial, Industrial, and Economic Activities</b></p>	<ul style="list-style-type: none"> <li>▪ Agricultural Support</li> <li>▪ Aerial Surveying and Observation</li> <li>▪ Low-Orbit Space Launch and Landing</li> <li>▪ Oil and Mineral Exploration/Survey</li> <li>▪ Utility/Pipeline Control and Inspection</li> <li>▪ Business Executive Flight Service</li> <li>▪ Manufacturing and Distribution</li> <li>▪ Express Delivery Service</li> <li>▪ Air Cargo</li> </ul>	
<p><b>Destination and Special Events</b></p>	<ul style="list-style-type: none"> <li>▪ Tourism and Access to Special Events</li> <li>▪ Intermodal Connections (rail/ship)</li> <li>▪ Special Aeronautical (skydiving/airshows)</li> </ul>	

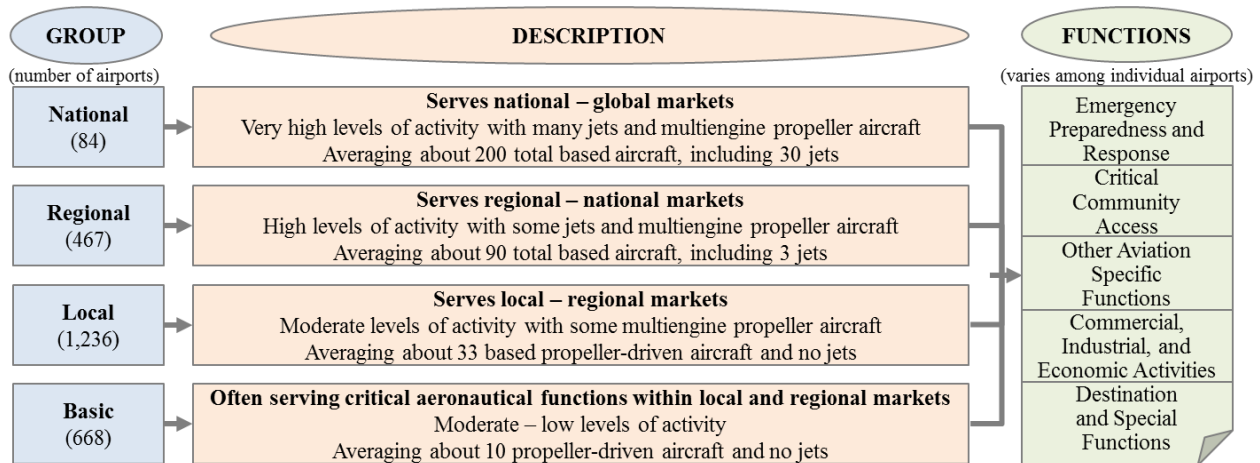
Together these 2,952 general aviation airports form an extensive network and make important economic contributions to society. Many of these aeronautical functions cannot be economically supported at primary commercial service airports and other alternatives (e.g., fighting forest fires without aerial support) are less effective and sometimes more dangerous.

We divided the general aviation airports into four categories based on existing activity<sup>3</sup> measures such as the number and types of based aircraft (i.e., aircraft that are stored at an airport), as well as the volume and types of flights. The four new categories are national, regional, local, and basic as shown in Figure 2. Of the 2,952 general aviation airports studied, 2,455 were grouped into the four new categories. We could not establish a clearly defined category for the remaining 497 airports. They have different types of activity and characteristics and cannot readily be described as a clear group or category. These 497 airports are currently not classified and require further study.

<sup>3</sup> Unless otherwise noted, the categorization was based on 2009 data.



**Figure 2: General Aviation Airport Categories**



The information summarized in Figures 1 and 2 will help the FAA make better planning decisions. We will ask the state and local airports, heliports, and seaplane base owners to provide updated information on the aeronautical functions supported at each airport and the level and sophistication of flying taking place there. These updates will be part of the normal state system planning process, supported by individual master plan updates and regional or metropolitan system plans.

Future development of general aviation airports included in the NPIAS will continue to be based on eligible and justified needs and priorities, with these new categories providing a more consistent framework within which to evaluate proposed projects. Future NPIAS reports, starting with the FY 2013-2017 report to be issued later this year, will incorporate the new categories developed in this report.

The report also raised some important investment and regulatory questions that require further investigation, including:

- Whether current or amended part 139 regulations (i.e., the FAA airport operating certificates) should be extended to the higher-activity general aviation airports;
- How facility requirements should vary among airports in the new general aviation categories
- How AIP funds can be used most effectively; and
- Whether all general aviation airports be held to the same grant assurances as other airports

The remainder of this report provides background on the aeronautical functions that are supported at these airports and information on each of the four new categories. The report concludes with a summary of the key findings of the report and next steps to be undertaken. Complete details on how the categories were created and a listing of airports, heliports, and seaplane bases within each category can be found in Appendices A and B.



**Did you know that** general aviation contributed \$38.8 billion in economic output in 2009? Factoring in manufacturing and visitor expenditures, general aviation accounted for an economic contribution of \$76.5 billion.

## **INTRODUCTION**

General aviation airports in the United States are diverse and their aeronautical functions have evolved over time. Many airports, for instance, were opened as private landing strips or military airfields in the 1920s, 1930s, and 1940s.

Some evolved into primary airports we use today; one of these is Salt Lake City International (SLC). SLC began as a simple landing strip in 1911, became an air-mail airport known as Woodward Field in 1920, and ultimately was developed into the large hub primary airport it is today.

Other airports, such as Gauthier's Flying Field just north of the heart of Chicago, evolved from a modest grass strip in the 1920s into a thriving general aviation airport with hundreds of based aircraft and some 90,000 takeoffs and landings annually. That airport is:

- now named Chicago Executive Airport,
- serves the general and business aviation sectors of the Chicago Metropolitan Area, and
- accepts traffic that would otherwise be destined for Chicago O'Hare International Airport.

Still other airports, heliports, and seaplane bases were established and continue to operate as small general aviation airports accessing remote community areas, and some large military airfields have been converted to general aviation use.

General aviation airports have evolved differently over the past century to meet the specific needs of the communities they serve and the national aviation system. As a result, the United States has the largest and most diverse system of general aviation airports in the world.

It has been 40 years since the roles of these airports have been thoroughly reviewed. Over this period of time, there have been dramatic changes in the economy, where people live, and how they use general aviation airports, heliports, and seaplane bases. It continues to be important to examine the roles that these airports play in our system to ensure that our policies effectively support the public interest.

## **GENERAL AVIATION SERVES IMPORTANT SOCIETAL NEEDS**

Transportation systems (including air, rail, highways, and waterways) connect communities, businesses, people, and provide critical support functions. The national system of airports, heliports, and seaplane bases was developed to provide communities with access to a safe and adequate public system of general aviation airports.

Our nation's general aviation airports focus mainly on more specialized services that scheduled airline service cannot provide. In 2009, nonairline operators at these general aviation airports

spent over \$12 billion, flying an estimated 27 million flights for emergency medical services, aerial fire fighting, law enforcement and border control, agricultural functions, flight training, time-sensitive air cargo services, business travel, and scheduled services. Some general aviation airports provide all of these aeronautical functions, while others provide only a few. Some airports are large and have multiple runways and extensive facilities, while others are relatively small and may need only a short, single runway, helipad, or sea lane to serve a critical function.

Federal, State, and local governments, as well as aviation users, have invested in a balanced, safe, and efficient system of general aviation airports since the beginning of the 20th century. System is the key concept. Having just a few general aviation airports would not accomplish much.

These airports, heliports, and seaplane bases were included in the NPIAS because they were deemed important to the Federal system and are open to the public. They provide connections to the larger aviation system while providing access to their respective communities. Having a well-developed system of general aviation airports throughout the country supports commerce while also providing a safety net of airports to support emergency aircraft diversions when necessary due to mechanical problems, medical emergencies, deteriorating weather conditions or other unforeseen circumstances. The rationale for continued Federal involvement in the system is that these general aviation airports assist communities and their residents in meeting the needs that would otherwise be too costly or impossible to provide.

A list of five categories of aeronautical functions served by general aviation airports was provided in Figure 1. The following are examples that illustrate the societal benefits of general aviation airports, heliports, and seaplane bases.

## **AERONAUTICAL FUNCTIONS SERVING THE PUBLIC INTEREST**

### **Emergency Preparedness and Response Functions**

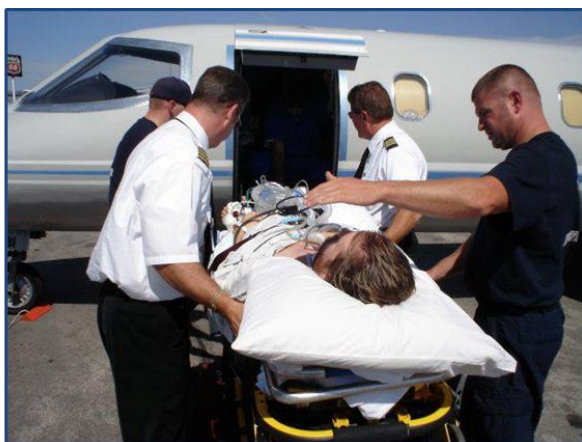
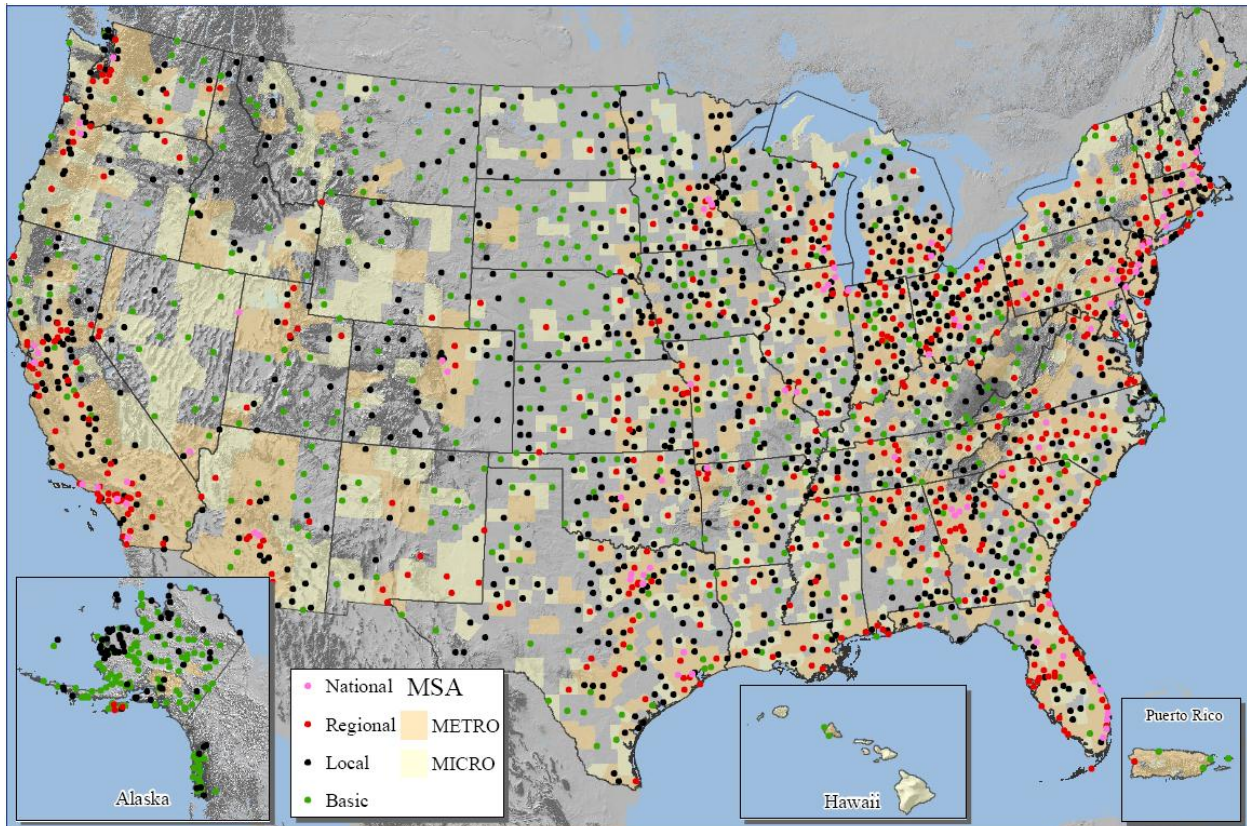


Photo courtesy of americanjets.net

**Aeromedical Flights:** Many general aviation airports are used to providing flights that transport patients in need of specialized medical care. It is faster, easier on the patient, and far less expensive to operate these lifesaving services from a general aviation airport. Figure 3 shows the general aviation airports in the country where air ambulance services were flown in 2009. For example, a medical center serving western Massachusetts relies on Westover Metropolitan Airport to transport patients who cannot endure the stress and duration of ground transportation or commercial flights.

**Law Enforcement/National Security/Border Security:** General aviation airports often serve as the base for local, state, or national programs to enforce laws. For instance, many local police forces in large metropolitan areas (for example, the city of Los Angeles) choose to use a general aviation airport to base their helicopter fleets. It is usually less expensive for them to operate from a general aviation airport than from a primary airport where there is more commercial activity and the smaller airport is usually more accessible as well.

**Figure 3: General Aviation Airports Serving Aeromedical Flights<sup>4</sup>**



**Emergency Diversionary Airport:** An extensive system of airports provides pilots with immediate alternatives to their intended destination in the event of unexpected bad weather or a flight emergency. The system of airports is a safety net that reduces accidents by being extensive and available. Just one of many examples demonstrating this safety net is a recent Archie League Award<sup>5</sup> given to an air traffic controller for assisting a pilot whose engine had stopped while flying between two general aviation airports - Pittsfield Municipal Airport in Massachusetts to Caledonia County Airport in Vermont. The controller was able to quickly divert the pilot to the nearby general aviation airport in Concord, New Hampshire. The pilot was able to make a successful landing after regaining partial power.

<sup>4</sup> Metropolitan or Micropolitan Statistical Areas are geographic entities defined by the Office of Management and Budget for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics.

<sup>5</sup> Annual Archie League Medal of Safety Awards, National Air Traffic Controllers Association.



**Disaster Relief and Search and Rescue:** The extensive system of general aviation airports provides a staging area to support relief efforts wherever they are needed. For example, Joplin Regional Airport in Joplin, Missouri, played a vital role in recovery efforts after a major tornado ripped through the region in May 2011. General aviation airports like Eastern Sierra Regional Airport, located near California's national forests, are

used as staging areas for the all-volunteer Civil Air Patrol, whose members are often called upon to locate and facilitate the rescue of missing persons or others in need. The savings in resources, time, and human life attributable to these efforts are an important contribution to our society.

**Critical Community Services Supported by Government Agencies:** Over 390 general aviation airports are designated by the Federal Government to provide critical services, including access for U.S. Customs and Border Protection, the U.S. Marshals Service, the U.S. Post Office, the U.S. Forest Service, and disaster relief. For example, forest fires during the summer months are common events, especially in western states. The U.S. Forest Service designates certain general aviation airports as staging areas to fight the fires. Using aircraft to fight large fires spread over a wide geographic area is often the most cost-effective solution, reduces human exposure to hazards on the ground, and gets the fire out more quickly, which saves property and lives. Figure 4 shows the locations of these critical community services supported by government agencies at general aviation airports throughout the United States (color coded by services).

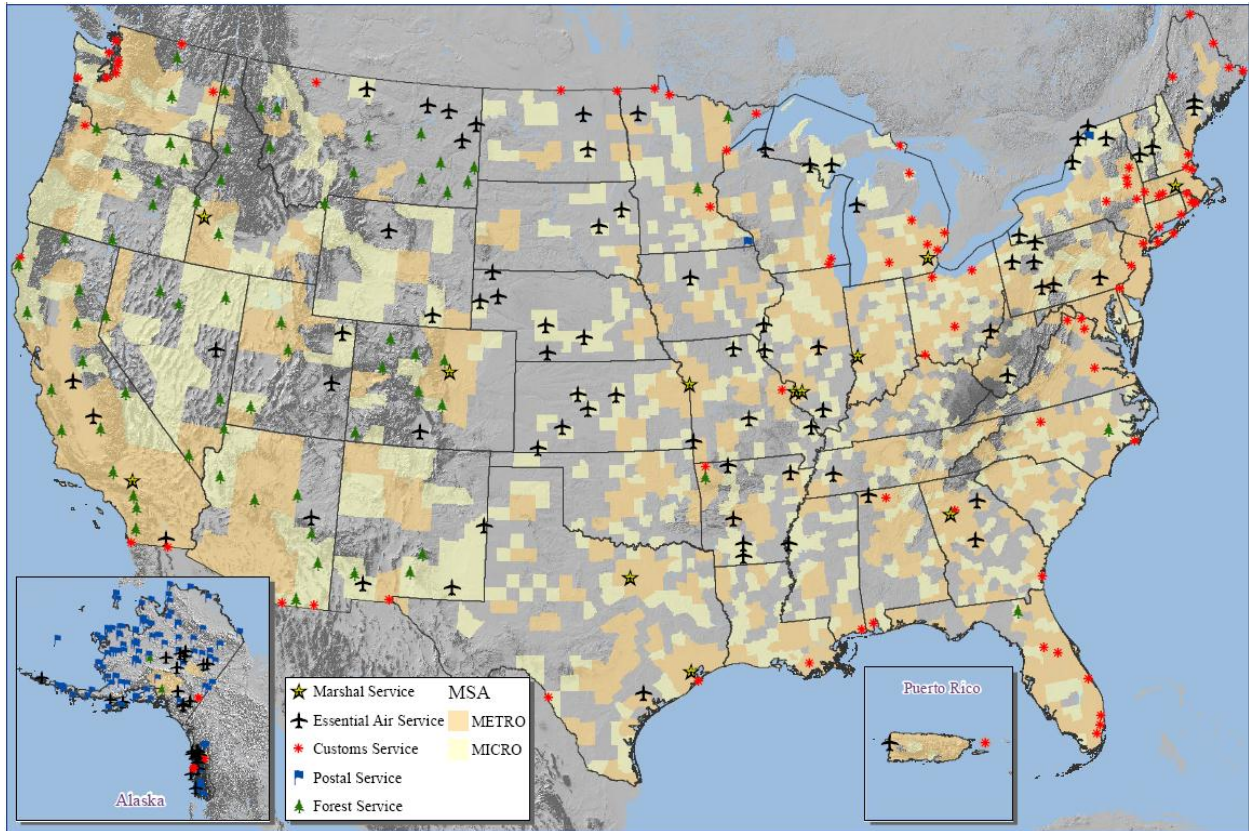


Photo courtesy of U.S. Customs and Border Protection



Photo courtesy of firedex.com

**Figure 4: Airports With Critical Community Services Provided by Government Agencies**



## Critical Community Access Functions

**Remote General Aviation Airports:** In some parts of the country, general aviation airports provide the only means of transportation. Without these airports, residents would be faced with isolation or would have to incur substantial time, money, and risk traveling by other means. Remote airports contribute to the national economy by reducing the resources needed to connect these communities to the national economy.



Photo courtesy of flysigns.com

**Air Taxi Operations:** When scheduled air service either is not available or inconvenient, businesses and individuals charter aircraft from air taxis operating at general aviation airports. These flights save time and make it possible to fly directly to places that cannot be reached by scheduled service.

## Other Aviation Specific Functions

**Self-Piloted Business Flights:** About 11 percent of the total private flying in the United States is done by business persons flying themselves to meetings or other events. Most of this flying is done with piston or turboprop aircraft. Most of the pilots own or work for relatively small businesses and use the aircraft to accomplish missions that would otherwise take more time or would be infeasible.

**Corporate Flights:** About 12 percent of the total private flying in the United States is done in aircraft owned by a business and piloted by a professional. The majority of these flights are in jets and cover long distances, with some flying to intercontinental and international destinations. Businesses elect to fly these trips to save time and expand their geographic and organizational span of control. Figure 5 shows long distance and international flights from Van Nuys Airport near Los Angeles. The map shows the destinations of nonstop flights and illustrates the global access provided to operators of sophisticated aircraft at general aviation airports.

**Figure 5: Long Distance and International Flights From Van Nuys, California**

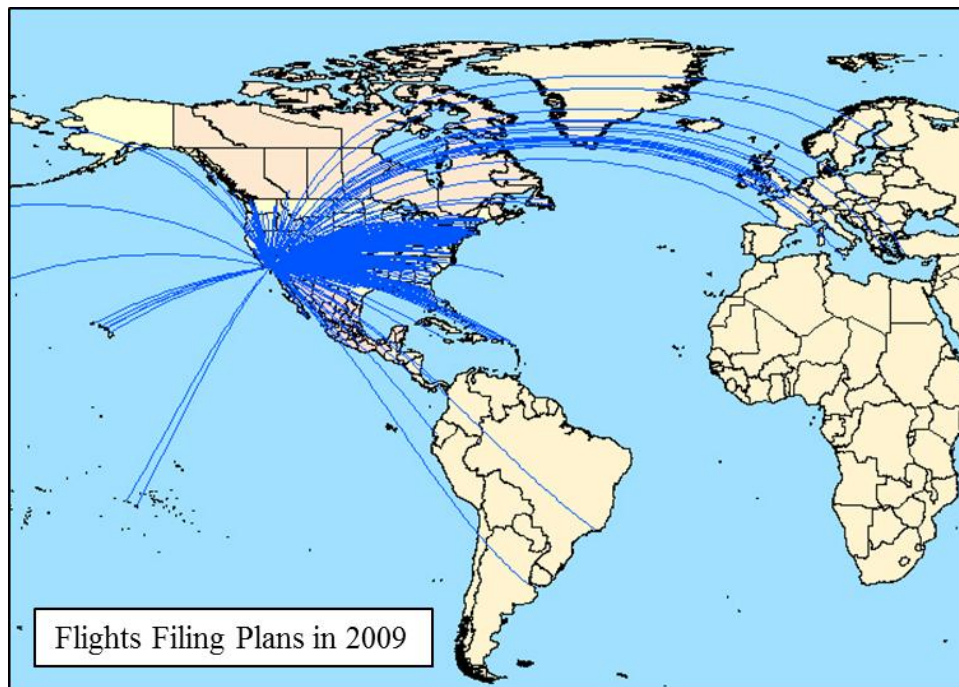


Photo courtesy of flysigns.com

**Flight Instruction:** Virtually all of the private flight instruction in the United States takes place at general aviation or private use airports. Many future airline pilots get their first training at these airports. For instance, Le Mars Municipal Airport is a base for a Young Eagles Program that provides opportunities for youngsters to learn about and experience flying.

**Personal Flying:** About a third of all private flying in the United States is for personal reasons, which may include practicing flight skills, personal or family travel, personal enjoyment, or personal business.

## Commercial, Industrial, and Economic Activity Functions



Photo courtesy of Aero Crop Services, Inc.



Photo used with permission of James Richard, chief pilot, [dynamicaviationhelicopters.com](http://dynamicaviationhelicopters.com)

**Agricultural:** From 1929 to the present, U.S. agricultural output has become so much more efficient that the average American family now spends dramatically less of its income on food (11 percent today versus 23 percent in 1929). Aerial application of fertilizer, fungicides, and pesticides has played an important role in this increased productivity, especially when it is critical to apply material quickly over a large geographic area. Any substitute technology is more costly and much slower than aerial application. An example is Le Mars Municipal Airport, which provides an efficient platform for the aerial application of fungicide and insecticide for area farms.

**Aerial Surveying and Observation:** Companies that have built infrastructure over large geographic areas need a fast and accurate way to plan, manage, and maintain it. Energy companies own and operate thousands of miles of pipeline and the fastest and most thorough way to inspect them is to fly aircraft with specialized equipment that document conditions on the ground. Gas and electric utilities use aircraft for the same reasons. Municipalities fly aerial observation flights to document tax maps and plan infrastructure.

## Destination and Special Functions

**Tourism and Access to Special Events:** General aviation airports often enable access to areas otherwise inaccessible for recreation, including remote parks, mountainous areas, and islands. In addition, during special events (e.g., the Super Bowl, college championship playoffs or bowl games, major concerts, NASCAR races, etc.), general aviation airports are used by both charter carriers and private operators to supplement facilities and services at primary airports.



## **NEW CATEGORIES WILL HELP GUIDE POLICY MAKERS**

Our nation's general aviation airports, heliports, and seaplane bases fulfill a broad range of aeronautical functions, as shown in the previous examples. However, it is difficult to properly convey needs of these facilities, particularly airports, with a single term.

Over time, two statutory definitions have emerged to classify general aviation airports: those that also support limited commercial service and those that help relieve congestion at primary airports. However, these definitions do not adequately describe the roles of these general aviation airports and the benefits of a large and diverse system.

For instance, some general aviation airports have significantly more operations than do some primary commercial service airports and some general aviation airports relieve congested primary airports. However, most airports currently designated as relievers are not primarily engaged in relieving congestion at another airport, but instead support other critical aeronautical functions.

In the summer of 2010, the FAA assembled a national team to review activity at general aviation airports and the aeronautical functions they provide in order to better describe their current role in the national airport system. Throughout the process, the FAA worked closely with aviation agencies and major industry associations to gather and incorporate information about these airports.

An important objective was to develop a new way to categorize general aviation airports, heliports, and seaplane bases using activity and other data in existing Federal databases. Furthermore, the analysis had to be repeatable every few years. Analysis based on other local, statewide, or site specific data will continue to be assessed as part of statewide system planning, metropolitan system planning, and master planning for individual airports.

The data reviewed in this study revealed that most airport information, such as runway length, the presence of a control tower, the availability of fuel, and other characteristics, varied so much across the 2,952 general aviation airports that it was not possible to group them. For instance, the length of runway is very important to the type and size of aircraft using a specific airport, but it does not mean that there is a common minimum length required to meet a specific aeronautical function or combination of functions. Moreover, other factors (such as variability of wind direction, climate, altitude, and surrounding terrain) often determine runway length.

A similar conclusion was reached regarding control towers. A control tower is not necessarily needed for an airport to serve a specific aeronautical function. Some airports can be used for a number of different functions and by different types of aircraft even though it may have a short runway, no control tower, and no fuel services available.

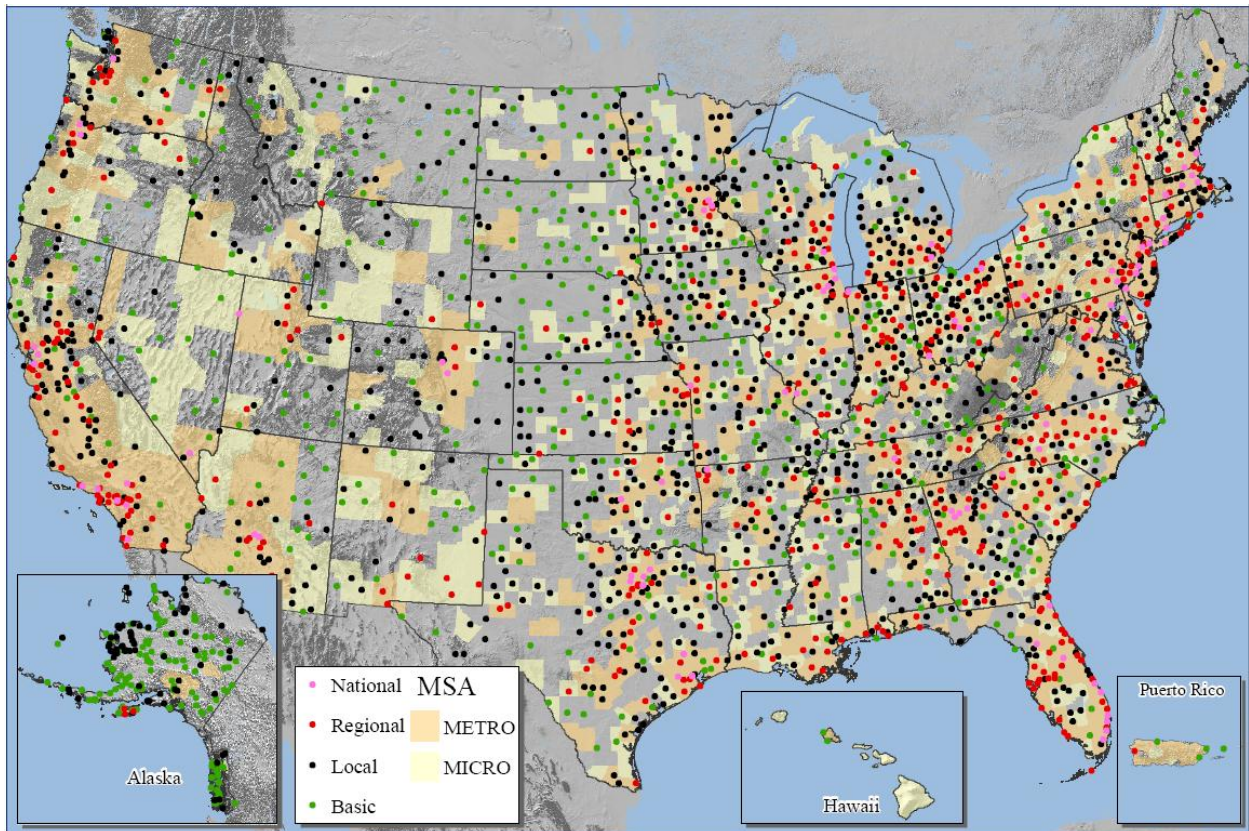
Examples of the data that were useful in categorizing general aviation airports include the number of based jets, number of all based aircraft (including helicopters and seaplanes), number of instrument operations, international flights, interstate flights, and flights over 500 miles. A full description of these criteria is provided in Appendix A.

# NEW GENERAL AVIATION AIRPORT CATEGORIES

This study focuses on the Federal network of general aviation airports, heliports, and seaplane bases and divides them into four new categories based on existing activity levels and related criteria: national, regional, local, and basic. Airports may move from one category to another over time as aviation activity levels change. The following pages describe these categories and provide examples in each category.

National (84)	Regional (467)	Local (1,236)	Basic (668)
Supports the national and state system by providing communities with access to national and international markets in multiple states and throughout the United States.	Supports regional economies by connecting communities to statewide and interstate markets.	Supplements local communities by providing access primarily to intrastate and some interstate markets.	Supports general aviation activities such as emergency service, charter or critical passenger service, cargo operations, flight training, and personal flying.

**Map of the General Aviation Airports in the Four Categories**



**Examples of General Aviation Airports in the Four New Categories**

**National Airports**



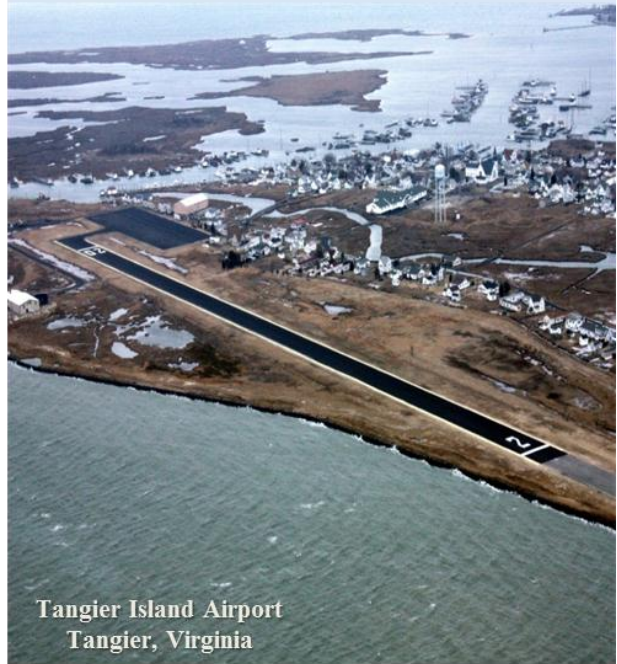
**Regional Airports**



**Local Airports**



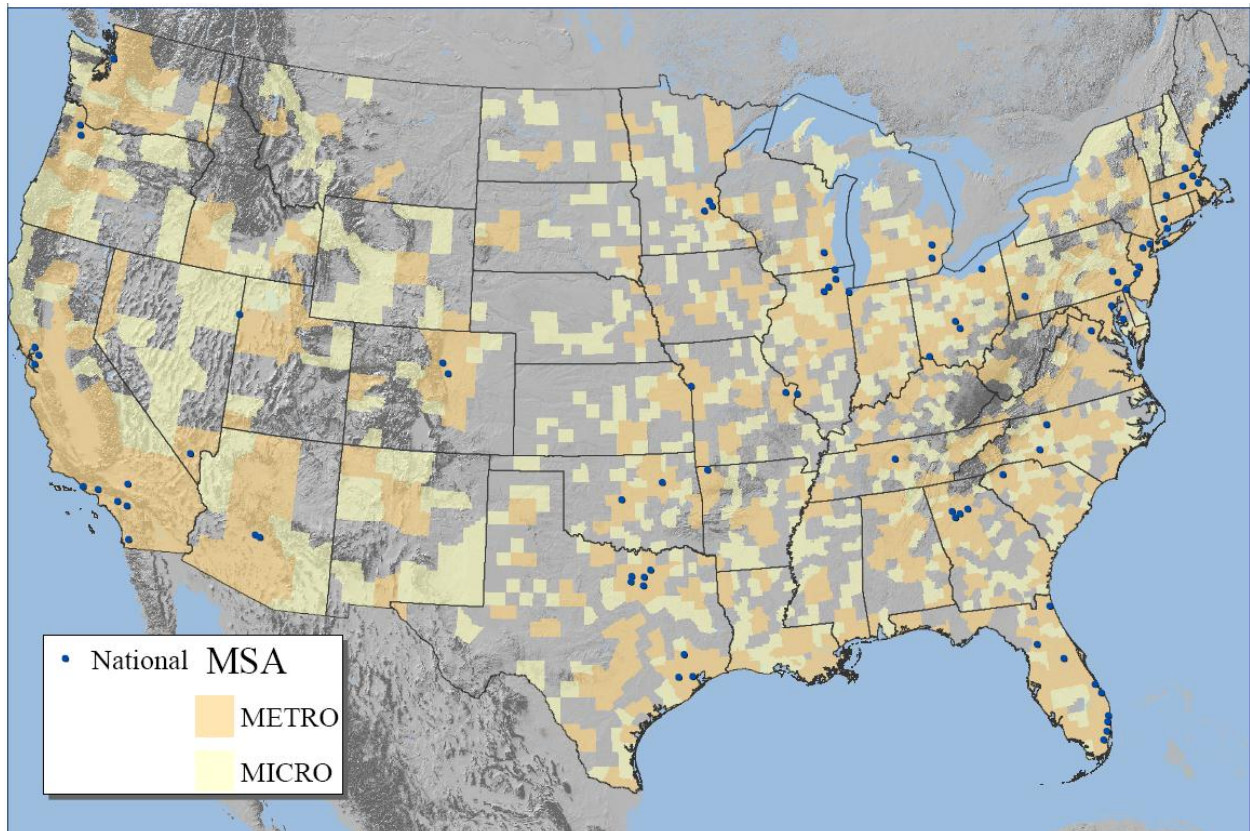
**Basic Airports**



**National airports (84)** are located in metropolitan areas near major business centers and support flying throughout the nation and the world. National airports are currently located within 31 states. They account for 13 percent of total flying at the studied general aviation airports and 35 percent of all flights that filed flight plans at the airports in the four new categories. These 84 airports support operations by the most sophisticated aircraft in the general aviation fleet. Many flights are by jet aircraft, including corporate and fractional ownership operations and air taxi services. These airports also provide pilots with an alternative to busy primary commercial service airports. There are no heliports or seaplane bases in this category.

<b>Criteria Used to Define the New National Category</b> (all numbers are annualized)
1) 5,000+ instrument operations, 11+ based jets, 20+ international flights, or 500+ interstate departures; or
2) 10,000+ enplanements and at least 1 charter enplanement by a large certificated air carrier; or
3) 500+ million pounds of landed cargo weight.

**Map of 84 National Airports**  
(There are currently no national airports in Alaska or Hawaii)



## Findings at National Airports:

- A typical national airport has nonstop departures to foreign points, including flights to Asia, Europe, Central and South America.
- All 84 airports supported air ambulance services in 2009.
- 66 are designated as reliever airports.
- None have scheduled commercial service, but 48 were used by large certificated air carriers for charter flights.
- 45 provided important access to law enforcement, the U.S. Postal Service, U.S. Customs and Border Protection, or U.S. Forest Service.
- On average, these airports have over 200 based aircraft and over 30 based jets.
- Operators spend over \$50 million per year flying at the average national airport.
- \$1.2 billion of AIP funds was invested at national airports during the period 2001-2009. Recognizing that not all airports received AIP funds every year and that simple averages can present a skewed impression, the \$1.2 billion represents a simple annual average of \$1,610,297 per airport, including \$89,734 in nonprimary entitlement (NPE) funds and \$1,520,563 in discretionary funds. Naturally, the size and nature of capital investments varied greatly among airports within the category.

### Profile: National Airport Serving National and Global Markets

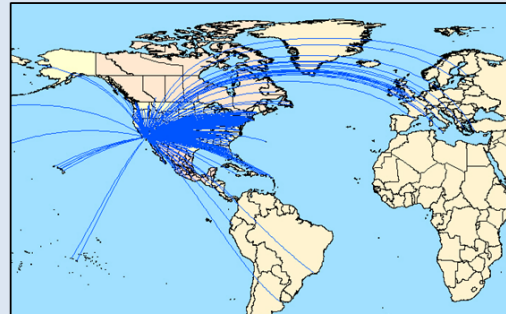
Van Nuys Airport (VNY) is a public airport located in Van Nuys in the San Fernando Valley section within the city limits of Los Angeles, California. VNY is the second busiest general aviation airport in the world and one of the busiest airports (in terms of takeoffs and landings) in the world. With just two parallel runways, VNY handled over 350,000 aircraft movements in 2010, averaging about 1,000 operations per day. By comparison, Los Angeles International Airport (LAX) (with four runways and exceptional amounts of commercial traffic) has roughly 1,500 operations per day.

As of 2010, there were over 660 aircraft based at VNY, with nearly 200 being turbojets.







Many of the helicopters in the Los Angeles basin are also based at VNY.

The sophisticated aircraft fly interstate and overseas missions in support of major industries, including many notables from entertainment and finance. Another indicator of the role of VNY is the heavy use of instrument flight rules (IFR), despite the fact that it is located in sunny southern California. VNY accounted for the third most IFR flights among all general aviation airports in the nation in 2010 with destinations throughout the nation and the world.

In 2009, aviators spent about \$190 million on flights from VNY. The table shows that while general aviation piston operators flew the most flights at VNY, four other user groups dominated the spending on aviation activity at the airport: turbine, rotor, air ambulance, and passenger charters accounted for 85 percent of total spending. The prominence of these activities shows that VNY supports services not easily replicated at LAX.



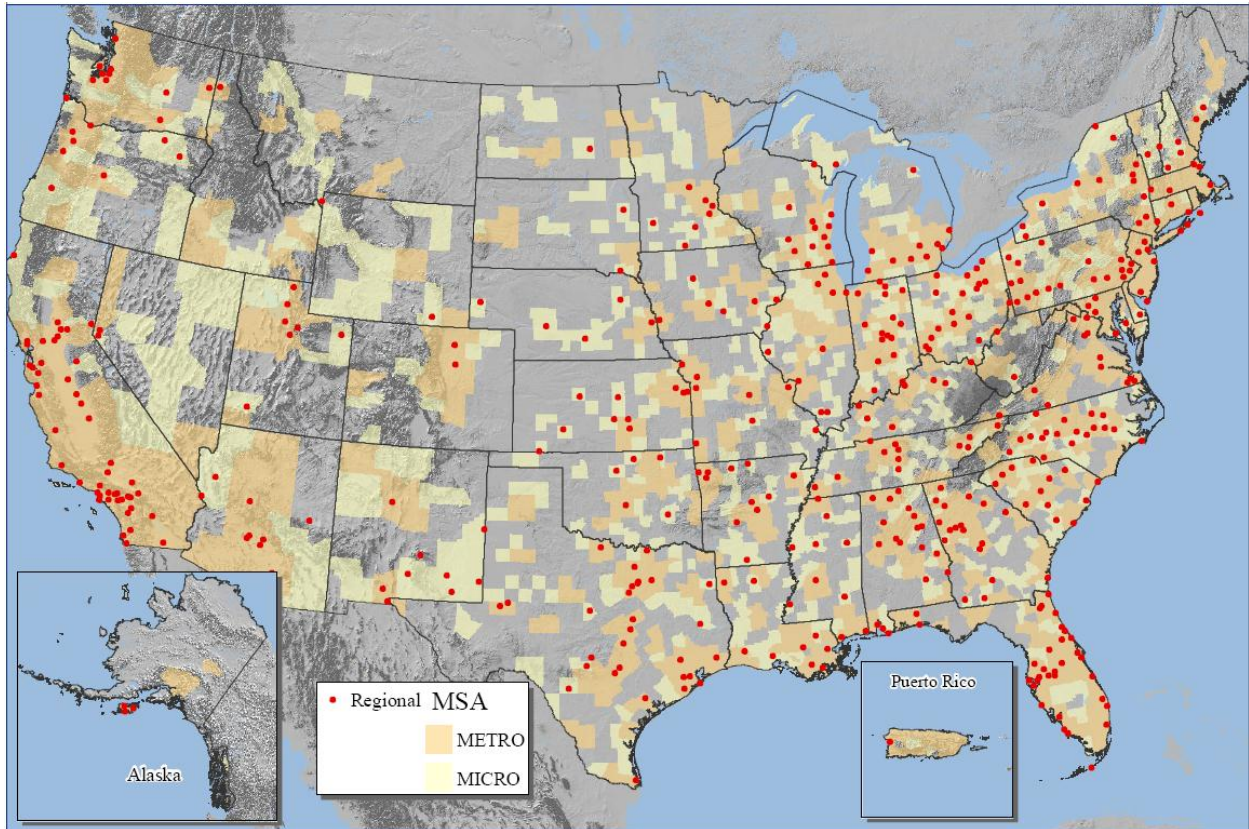
General Aviation Turbine Flying From VNY (2009)

Van Nuys Airport	Shares - FY 2009	
	Aircraft Operating Costs	Flights
Fractional Ownership Programs 	4%	2%
Nonscheduled Part 135 Passenger 	14%	14%
General Aviation – Turbine 	26%	10%
General Aviation – Piston 	10%	46%
General Aviation – Rotor 	25%	20%
Air Ambulance 	20%	8%
<b>Total</b>	<b>99%</b>	<b>100%</b>
Unclassified	1%	0%

**Regional airports (467)** are located in metropolitan areas and serve relatively large populations. These 467 airports support interstate and some long distance (cross country) flying with more sophisticated aircraft. Forty-nine states currently have regional airports with the exception of Hawaii. They account for 37 percent of total flying at the studied general aviation airports and 42 percent of flying with flight plans. There is a substantial amount of charter (air taxi), jet flying, and rotorcraft flights at regional airports. There are no heliports or seaplane bases in this category.

<b>Criteria Used to Define the New Regional Category</b> (all numbers are annualized)
1) Metropolitan Statistical Area (MSA) (Metro or Micro) and 10+ domestic flights over 500 miles, 1,000+ instrument operations, 1+ based jet, or 100+ based aircraft; or
2) The airport is located in a metropolitan or micropolitan statistical area, and the airport meets the definition of commercial service.

**Map of 467 Regional Airports**  
(There are no regional airports in Hawaii)



## Findings at Regional Airports:

- 459 regional airports supported air ambulance services in 2009.
- 108 regional airports provided important access to law enforcement, the U.S. Postal Service, U.S. Customs and Border Protection, U.S. Forest Service, or Essential Air Service.
- 51 have limited scheduled air service that boarded more than 2,500, but less than 10,000, passengers in 2010.
- 137 are designated as reliever airports.
- 90 were used by large certificated air carriers for charter flights.
- 56 received scheduled air service through the Essential Air Service Program.
- On average, these airports have more than 90 based aircraft with a few jets.
- Operators spend over \$10 million per year flying at the average regional airport.
- \$2.4 billion of AIP funds was invested at regional airports during the period 2001-2009.

Recognizing that not all airports received AIP funds every year and that simple averages can present a skewed impression, the \$2.4 billion represents a simple annual average of \$575,016 per airport, including \$90,520 in NPE funds and \$484,497 in discretionary funds. Naturally, the size and nature of capital investments varied greatly among airports within the category.

### Profile: Regional Airport Serving Regional and National Markets

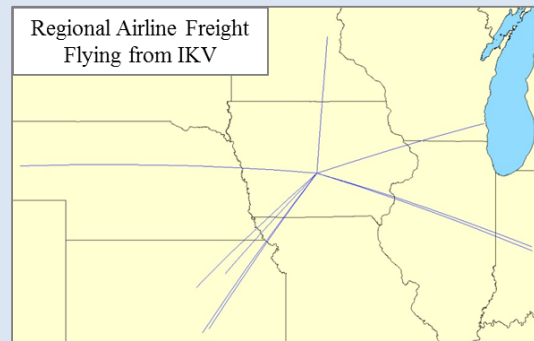
Ankeny Regional Airport (IKV) is a public airport located 1 mile southeast of the central business district of Ankeny, a city in Polk County, Iowa. The airport has two runways and handled over 48,000 aircraft operations during the 12-month period ending September 30, 2010, averaging 133 operations per day. As of February 2011, there were 80 based aircraft at IKV, with 77 fixed wing aircraft and 3 helicopters. The majority of the fixed wing based aircraft are single engine.









The airport supports commercial and general aviation services for the Des Moines metropolitan area that would be difficult to support at a primary airport including: air charter services, flight instruction, air photography, aircraft refueling, tie down, and hangar/garage rental. IKV also hosts events every year, including Fly-Ins and Air Expos.

Many businesses and organizations use the airport and its facilities, including first responders such as the Iowa State Patrol, Iowa Army National Guard, and Civil Air Patrol.

The map shows regional airline freight destinations flown IFR from IKV in FY 2009.

The table shows that general aviation activity comprised 88 percent of the flights during FY 2009 and 66 percent of the aircraft operating costs. After general aviation operations, the next highest share of flights was from air ambulance operations and the regional airline freight operations.

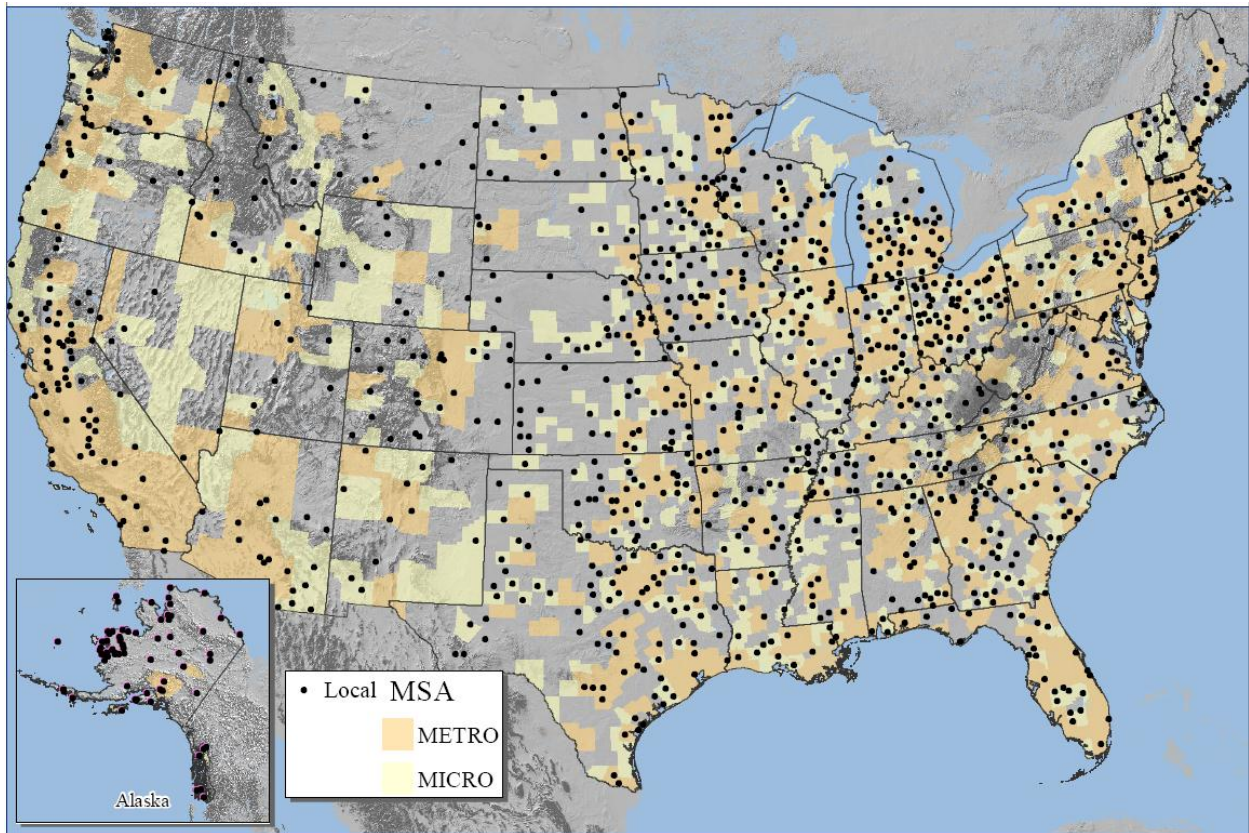


Ankeny Regional Airport		Shares - FY 2009	
User Groups		Aircraft Operating Costs	Flights
Regional Airline Freight		21%	1%
Nonscheduled Part 135 Passenger		5%	2%
Part 135 Passenger – Piston		2%	4%
General Aviation – Turbine		33%	14%
General Aviation – Piston		31%	73%
General Aviation – Rotor		2%	1%
Government/Military		3%	1%
Air Ambulance		3%	3%
<b>Total</b>		<b>100%</b>	<b>100%</b>

**Local airports (1,236)** are the backbone of our general aviation system with at least one local airport in virtually every state. They are typically located near larger population centers, but not necessarily in metropolitan or micropolitan areas. Local airports account for 42 percent of the general aviation airports eligible for Federal funding. They also account for approximately 38 percent of the total flying at the studied general aviation airports and 17 percent of flying with flight plans. Most of the flying is by piston aircraft in support of business and personal needs. In addition, these airports also typically accommodate flight training, emergency services, and charter passenger service. The flying tends to be within a state or immediate region. There are no heliports, but there are four seaplane bases in this category.

<b>Criteria Used to Define the New Local Category</b> (all numbers are annualized)
1) 10+ instrument operations and 15+ based aircraft; or
2) 2,500+ passenger enplanements.

**Map of 1,236 Local Airports**  
(There are no local airports in Hawaii)





## Findings at Local Airports:

- 980 local airports supported air ambulance services in 2009.
- 121 local airports provided important access to law enforcement, the U.S. Postal Service, U.S. Customs and Border Protection, U.S. Forest Service, or Essential Air Service.
- 70 have scheduled air service that boarded more than 2,500, but less than 10,000, passengers in 2010 with 68 in Alaska.
- 42 are designated as reliever airports.
- 30 were used by large certificated air carriers for charter flights.
- 27 received scheduled air service through the Essential Air Service Program.
- On average, these airports have 37 based aircraft.
- Operators spend over \$2.2 million per year flying on average at each of these airports.
- \$2.6 billion of AIP funds was invested at the local airports during the period 2001-2009. Recognizing that not all airports received AIP funds every year and that simple averages can present a skewed impression, the \$2.6 billion represents a simple annual average of \$230,203 per airport, including \$78,654 in NPE funds and \$151,549 in discretionary funds. Naturally, the size and nature of capital investments varied greatly among airports within the category.

### Profile: Local Airport Serving Local and Regional Markets

Eastern Sierra Regional Airport (BIH) is a public airport located about 2 miles east of the central business district of Bishop in Inyo County, California. The airport has three runways, two helipads, and handles about 26,000 operations annually, averaging 71 operations per day. The majority of operations consist of local and itinerant general aviation flights with some military operations. The airport has 54 based aircraft, most of which are single engine.






BIH provides a number of important services. It provides search and rescue services for those who visit nearby national parks, and represents an essential connection for a relatively isolated community. An air ambulance company operates from BIH and services the local hospital. The airport is also used as a forest service tanker base to respond to wildfires in the area, has contracts with the military as a refueling location, and refuels military helicopters on a regular basis.

The Civil Air Patrol uses BIH to provide a variety of emergency services, and the California State Patrol and the U.S. Drug Enforcement Administration use the airport as a base of operations. The Los Angeles Department of Water and Power, Southern California Edison, and assorted private contractors have helicopters based at BIH that perform aqueduct inspection and security, as well as power line maintenance. BIH is also designated as an area disaster emergency equipment staging area.

The map shows air ambulance destinations flown IFR from BIH in FY 2009. Most of these flights go to destinations in California with some to adjacent states.

As can be seen in the table, general aviation operations comprised 89 percent of the flights in FY 2009 and 73 percent of the aircraft operating costs, with general aviation turbine, general aviation piston and air ambulance aircraft playing prominent roles.

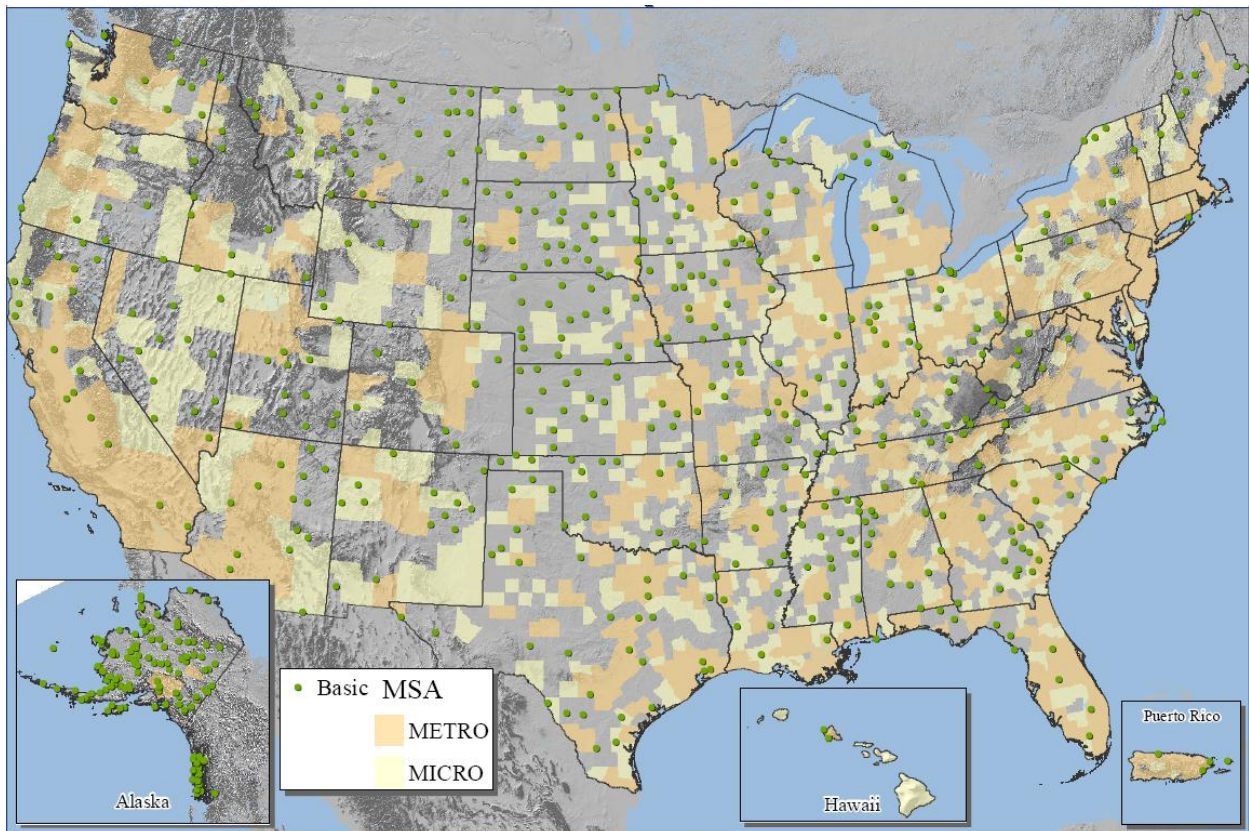


Eastern Sierra Regional Airport	Shares - FY 2009	
	Aircraft Operating Costs	Flights
Nonscheduled Part 135 Passenger 	7%	7%
General Aviation – Turbine 	41%	16%
General Aviation – Piston 	32%	73%
Government/Military 	2%	0%
Air Ambulance 	16%	3%
Other	2%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>

**Basic airports (668)** are often able to fulfill their role with a single runway, helipads, seaplane, and limited infrastructure. Forty-three states have basic airports. These 668 airports fulfill the role of a community airport providing a means for private general aviation flying and linking the community to the national airport system. Basic airports account for approximately 7 percent of the total flying at general aviation airports and 2 percent of flying with flight plans. Most of the flying is self-piloted for business and personal reasons using propeller-driven aircraft. A fair amount of air charter (taxi) services is provided at these airports. There are 3 heliports and 20 seaplane bases in this category.

<b>Criteria Used to Define the New Basic Category</b> (all numbers are annualized)
<ol style="list-style-type: none"> <li>1) 10+ based aircraft; or</li> <li>2) 4+ based helicopters, or</li> <li>3) The airport is located 30+ miles from the nearest NPIAS airport; or</li> <li>4) The airport is identified and used by the U.S. Forest Service, or U.S. Marshals, or U.S. Customs and Border Protection (designated, international, or landing rights), or U.S. Postal Service (air stops), or has Essential Air Service; or</li> <li>5) The airport is a new or replacement facility activated after January 1, 2001; and</li> <li>6) Publicly owned or privately owned and designated as a reliever with a minimum of 90 based aircraft.</li> </ol>

**Map of 668 Basic Airports**



## Findings at Basic Airports:

- 269 basic airports supported air ambulance services in 2009.
  - 107 basic airports provided access to remotely located populations.
  - 119 provided important access to law enforcement, the U.S. Postal Service, U.S. Customs and Border Protection, U.S. Forest Services, or Essential Air Service.
  - Only one is designated as reliever airport.
  - 19 were used by large certificated air carriers for charter flights.
  - 29 received scheduled air service through the Essential Air Service program.
  - On average, these airports have 10 based aircraft.
  - Aircraft operators spend about \$540,000 per year flying on average at each of these airports.
  - \$1.1 billion of AIP funds was invested at basic airports during the period 2001-2009.
- Recognizing that not all airports received AIP funds every year and that simple averages can present a skewed impression, the \$1.1 billion represents a simple annual average of \$182,384 per airport, including \$68,039 in NPE funds and \$114,345 in discretionary funds. Naturally, the size and nature of capital investments varied greatly among airports within the category.

### Profile: Basic Airport Serving Local and Regional Markets

Taylor County Airport (MDZ) is a public airport located about 3 miles southeast of the central business district of Medford, a city in Taylor County, Wisconsin. The airport has two runways and handles about 7,000 flights annually, averaging about 19 per day. There are 13 aircraft based at MDZ made up of 12 single engine aircraft and 1 jet.

With no commercial airline service at MDZ, general aviation traffic dominates activity.

MDZ is an efficient producer of self-piloted flying linking the community to the regional economy. The map shows general aviation piston flying IFR from MDZ in FY 2009. Many of the destinations are either within the state or in adjacent states with some flights going as far as North Carolina and Texas.



The table shows that general aviation piston activity accounted for 94 percent of flights in FY 2009 and 76 percent of aircraft operating costs. Part 135 air taxi/piston activity comprised 4 percent of flights and general aviation turbine and nonscheduled part 135 activity each made up 1 percent of flights. General aviation turbine activity made up 16 percent of aircraft operating costs while part 135 piston and nonscheduled part 135 each comprised 4 percent.

Taylor County Airport	Shares - FY 2009	
	Aircraft Operating Costs	Flights
Nonscheduled Part 135 Passenger 	4%	1%
Part 135 Passenger – Piston 	4%	4%
General Aviation – Turbine 	16%	1%
General Aviation – Piston 	76%	94%
<b>Total</b>	<b>100%</b>	<b>100%</b>

## GENERAL AVIATION AIRPORTS NOT CLASSIFIED

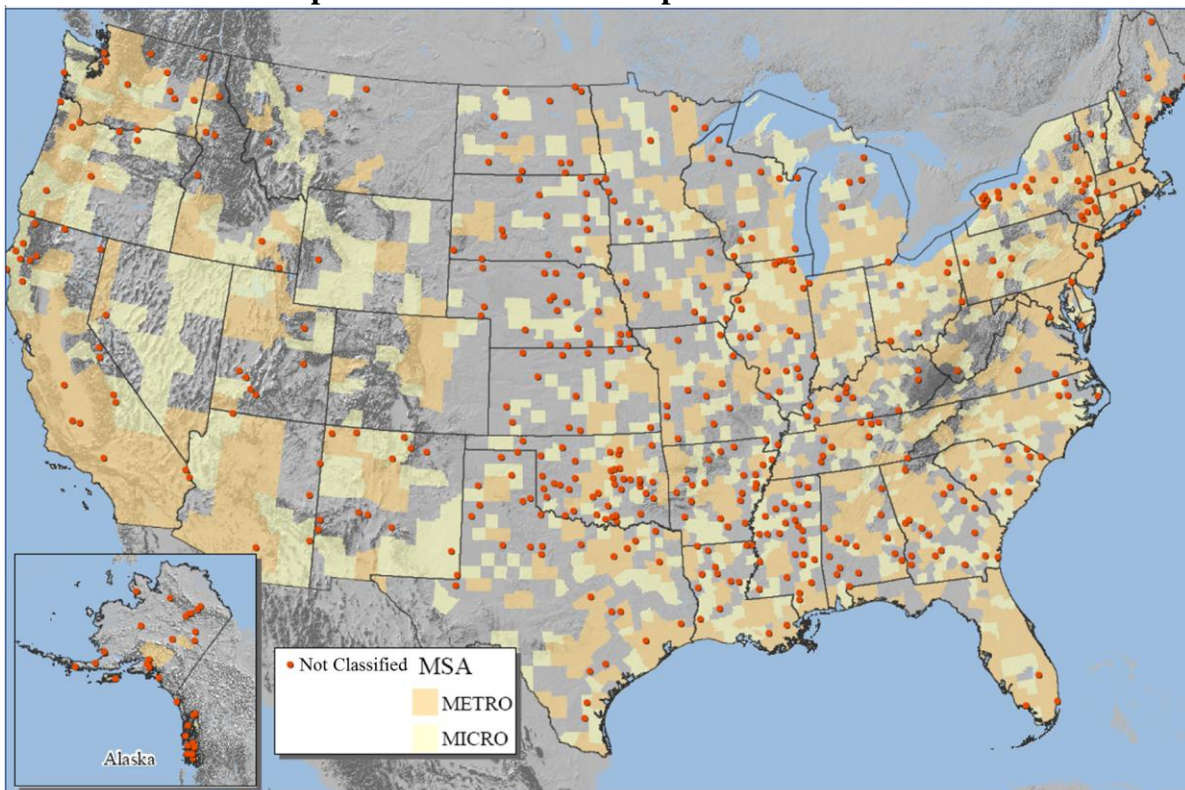
There are 497 airports (including 475 airports, 7 heliports, and 15 seaplane bases) that did not fit into one of the four new categories. Most of these airports have been in the NPIAS for decades and may have seen an erosion of based aircraft and activity (because of population and economic shifts or recession) or may have no based aircraft. Twenty-two of these airports are privately owned and were originally included in the national system as relievers for commercial service airports, but no longer meet the entry criteria. Others may be seasonal airports, military airfields recently converted to general aviation use, or airports used to access important state airports with related national interests.

We found that these airports account for approximately 6 percent of total flying at the studied general aviation airports and 2 percent of flying with flight plans; none are commercial service airports, and none received scheduled air service through the Essential Air Service program.

\$371 million of AIP funds was invested at these 497 airports during the period 2001-2009. Recognizing that not all airports received AIP funds every year, and that simple averages can present a skewed impression, the \$371 million represents a simple annual average of \$82,889 per airport, including \$48,757 in NPE funds and \$34,132 in discretionary funds. Naturally, the size and nature of capital investments varied greatly among airports within the category.

The FAA will continue to work with the aviation community to assess and potentially classify these airports, heliports, and seaplane bases.

**Map of General Aviation Airports Not Classified**



## KEY FINDINGS

During this project, we learned about the relationship between activity and existing infrastructure, and the diverse and critical functions that general aviation airports provide. We reviewed and revalidated the guiding principles of the National System contained in the NPIAS. The FAA updated the principles listed below in 2012, and these will continue to help guide the future development of our nation's general aviation airports.

### Guiding Principles of the National Airport System (updated 2012)

- Airports should be:**
- Safe, efficient, located where people will use them, and developed and maintained to appropriate standards.
  - Affordable to both users and Government, relying primarily on producing self-sustaining revenue and placing minimal burden on the general revenues of the local, state, and Federal Governments.
  - Flexible, expandable, able to meet increased demand, and to accommodate new aircraft types.
  - Permanent with assurance that they will remain open for aeronautical use over the long term.
  - Compatible with surrounding communities, maintaining a balance between the needs of aviation, the environment, and the requirements of residents.
  - Developed in concert with improvements to the air traffic control system and technological advancements.

- These guiding principles also state that the National Airport System:**
- Is critical to the national transportation system. Airports provide a variety of important public services and connect their communities to the transportation network. The national transportation system is essentially a government (Federal, state, local) function that needs to be developed and maintained.
  - Should support a variety of critical national objectives (such as defense, emergency readiness, law enforcement, and postal delivery).
  - Should be extensive, providing as many people as possible with convenient access to air transportation, typically by having most of the population within 20 miles of a NPIAS (national system) airport.

This top-down report confirmed that the United States has a diverse network of general aviation airports that serve the public interest. Federal investment in these airports allows many aeronautical functions to be accomplished more efficiently. We also concluded that:

- General aviation airports have developed over time based on state and local aeronautical and societal needs rather than from a set of national directives.
- 2,455 (83 percent) of the 2,952 general aviation airports could be readily grouped into four distinct categories (national, regional, local, and basic) based on the number and types of aircraft using each airport and the level and types of activity.

- Many of the airports designated as relievers serve their own economic and operational role and do not primarily relieve congestion at another airport.
- With possibly a few exceptions, the based aircraft, passenger enplanement, and instrument flight data provided an accurate means to categorize the general aviation airports. Improved reporting of based aircraft and total aircraft operations at each airport may change the categorization of only a small number. Unfortunately, some airports have declined to participate in the National Based Aircraft Inventory Program (Airport Master Record, FAA Form 5010-1) and only 9 percent of the 2,952 airports studied have control towers reporting activity.
- Most of the Federal funds invested at the 2,952 general aviation airports (about 75 percent from 2002-2009) were used for airfield improvements such as runways, taxiways, and aprons.
- General aviation users spend more to fly at the general aviation airports than the Federal Government invested at these airports. For example, in 2009, nonairline operators spent \$12 billion flying an estimated 27 million flights at the 2,952 general aviation airports, while the Federal Government invested about \$1.1 billion to help state and local governments maintain and improve these airports.

As we reviewed the national airport system data, some interesting issues, ranging from safety design standards to future investment considerations, were identified. Addressing some of these questions would require statutory or regulatory changes that will have to be fully vetted and coordinated by the appropriate organizations. For example:

- Does it make sense to continue to use the existing nomenclature of general aviation, reliever, and commercial service airports contained in current statutes or would it be clearer to only use the new ASSET categories developed?
- Should all general aviation airports be held to the same AIP grant assurances?
- Should there be different airport requirements for each of the general aviation airport categories?
- Should noncertificated national and regional airports with operations by heavy general aviation aircraft be required to obtain airport certification equivalent to the requirements under part 139?<sup>6</sup> Should part 139 regulations be amended to include airports with these types of operations?

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<sup>6</sup> Title 14 Code of Federal Regulations (CFR), part 139, provides a process for the FAA to issue airport operating certificates to airports that serve scheduled and unscheduled air carrier aircraft with more than 30 seats or serve scheduled air carrier operations in aircraft with more than 9 seats but less than 31 seats.

## NEXT STEPS

The new general aviation categories will provide a baseline from which to measure changes in operations and needs. State and local governments will be encouraged to use the new categories to help guide future system and airport planning decisions. Those general aviation airports that meet the statutory definitions of commercial service and reliever will continue to be so classified within the four new categories. The FAA will periodically review and adjust the general aviation airports included in the NPIAS based on changing activity levels.

The FAA will continue to identify general aviation airports that are important to the national transportation system through the formulation of the NPIAS. We will do this in concert with state aviation agencies, airport sponsors and local planning organizations. Future reports to Congress, starting with the 2013-2017 NPIAS report, will incorporate the new general aviation airport categories developed in this report. The FAA will:

1. Incorporate these categories into the process for identifying the national airport system's 5-year development and funding needs;
2. Work with airports and state agencies to assess the 497 general aviation airports not classified that could not be placed into one of the four new categories;
3. Update the existing FAA guidance to reflect these new categories;
4. Reevaluate the general aviation airports biennially, in conjunction with the FAA's report to Congress to capture changing conditions, needs, and roles;
5. Review policies related to providing Federal money to privately owned airports included in the NPIAS, the role they play in the national transportation system, and the types of protections necessary to safeguard public investment in these airports over the long term; and
6. Continue to work with aviation stakeholders to address investment and regulatory questions concerning part 139 certification, grant assurances, airport requirements, funding eligibility, and entitlement programs, and revenue use and diversion.

In addition, as required by the FAA Modernization and Reform Act of 2012<sup>7</sup>, the FAA will evaluate the formulation of the NPIAS and provide Congress with a report on the findings. Specifically, the FAA will within the next 36 months:

1. Evaluate the criteria used for including airports in the NPIAS and the application of such criteria in the most recently published version of the NPIAS;
2. Evaluate the changes in airport capital needs as shown in the 2005–2009 and 2007–2011 NPIAS, compared with the amounts apportioned or otherwise made available to individual airports between 2005 and 2010;
3. Compare the amounts received by airports under the AIP in airport apportionments, state apportionments, and discretionary grants during such fiscal years with capital needs as reported in the NPIAS;
4. Evaluate the effect of transfers of airport apportionments; and
5. Analyze the apportionment of funds to primary airports.

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<sup>7</sup> The FAA Modernization and Reform Act of 2012 (section 155), under section 47103 of title 49 United States Code.

6. Document and review the methods used by airports to reach the 10,000 passenger enplanement threshold.

This report is due to Congress by the spring of 2015, and it will include recommendations for changes to policies and methods of determining apportionment amounts to individual airports.



## GLOSSARY

**Airport Improvement Program (AIP)** provides grants to public agencies and, in some cases, to private owners and entities for the planning and development of public-use airports that are included in the NPIAS.

**ASSET general aviation airports** (2,952 airports) are airports that are included in the NPIAS and are not primary airports. They include commercial service (121), general aviation (2,563), and reliever (268) airports. (These airports were studied in the ASSET Report.)

**Based aircraft** are aircraft that are “operational and airworthy,” which are based at an airport for a majority of the year. This is the definition used by airports when reporting based aircraft on the website [www.basedaircraft.com](http://www.basedaircraft.com), National Based Aircraft Inventory Program (Airport Master Record, FAA Form 5010-1).

**Essential Air Service Program** was put into place by the Airline Deregulation Act of 1978 to guarantee that small communities that were served by certificated air carriers before deregulation maintain a minimal level of scheduled air service. The U.S. Department of Transportation currently subsidizes commuter airlines to serve approximately 140 rural communities across the country that otherwise would not receive any scheduled air service.

**Fixed base operator** is a commercial business granted the right by the airport sponsor to operate on an airport and provide aeronautical services such as fueling, hangaring, tie-down and parking, aircraft rental, aircraft maintenance, flight instruction, etc.

**General aviation** is the operation of civilian aircraft for purposes other than commercial passenger or freight transport, including personal, business and instructional flying.

**General aviation airports** are those not classified as commercial service airports.

**Nonprimary commercial service airports** (121 airports) are airports with scheduled air carrier service and annual passenger boardings between 2,500 and 10,000.

**Instrument operations or instrument flight rules (IFR)** refer to: (1) a flight that depends upon flying by reference to instruments in the flight deck and navigation is accomplished by reference to electronic signals; or (2) a type of flight plan an aircraft is flying, such as an IFR or visual flight rules flight plan. Most IFR flights involve active control by FAA air traffic controllers.

**Large certificated air carrier** is an air carrier holding a certificate that: (1) operates aircraft designed to have a maximum passenger capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds; or (2) conducts operations where one or both terminals of a flight stage are outside the 50 states of the United States, the District of Columbia, the Commonwealth of Puerto Rico, or the U.S. Virgin Islands.

**Metropolitan and Micropolitan Statistical Areas (MSA)** (metro and micro areas) are geographic entities defined by the Office of Management and Budget for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. The term “Core Based Statistical Area” is a collective term for both metro and micro areas. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.

**National Plan of Integrated Airport Systems (NPIAS)** identifies nearly 3,300 existing and proposed airports that are significant to national air transportation and thus eligible to receive Federal grants under the AIP.

**Nonprimary entitlements (NPE)** is AIP entitlement funding made available for the use at nonprimary commercial service, general aviation, and reliever airports. These airports are referred to as “nonprimary” airports.

**Official Airline Guide** is a database and publication of worldwide airline schedules.

**Part 135 operators** are commercial, generally nonscheduled or air taxi operators that use smaller aircraft (title 14 CFR, part 135).

**Part 139** establishes a process for the FAA to issue airport operating certificates to airports that serve scheduled and unscheduled air carrier aircraft with more than 30 seats or airports that serve scheduled air carrier operations in aircraft with more than 9 seats but less than 31 seats.

**Primary airports** (378 airports) are publically owned airports with scheduled air carrier service and more than 10,000 passenger boardings each year.

**Reliever airports** (268 airports) are general aviation airports in metropolitan areas that provide pilots with alternatives to using congested commercial service airports or provide general aviation access to the surrounding area.