Airports and the Newest Generation of General Aviation Aircraft, Volume 2: Guidebook

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AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP REPORT 17

Airports and the Newest Generation of General Aviation Aircraft

Volume 2: Guidebook

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AIRPORT COOPERATIVE RESEARCH PROGRAM

Airports are vital national resources. They serve a key role in transportation of people and goods and in regional, national, and international commerce. They are where the nation's aviation system connects with other modes of transportation and where federal responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports. Research is necessary to solve common operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the airport industry. The Airport Cooperative Research Program (ACRP) serves as one of the principal means by which the airport industry can develop innovative near-term solutions to meet demands placed on it.

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FOREWORD

By Theresia H. Schatz
Staff Officer
Transportation Research Board

ACRP Report 17: Airports and the Newest Generation of General Aviation Aircraft is published as a 2-volume set. Volume 1 provides a Forecast of anticipated fleet activity associated with the newest generation of General Aviation (GA) aircraft over a 5- and 10-year outlook. Volume 2 offers a Guidebook in a user-friendly format that helps airport operators assess the practical requirements and innovative approaches that may be needed to accommodate these new aircraft.

This Volume 2 Guidebook will be of interest to airport operators currently serving GA aircraft, as well as those considering the potential effect of incorporating commercial service that may be provided by Very Light Jets (VLJs) and other advanced small GA aircraft at their airports. This Guidebook can be used to assess both the practical requirements and the innovative options for accommodating these new types of GA aircraft and provides detailed information for assessing whether airports of various types can currently accommodate advanced new generation aircraft. Airport planners can use this guidebook as a basis for upgrading existing and creating new airport facilities, along with the required services needed. Service providers and industry stakeholders focused on GA activity can use this Guidebook in seeking new business opportunities in the foreseeable future.

Some forecasts predict that an increasing number of new, smaller GA aircraft will take to the skies in the near future. These forecasts suggest that some airports will see an increase in traffic and greater demand for GA infrastructure, facilities, and services. However, according to some aviation industry experts, many of these forecasts appear overly optimistic. Airport operators are concerned that the forecasts do not adequately address airport considerations. The fundamental questions for airports are, how much will traffic increase from these aircraft; which airports will experience the traffic increase; and what infrastructure, facilities, and services will be needed.

If there is a large increase in aircraft activity as a result of these new aircraft, already busy GA airports will be further congested, and the smallest GA airports may not be prepared to handle this potential increase in activity. Consequently, airports need to know what level of aircraft activity they can expect and what infrastructure, facilities, and services are needed to accommodate the newest generation of GA aircraft adequately. They need information on the likelihood of GA aircraft activity increases at airports by category of airport and geographical location. Moreover, no single resource document summarizes what can and should be done to prepare airport infrastructure, facilities, and services to accommodate the increased activity while maintaining productivity.

Under ACRP Project 10-04, a research team led by GRA, Inc., conducted the research with the objectives to (1) forecast GA aircraft activity by category of airport and geograph-

ical location due to the introduction of the newest generation of GA aircraft and (2) develop a user-friendly guidebook that will help airport operators to (a) estimate the level of activity from these aircraft at their particular airport; (b) assess the effect of these aircraft on their particular airport's infrastructure, facilities, and services; (c) accommodate existing and anticipated demand for facilities and services from these aircraft; and (d) attract new business from the newest generation of GA aircraft. For the purposes of this project, the newest generation of GA aircraft refers to small-sized (12,500 lbs or less) aircraft with high-technology "all glass" digital cockpits, including light jets, VLJs, and new advanced-technology piston and turbo-prop aircraft.

The need for this research began in 2006–07, when the "hype" surrounding VLJs reached a crescendo. With a significant downshift in the global economy in 2008–2009, the reduced demand has affected the aviation industry as a whole, particularly the GA market. Nonetheless, this Forecast and the Guidebook will help airport operators and planners prepare for the next wave of change. An increase in demand for this newest generation of GA aircraft and its effect on airports; the associated facilities; and information related to best plan for future growth, expansion, and potential new opportunities are likely to be needed.

CONTENTS

CHAPTER 1

Introduction

1.1 Background

The newest generation of general aviation (GA) aircraft ranges from piston aircraft with glass cockpits and/or made with composite materials to light jets. Within this range of new aircraft, Very Light Jets (VLJs) have generally garnered the most media attention. The advent of VLJs, generally defined as **advanced technology jet airplanes weighing less than 10,000 pounds that seat three to six passengers,** has been accompanied by very optimistic forecasts and interest in using these aircraft in business models that offer new transportation options to travelers.

The new generation of GA aircraft generally refers to advanced technologies in three areas—avionics, airframes, and engines. Virtually all include advanced avionics highlighted by **glass cockpits** with primary electronic instrument displays rather than mechanical gauges. VLJs are a subset of these aircraft that also make use of newly designed very small jet engines. Some incorporate conventional aluminum airframes, while others use carbon fiber and advanced composite materials.

This guidebook brackets the VLJ segment by including guidance and information that will be relevant for new generation piston aircraft such as the Cirrus SR-22 and the Cessna/Columbia 400, turboprop models such as the Pilatus PC-12 NG and Eads Socata TBM 850, and light jets that weigh up to 12,500 pounds such as the Cessna CJ2+ and the Hawker Beechcraft Premier 1A.

VLJs are noted for the ability to take off and land on runways of 2,500 feet to 3,500 feet, varying with the model. The short runway capability could expand opportunities for additional GA airports to accommodate small jet aircraft, but could also result in specific jet-related issues such as noise and jet fuel availability. This guidebook is designed to help airport operators in serving this new generation of GA aircraft. The overall guidebook is designed to be especially useful to airport operators having limited GA jet operations. The guidance addressing service amenities is designed to help those operators looking to expand existing business aviation opportunities.

Eclipse 500 VLJ cockpit
Source: www.FlightGlobal.com
Robert.Hancock@FlightGlobal.com

Cirrus Vision VLJ composite airframe
Source: www.wikipedia.com

Williams FJ44 engine
Source: www.sijet.com (Trey Thomas)

Notes on Terminology

Airport operator is used throughout this publication because this guidebook focuses primarily on assisting those responsible for the actual operation of airports. Operators may or may not be the same entities as airport sponsors and/or the actual owners, who may have actual decisionmaking authority when it comes to addressing issues related to airport improvements, investments, or other actions identified in this guidebook.

New generation aircraft and **new generation GA aircraft** are used throughout this guidebook to refer to the small GA aircraft that are the main focus of the report.

1.2 General Aviation Overview

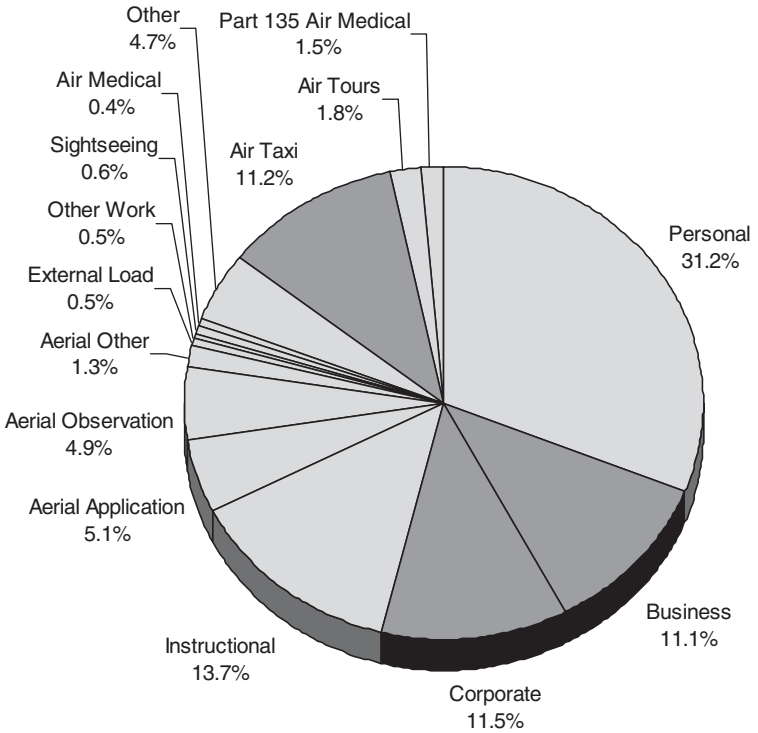
Although specific airplanes are typically described as general aviation (GA) aircraft, general aviation actually refers to how an airplane is used and who operates it. In broad terms, there are three basic user categories—air carriers (as defined by the FAA), the military, and general aviation. GA essentially refers to all types of aviation not covered by air carriers or the military. General aviation operations in the United States are conducted under two basic sets of regulations:

- Federal Aviation Regulations (FAR) Part 91—General Operating and Flight Rules
- FAR Part 135—Operating Requirements: Commuter and On-Demand Operations

FAR Part 91 are the regulations used to govern private (not-for-hire) operations, although some of the private operators voluntarily apply FAR Part 135 standards to increase the margin of safety. Fractional ownership operations are conducted under either a special subsection of FAR Part 91 (Subpart K) or FAR Part 135. Charter and air taxi operations are conducted under Part 135.

Anyone involved in general aviation in the United States is aware of the many reasons that the industry has been successful. First and foremost, GA provides various benefits and advantages for its users. GA aircraft are used for many different purposes, as indicated in Figure 1-1.

Although new generation aircraft can and certainly will be used in all of these categories, the primary focus for most of the major VLJ aircraft programs—including the three that have reached certification status (i.e., Eclipse 500, Cessna Citation Mustang, and Embraer Phenom 100)—has been on business, corporate, and commercial air taxi use. Business use is distinguished from corporate use in that the latter refers to flying with a paid flight crew, whereas the former does not. Fractional ownership use therefore falls under the corporate category. But at least two development programs—the Cirrus Vision SF50 and Diamond D-Jet—are single-engine designs focused primarily on the personal flying market. Existing new generation piston and turboprop aircraft are



Source: FAA, 2007 General Aviation and Part 135 Activity (GA) Survey.

Figure 1-1. Categories of GA flying.

already large components in personal use flying. Where appropriate, the guidebook will also address how personal use of new generation small aircraft may affect airports.

The FAA refers to FAR Part 135 on-demand (i.e., non-scheduled) passenger operations as **air taxi,** which traditionally describes air charter services where companies essentially rent exclusive use of an entire aircraft. But the development of new generation aircraft has led to new business models that redefine air taxi to mean something less expensive (and less exclusive) than traditional charter; this will be discussed later.

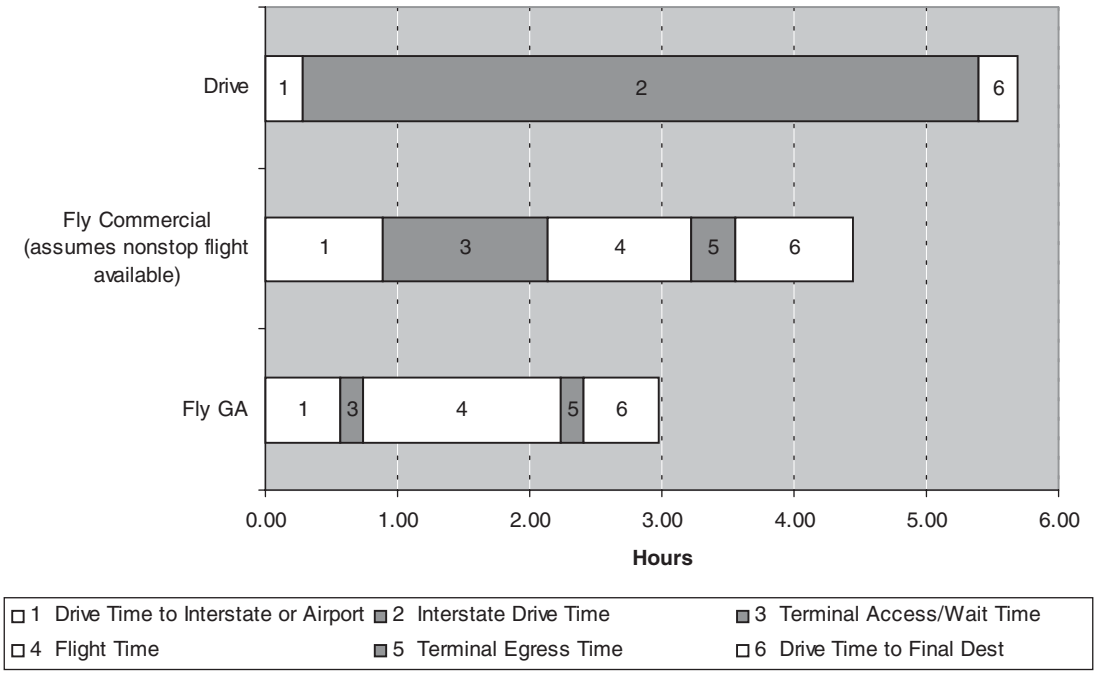
Business, corporate, and commercial air taxi make up about 34% of total GA flying. Although the GA Survey referenced in Figure 1-1 provides only limited data on types of use by aircraft type, business, corporate, and commercial air taxi flying will represent a major share of the new generation of aircraft, particularly VLJs. All three of these categories reflect a business purpose for GA, and companies of all types make productive use of GA aircraft.

The sources of the time-related benefits of GA versus other available modes of travel are clear when the components are broken down as shown in Figure 1-2. Surface travel, in particular, may be a viable alternative only up to about 200 to 300 miles for a typical business trip. Much beyond that, the time becomes excessive, typically requiring extra overnight stays, and the personal wear-and-tear associated with taking a very long-distance business trip via automobile easily outweighs any out-of-pocket cost savings.

The commercial air mode is a viable alternative to GA over longer distances, but trends in commercial airline service over the past decade have diminished its viability for many business users. Industry consolidation, major changes in security procedures since 9/11, and more rational fleet and schedule planning centered on major hub airports have all contributed to both a real and perceived decline in the quality of service, especially for businesses (and their customers) not located within short driving distances of a major airport.

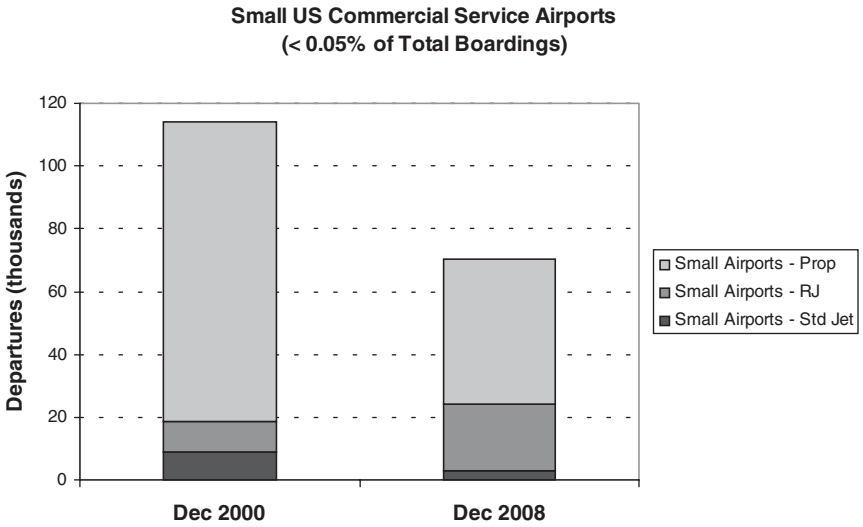
Businesses Use GA to

- Save time versus the use of commercial air or surface transportation
- Provide efficient access to and from small communities
- Avoid congestion and security lines at large hub airports
- Reach multiple locations in a single day
- Avoid dead time in-transit
- Improve employee productivity
- Enhance security and convenience
- Increase comfort and ease of travel



Source: GRA, Inc. estimates.

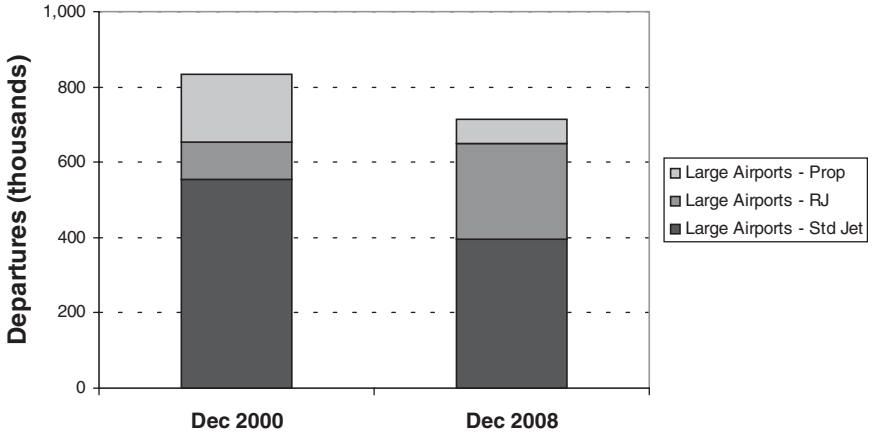
Figure 1-2. Typical 250-mile trip between outlying regional markets.



Note: "Std Jet" refers to narrowbody or widebody jets that are larger than RJs.
Sources: http://www.faa.gov/airports_airtraffic/airports/planning_capacity/passenger_allcargo_stats/passenger/ and GRA, Inc. analysis of Official Airline Guide data, Dec 2000 and Dec 2008.

Figure 1-3. Changes in scheduled service at small airports.

The overall number of scheduled flights in the United States has declined by 17% since 2000. The pattern of service has also changed, with commercial carriers dramatically cutting flights to and from smaller airports. Among all airports identified by the FAA as commercial service facilities, service to the two smallest categories (about 400 airports designated as **primary non-hub** and **non-primary**) has declined by 38%. Nearly 130 of these airports actually had no scheduled service by December 2008. The decline in service to small airports has been part of the commercial airlines' decisions to reduce or eliminate service by pistons or turboprops and replace that service with regional jet (RJ) service (small narrowbody jets with less than 90 seats). The shift to RJ service has been much more dramatic at larger airports. The shifts in service can be seen in Figures 1-3 and 1-4.



Note: "Std Jet" refers to narrowbody or widebody jets that are larger than RJs.
Sources: http://www.faa.gov/airports_airtraffic/airports/planning_capacity/passenger_allcargo_stats/passenger/ and GRA, Inc. analysis of Official Airline Guide data, Dec 2000 and Dec 2008.

Figure 1-4. Changes in scheduled service at large airports.

Of course business users must weigh the time-related benefits of GA against the costs. Traditionally, the actual out-of-pocket costs of traveling via GA versus other available alternatives have been significant. For private business or corporate flying, the decision often is determined internally based on the business' requirements or the company's flight department assessments and availability.

For Part 135 commercial non-scheduled flying, the combination of the decline in scheduled service to small airports along with the development of new generation small GA aircraft has been a primary impetus in the development of new business models that may provide less-expensive GA flying options than traditional charter operations. These business models have taken various forms.

Recently several air taxi operators have attempted to institute some variation of air taxi on-demand or per-seat on-demand services. The most noted of these was DayJet, based in Delray Beach, FL. DayJet offered per-seat on-demand pricing in the southeastern United States for service on its fleet of Eclipse 500 VLJ aircraft. The company began operations in September 2007, but ceased all operations and filed for bankruptcy a year later. A more successful story is SATSair, which offers service throughout the Southeastern United States and operates a fleet of new generation Cirrus SR22 piston aircraft; they have operated as an air taxi on-demand service that charges a flat hourly rate with no repositioning or waiting fees.

Other current air taxi operators include ImagineAir (based in Georgia, flying Cirrus SR-22s), LinearAir (based in Massachusetts, flying both Eclipse 500 VLJs and Cessna Grand Caravan turboprops), and North American Jet Charter (based in Chicago, flying Eclipse 500 VLJs). Other planned startups include Miwok Airways and JetSuite, both based in southern California. Each of these companies use (or plan to use) different business strategies that promise lower prices than can be offered by traditional charter, and all intend to rely on lower cost, more fuel-efficient new generation aircraft.

Although the recent severe downturn in the economy significantly affected GA flying in general, and on-demand flying in particular, it is still prudent for airport operators to begin thinking about how new generation GA aircraft and new air taxi business models may affect facilities. Existing facilities and the attractiveness of the surrounding community can greatly influence what may be required to accommodate and/or attract these aircraft. In the short term the effect of new air taxi business models may be limited; however, the underlying fundamentals have not changed significantly and, once the economy turns around, some of these on-demand ventures probably will expand and become successful. With that perspective, airport operators need to investigate what the specific types of new generation aircraft are and how they might be accommodated and/or attracted.

Different Forms of Non-Scheduled On-Demand Services under Part 135

Traditional Air Charter—Exclusive rental of an entire aircraft for a fixed hourly rate that covers the cost of the aircraft, including pilot salaries and fuel. Additional costs can include taxes, repositioning fees, and overnight/waiting fees. Even if a return trip is not needed, a charge for the cost of repositioning the aircraft to its home (or other) location is likely. There may also be a daily minimum charge.

Air Taxi On-Demand—Rental of an entire aircraft for a fixed hourly rate, but without charges for repositioning or overnight/waiting times; all costs are built into the hourly rate. If there is a return trip, it may be on a different aircraft (or even provided by a different company). This type of service may only be available between certain (specified) airports.

Per-Seat On-Demand—Similar to buying a ticket for an individual seat from a commercial airline, but there is no fixed flight schedule. The price may depend on the number of other passengers actually on-board the flight, or it could be predetermined based on the average number of passengers the operator expects. There may also be other pricing structure variations, such as offering a lower pre-determined price if the passenger is willing to travel any time within some pre-defined time window. This type of service would only make sense in markets that have a sufficient volume of traffic.

Source: Adapted from Burton, Roger L. "Air Taxi-Air Charter—What's the Difference in Pricing?" *EzineArticles.com*. http://ezinearticles.com/?Air-Taxi-Air-Charter—-Whats-the-Difference-in-Pricing?&id=859210

Key Questions

- Can my airport accommodate VLJs and other new generation aircraft?
- Can my airport provide services needed by air taxi operators?
- What is involved in obtaining an instrument approach procedure?
- What other airfield and landside factors do I need to consider?
- How can I encourage VLJ and other new generation aircraft activity at my airport?
- What can I realistically expect in terms of increased activity?
- What funding options are available to help develop my airport in order to attract VLJs?

1.3 Purpose

For airports already accommodating a significant level of GA activity by business jets, the introduction of new generation models may not significantly affect the need for improved or upgraded facilities. For facilities in this category, actions are likely to focus more on the level of customer service. But for those airport operators with limited or no actual experience in accommodating VLJs and other new generation GA aircraft, more basic issues must be addressed.

ACRP Project 10-04, "Airports and the Newest Generation of General Aviation Aircraft," strives to address these and other related questions through the preparation of 5- and 10-year activity forecasts and publication of this guidebook to help airport operators and community leaders. This is a quickly evolving and ever-changing industry. These new generation aircraft will continue to evolve; some of the VLJs and other aircraft described in Chapter 2 are still in development. The long-term answer to how successful these aircraft will be will depend on many technological, economic, and business factors that will play out over many years.

1.4 Use of Guidebook

This guidebook is a tool to

- Enable airport operators and community leaders to better understand the aircraft fleet within the new generation of GA aircraft,
- Summarize the ACRP forecast of the VLJ fleet and potential new operations,
- Evaluate an airport's attractiveness for VLJs and other new generation aircraft, and
- Identify measures that may increase an airport operator's ability to accommodate these aircraft.

The rest of this guidebook consists of six chapters, a glossary, and an appendix. Each is described below:

- Chapter 2 describes the aircraft considered during this study. Some of the aircraft are in production; many are still in development. There is also a discussion of how these new aircraft compare with other existing aircraft designs.
- Chapter 3: provides guidance on questions to ask and where to get information when assessing the potential for new generation aircraft activity at an airport. This chapter also summarizes (1) the fleet forecasts prepared in ACRP 10-04 for new generation aircraft and (2) the operational activity associated with projected growth in the commercial air taxi fleet, with potential new operations distributed to candidate airports. Chapter 3 is designed to help airport operators to undertake their own analysis of market potential for their airports and make use of the ACRP forecast information. A Helpful References and Resources section is included at the end of Chapter 3 to identify additional resources an airport operator may wish to consult.
- Chapter 4 discusses the Airport Evaluation Tool. This self-evaluation tool is intended to identify those airport facilities and services that are ready to serve new generation GA aircraft, and those areas in which additional investment may be needed to accommodate or better accommodate these aircraft.

- Chapter 5 provides extensive guidance on airport facilities and services needed to serve new generation GA aircraft and users. This chapter focuses on five topics: airfield, instrument approach, ground access, ground handling services, and landside development. Although readers of this guidebook are encouraged to read all the contents, to increase efficiency of use, the results of the Airport Evaluation Tool in Chapter 4 are used to direct readers to appropriate sections of Chapter 5. A Helpful References and Resources section is included at the end of Chapter 5 to identify additional resources an airport operator may wish to consult.
- Chapter 6 provides guidance to help airport operators with community outreach, including information on reaching the target audience, preparing the message, selecting media to use, and the timing of communications. A Helpful References and Resources section is included at the end of Chapter 6 to identify additional resources an airport operator may wish to consult.
- Chapter 7 discusses funding options for facility improvements and service improvements. A Helpful References and Resources section is included at the end of Chapter 7 to identify additional resources an airport operator may wish to consult.
- The Glossary and List of Abbreviations, Acronyms, and Initialisms lists terms used in this document, many of which are unique to aviation.
- Appendix A provides information on projected air taxi operations

CHAPTER 2

The New Generation of GA Aircraft

VLJs Currently in Production

Cessna Citation Mustang
Source: Wikimedia Commons
Juergen Lehle (albspotter.org), 2007

Embraer Phenom 100
Source: www.embraer.com

Other New Generation GA Aircraft

EADS Socata TBM-850 turboprop
Source: Wikimedia Commons
David Monniaux, 2007

Cessna/Columbia 400 piston
Source: Wikimedia Commons
David Monniaux, 2007

2.1 VLJ Aircraft Programs

New generation GA aircraft can be pistons, turboprops, or jets, although most attention has focused on the VLJ category. VLJs are generally defined as advanced technology jet airplanes weighing less than 10,000 pounds that seat three to six passengers. These aircraft typically have cruise speeds of 300+ knots and a nominal range of 1,100 to 1,400 miles. For many airport operators, one of the most exciting benefits of VLJs is their short-field capability, which could open a new class of general aviation airports to jet operations.

In addition to VLJs, there are other new generation aircraft with piston or turboprop engines that have either glass cockpits or are made using composite materials, or both. Although these aircraft also bring new capabilities to the market and offer substantial improvements for existing classes of aircraft, VLJs are a new class of aircraft, especially in terms of the types of airports a jet can now use. Thus, this guidebook focuses primarily on providing information to airport operators on accommodating the new class of VLJ aircraft, with areas noted that will also improve accommodations for other new generation aircraft.

As discussed in Chapter 1, new VLJ aircraft are anticipated to be used primarily for business functions, such as private, corporate, and air taxi service, although some single-engine programs target the personal market. Within the air taxi segment, VLJs have generated an interest in new business models such as serving smaller communities through chartered air taxi or per-seat on-demand flights.

The existing capability of airports to accommodate VLJ aircraft is influenced by both the mission of the VLJ aircraft anticipated to use the airport and the current level of activity by larger GA aircraft. Table 2-1 summarizes the VLJ development programs that have reached the flight testing phase or beyond and have a reasonable probability of reaching production status. For those aircraft not yet in production, the expected certification dates should be viewed with caution because every one of the manufacturers is being adversely affected by the recent major downturn in the global economy. Other VLJ programs are still under development, but either have not reached the flight testing phase (e.g., Epic Elite and Spectrum S-40 Freedom), have been suspended (e.g., Adam A700), or whose development programs appear to be delayed (e.g., Cirrus Vision SF50 and Spectrum S-33 Independence). VLJ aircraft weigh between 5,000 and 10,000 pounds, the heaviest ones being the Embraer Phenom 100 and the HondaJet. Table 2-2 summarizes the exterior dimensions and takeoff weights.

2.2 How New Generation Aircraft Compare

As noted earlier, this guidebook is intended to be relevant for all new generation aircraft, from single-engine pistons and turboprops up through VLJs and light jets. Within the VLJ segment itself,

Table 2-1. Overview of VLJ aircraft development programs.

Aircraft	Frame	Engines	Typical Seating Capacity (Crew/Passengers)	Current Program Status
Cessna Citation Mustang	Aluminum	Twin -- Pratt and Whitney Canada	2/4	Aircraft certified in Sep 2006; 146 total deliveries thru 2008; target annual production of 150
Diamond D-Jet	Carbon fiber	Single -- Williams International	1/4	First test flight in April 2006; engine switch in 2008; certification expected in 2009
Eclipse 500	Aluminum	Twin -- Pratt and Whitney Canada	2/4	Aircraft certified in Sep 2006; 261 total deliveries thru 2008; company declared bankruptcy in Nov 2008, liquidation announced in Feb 2009
Embraer Phenom 100	Aluminum	Twin -- Pratt and Whitney Canada	2/4	Aircraft certified in Oct 2008; 2 total deliveries thru 2008; target annual production of ~90
HondaJet	Composite / Aluminum	Twin -- GE Honda	2/5	First test flight in 2003; certification expected in 2010
PiperJet	Aluminum	Single -- Williams International	2/4	First test flight in July 2008; certification expected in 2010

Source: Manufacturer websites.

as of early 2009, only the Cessna Citation Mustang, Embraer Phenom 100, and Eclipse 500 had reached actual production status (the company producing the Eclipse 500 was in bankruptcy liquidation proceedings as of February 2009). Figures 2-1 through 2-8 show how these VLJ designs compare with other existing piston, turboprop, and light jet aircraft (including new generation aircraft). For reference purposes, popular traditional aircraft (e.g., the Beechcraft Baron G58 piston, the Cessna Grand Caravan turboprop, and the Beechcraft C90 King Air turboprop) are included as well.

Diamond D-Jet VLJ for the personal market
Source: Wikimedia Commons Adrian Pingstone, 2005

2.3 Runway Length

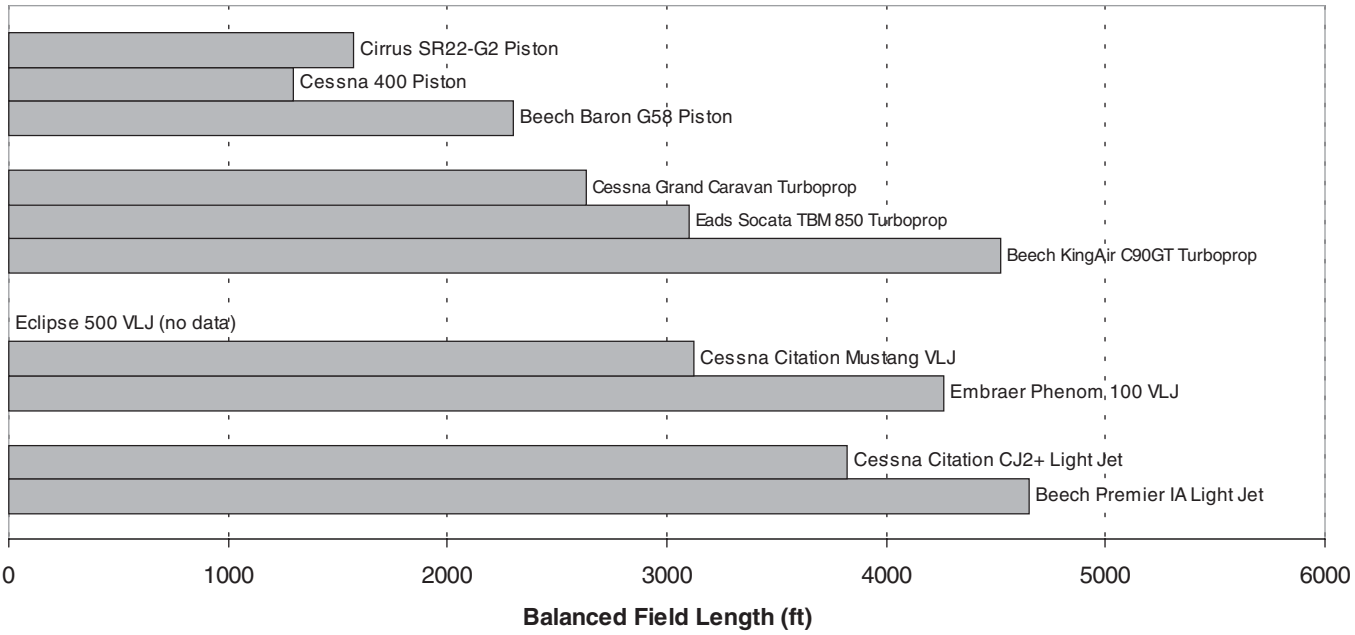
Different runway lengths are required for different aircraft and for different aircraft uses. Under FAR Part 135, an aircraft must be fully stopped within 60% of the available runway length (80% if the airport is an approved Destination Airport in the operator's manual.) For both takeoffs and landings, runway length requirements are affected by many operating conditions and variables, including runway elevation and gradient, temperature, atmospheric pressure, wind, surface conditions, aircraft load factor and payload.

Figure 2-1 compares the runway requirements for various small GA aircraft using the Balanced Field Length (BFL) metric. Although this is a useful metric, the graph is meant only to allow one to compare the **relative** requirements between different aircraft. The actual runway length required

Table 2-2. VLJ exterior dimensions and weight.

Aircraft	Length (ft)	Wingspan (ft)	Height (ft)	Maximum Take-off Weight (lbs)
Cessna Citation Mustang	40.5	43.2	**13.5**	8,645
Diamond D-Jet	35.1	37.6	11.7	5,110
Eclipse 500	33.0	37.2	11.0	5,950
Embraer Phenom 100	42.0	40.3	14.2	10,472
HondaJet	41.7	39.9	13.2	9,200
PiperJet	33.8	44.2	15.8	#N/A

Source: Manufacturer websites.



Assumes maximum gross weight, sea level, standard day, and dry level hard-surface runway.
Source: Conklin & de Decker Aviation Information, Aircraft Cost Evaluator 2008 Vol. I.

Figure 2-1. Small GA aircraft balanced field length comparison.

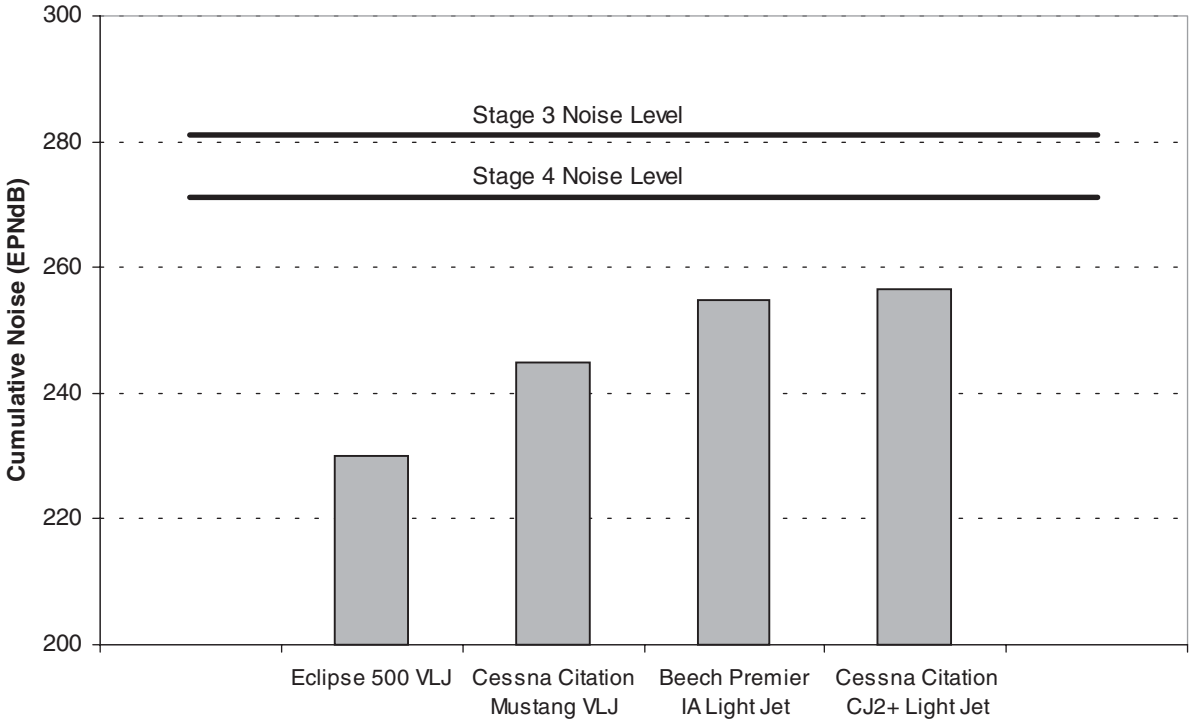
for safe takeoffs and landings at a specific airport will depend on all of the variables mentioned above in addition to the specific aircraft type and use.

Figure 2-1 indicates that VLJs have short runway capabilities similar to small turboprops. However, for all piston aircraft and for single-engine turboprop aircraft (e.g., the Cessna Grand Caravan and the Eads Socata TBM 850), the BFL numbers in 2-1 reflect the requirements under FAR Part 23 for aircraft weighing under 12,500 pounds; no allowance is made for engine failure or loss of power. By contrast, the BFL numbers for the VLJs, light jets, and twin-engine Beechcraft King Air reflect the more stringent Part 25 requirements, so that if there is a loss of power on takeoff, the aircraft can either stop within the remaining runway length or take off on the remaining good engine. Thus, there is a higher margin of safety associated with the Part 25 requirements.

In principle, VLJ aircraft do not have to meet the FAR 25 requirements given that they weigh less than the 12,500-pound threshold. However, both Cessna and Embraer have chosen to publish BFL estimates under the more stringent FAR 25 specifications for their VLJ aircraft. With these limitations in mind, the estimates in Figure 2-1 show that these VLJs have similar short-field capabilities relative to small GA turboprops.

2.4 Aircraft Noise

Certificated noise measurement standards for jet aircraft are based on complicated calculations that account for people's increased annoyance with single-frequency tones. The standard used is the Effective Perceived Noise Level (EPNL) and the amount of associated noise is measured in EPN decibels (EPNdBs). Beginning in 2006, newly certificated jet aircraft must meet the new, more stringent Stage 4 noise limits established by FAA, which are approximately one-third quieter than the old Stage 3 limits. As shown in Figure 2-2, the Eclipse 500 and Cessna Citation Mustang VLJs easily meet these standards and are significantly quieter than existing light jets. (Data were not available for the Embraer Phenom 100.)



Sources: Eclipse -- http://www.very-light-jet.com/news/vlj-manufacturer-news/eclipse-500-emerges-as-quietest-jet-aircraft-in-history.htmlCessna Mustang -- http://www.aviatorservices.com/mustangreport.pdfLight Jets -- http://www.faa.gov/about/office_org/headquarters_offices/AEP/noise_levels/media/uscert_appendix_01_051208.xls

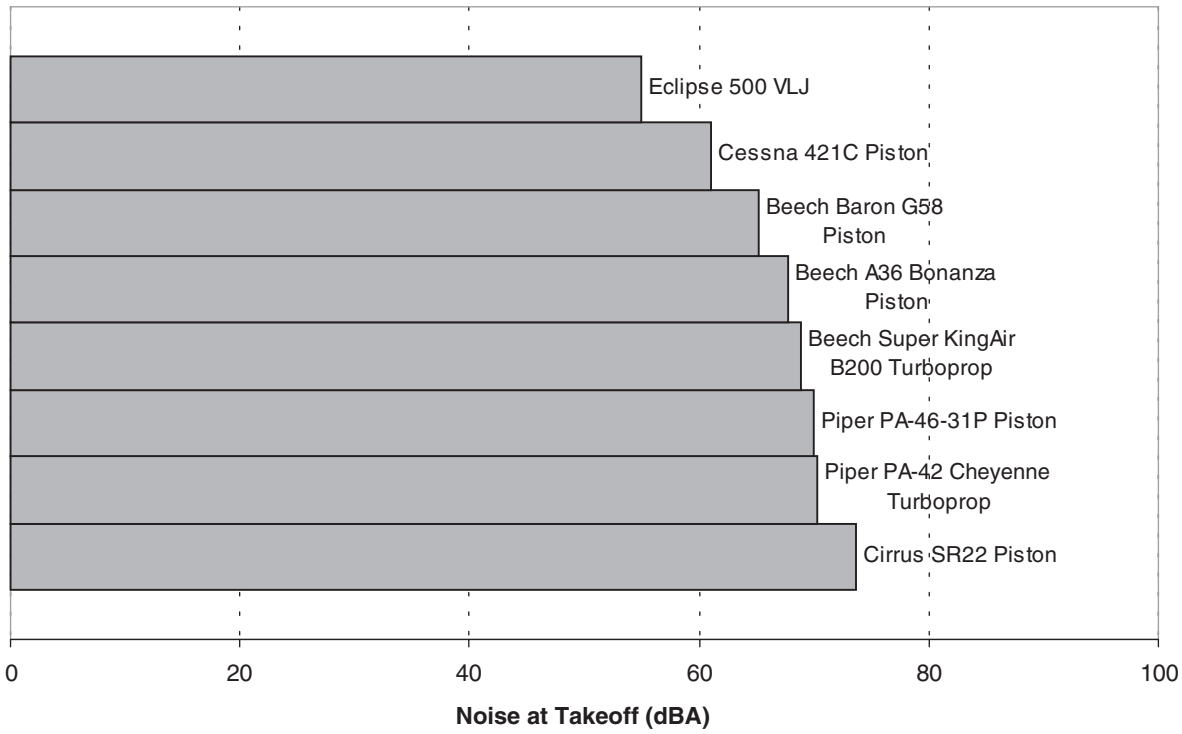
Figure 2-2. VLJ noise levels vs. FAA standards for jets.

It is difficult to compare VLJ noise levels with those for piston and turboprops directly because the measurement standards are different for propeller aircraft. The measurements for pistons and turboprops are based on the A-weighted Sound Level (dBA), which also attempts to account for people's sensitivity to noise at different frequencies, but is much less complicated than the EPNdB calculation. In 2006, Eclipse Aviation published a study showing results from noise testing for the Eclipse 500 using the dBA standard. The results, shown in Figures 2-3 and 2-4, indicate that the Eclipse 500 is actually quieter on takeoff than other piston and turboprop aircraft, and within the same range on approach.

These are very important findings and suggest that airport operators looking to bring VLJ traffic to their facilities can make strong arguments to address the concerns about jet noise that may arise. However, these graphs are not a substitute for a more extended noise analysis that may be used for FAR Part 150 noise compatibility planning or for FAA Order 1050 environmental assessments and environmental impact statements. Additional guidance on airport-specific noise planning is provided as part of the community outreach discussion in Chapter 6.

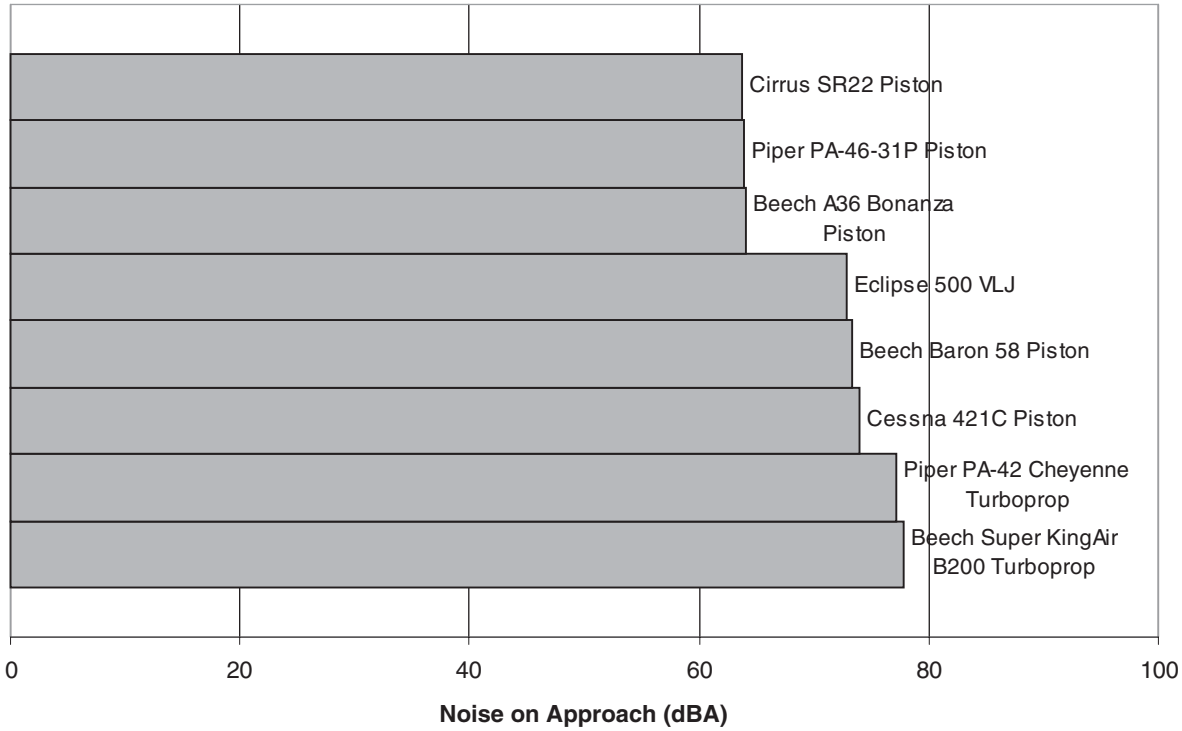
2.5 Other Attributes

As shown in Figure 2-5, the range of VLJs is similar to other small aircraft. Although the reported ranges are similar between the different aircraft types, the range specification for piston aircraft is less stringent than for turboprops or jets. The piston values reflect the maximum VFR range with all passenger seats occupied and a 30-minute fuel reserve. The turbine values reflect NBAA IFR estimates with all passenger seats occupied and sufficient fuel reserve for a 200-mile alternate.



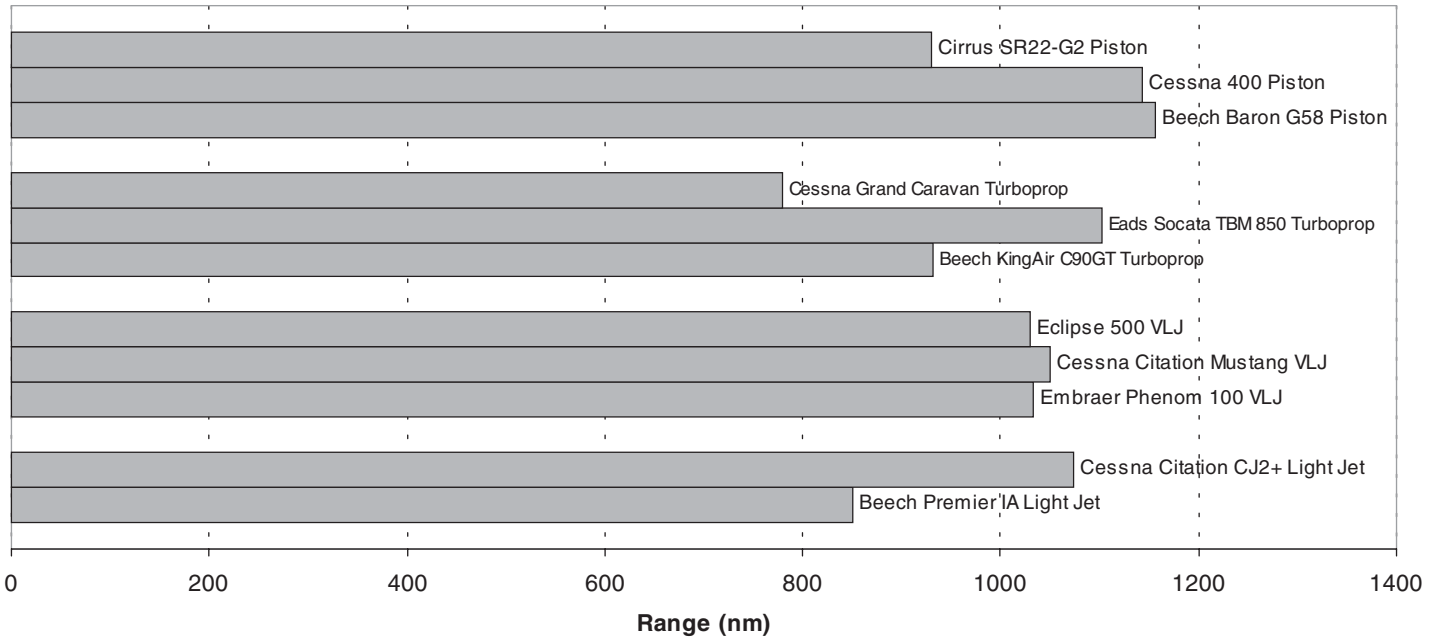
Source: http://www.very-light-jet.com/news/vlj-manufacturer-news/eclipse-500-emerges-as-quietest-jet-aircraft-in-history.html

Figure 2-3. Small GA aircraft takeoff noise comparison.



Source: http://www.very-light-jet.com/news/vlj-manufacturer-news/eclipse-500-emerges-as-quietest-jet-aircraft-in-history.html

Figure 2-4. Small GA aircraft approach noise comparison.

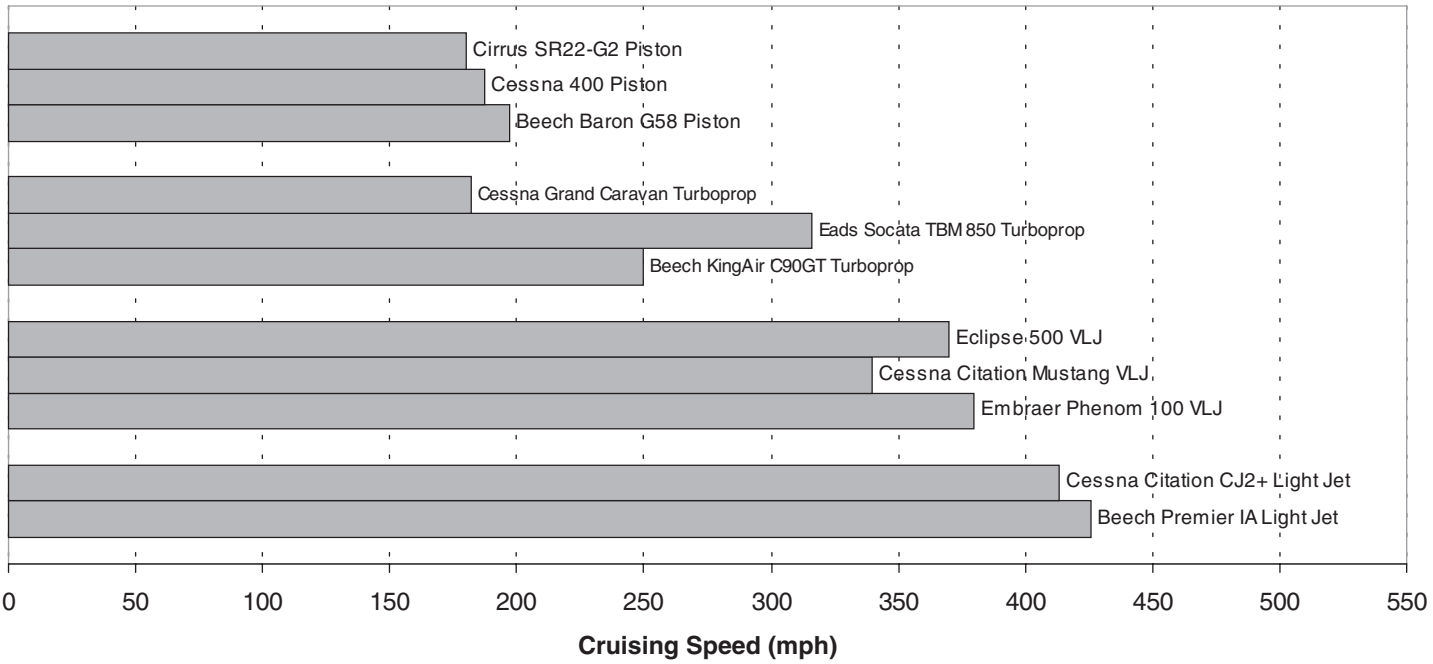


Source: Conklin & de Decker Aviation Information, Aircraft Cost Evaluator 2008 Vol. I.

Figure 2-5. Small GA aircraft range comparison.

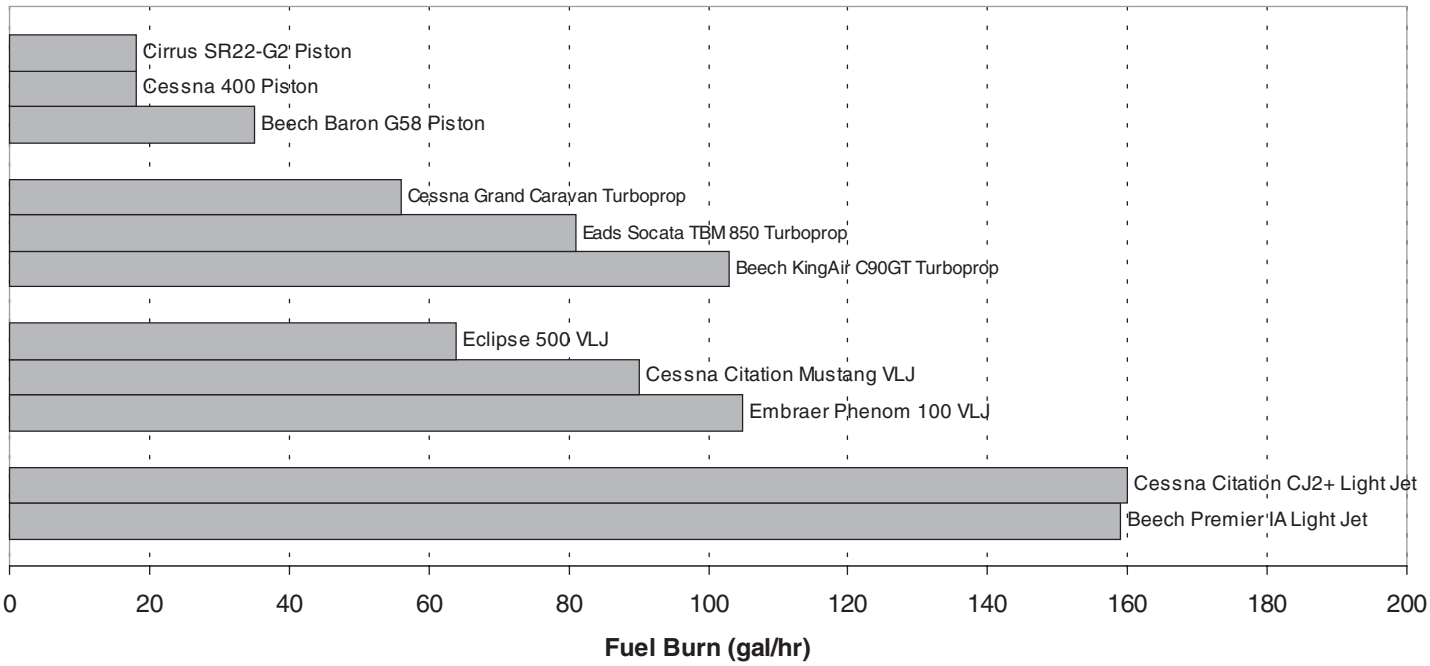
Figure 2-6 shows that VLJ aircraft are significantly faster than small GA piston or turboprop aircraft, although somewhat slower than larger aircraft in the light jet category.

As shown in Figures 2-7 and 2-8, fuel burn rates and useable fuel capacities for VLJ aircraft are very comparable to those of small turboprops. From the viewpoint of an airport fixed base operator (FBO), this means that fuel sale opportunities are also likely to be similar.



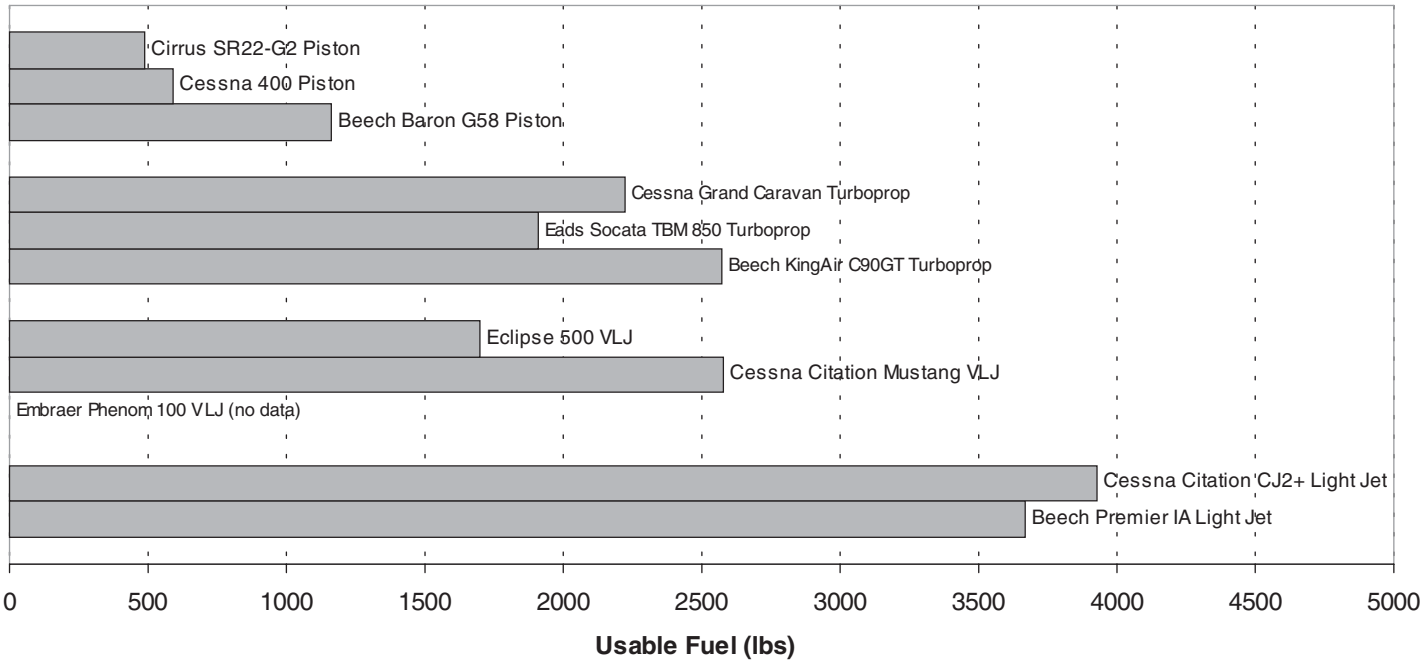
Source: Conklin & de Decker Aviation Information, Aircraft Cost Evaluator 2008 Vol. I.

Figure 2-6. Small GA aircraft cruising speed comparison.



Source: Conklin & de Decker Aviation Information, Aircraft Cost Evaluator 2008 Vol. I.

Figure 2-7. Small GA aircraft fuel burn comparison.



Source: Conklin & de Decker Aviation Information, Aircraft Cost Evaluator 2008 Vol. I.

Figure 2-8. Small GA aircraft useable fuel capacity comparison.

2.6 Summary

VLJs are small, fast, quiet aircraft with very efficient jet engines and short-field capabilities. All of these features contribute to their attractiveness as candidates for personal, business, corporate, or air taxi operations between smaller communities and smaller GA airports. Although other new generation aircraft offer substantial benefits over existing classes of aircraft, VLJs are a new class of aircraft that may open new opportunities for airports that cannot accommodate larger jet aircraft.

CHAPTER 3

Projecting Potential Future Activity from New Generation Aircraft

3.1 Introduction

The prospect of new generation aircraft, particularly VLJs, may seem appealing and inviting to many small GA airport operators in the United States, particularly those who have not yet attracted any significant jet activity. Certainly, specific airport requirements such as a long enough runway and various other infrastructure necessities would be needed to attract such activity. Many of these airport requirements are discussed in detail in Chapters 4 and 5.

Key Questions to Consider Before Assessing Airport Capabilities

Local Business Attraction—Are local businesses in the area that would make significant use of the airport if it could accommodate VLJs or other new generation GA aircraft? What is the potential for new businesses to locate in the area or to conduct business in the area?

Vacation/Leisure Attraction—Is the airport near an important vacation or leisure destination that would become more attractive if the airport could accommodate new generation aircraft?

Personal Flying—What is the potential for personal GA transportation use by high-income residents in the area?

However, the "build it and they will come" theory cannot be used without considering other factors that influence how and where new generation GA aircraft may operate. Airport operators should assess basic questions about the potential for increased activity before spending significant time and resources on improving or upgrading airport facilities.

Although in many cases airport facilities are on the list of issues that businesses may consider, such facilities may not be as far up the list as many airport operators may believe. Depending on the business in question, attributes such as household income, population, education, the quality of public schools, and the local road network may be of equal or higher importance than the location or capabilities of the local GA airport.

At the same time, understanding the current use of an airport will assist in identifying needs for specific actions to accommodate new generation aircraft. If existing facilities already accommodate a significant number of operations by light jets (e.g., Cessna CJ series, Hawker Beechcraft Premier) or larger, then the airport may already be sufficiently attractive to business operations. On the other hand, if operations at the airport primarily consist of piston and/or turboprop activity related to personal or private aviation, then the question becomes whether the lack of jet activity is due to a lack of airport facilities or a lack of demand for access. The combination of facilities, demographics, and personal and business demand are information an airport operator should consider in order to assess how new operations (perhaps including commercial air taxi operations) may be attracted to the area.

In many cases, airports that already have significant business aviation activity may not need to make much additional effort to attract new generation aircraft being used for business purposes. At airports that have facilities conducive to business aircraft but do not have business aircraft traf-

fic, airport operators will need to analyze the demographics much more closely to determine if the area will support business aviation.

3.2 Evaluating Potential Demand

In evaluating how much potential demand there may be related to new generation aircraft, airport operators should first understand the bounds of the airport's **catchment area.** Commercial airports use this term to describe the geographic area from which they draw passengers; the term can be applied to GA airports as well. The catchment area varies from airport to airport and will depend on various factors, including the number and type of airports that exist in the surrounding region. Determining how far people drive to use the airport is critical in understanding the bounds of the catchment area.

Once the airport operator has established catchment area boundaries, the demographics of the area need to be assessed. Relevant demographics include population, household income, age of the population, average education, and type of employment (e.g., manufacturing, technical, and professional). Information also should be gathered on current activity at the local airport and at any surrounding airports in the catchment area.

If the focus is primarily on the potential for business-related activity, then a relationship with the local Chamber of Commerce or a local/regional planning commission can be important. In many cases, the local Chamber of Commerce or the economic development branch of local government will have valuable information about the business community.

In some cases, an airport operator may need to create or commission a travel survey or questionnaire that can be used to obtain some of this information. A small investment in a questionnaire may well be surpassed by the amount of valuable information that can be obtained.

Recommended Steps for Evaluating Potential Demand

1. Determine catchment area
   - Addresses of owners of aircraft based at the airport
   - Origins and destinations of regular itinerant users
2. Identify demographics of the catchment area
   - US census data for cities, counties, or metropolitan statistical areas (MSAs) to assess population, household income, education, types of employment, etc.
3. Inventory current local activity
   - Keep a log of operations by aircraft type
   - Instrument Flight Rule (IFR) plan records can be used to inventory local and surrounding airports (records most jet and some other types of operations)
4. Use ACRP forecast to assess potential air taxi VLJ operations
5. Assess current levels of commercial service at surrounding airports
6. Review existing regional or state studies of (non-commuter) automobile traffic

Key Questions for Understanding the Local Business Environment

- ✈ Are any local businesses in the aviation industry?
- ✈ How many and which local businesses own aircraft?
- ✈ How many businesses already have aircraft based at the airport?
- ✈ What are the travel budgets for local businesses?
- ✈ For businesses that already have based aircraft at the airport, how many have or might consider upgrading from a propeller driven aircraft to a VLJ?
- ✈ For businesses that have travel budgets and do not have an aircraft, how many have or might consider acquiring a VLJ?
- ✈ How many businesses have customers or employees from other offices that arrive via aviation?

3.3 ACRP Forecasts for New Generation Aircraft

A goal of the ACRP 10-04 project was to produce 5- and 10-year fleet forecasts for new generation small GA aircraft. This section summarizes these forecasts, focusing primarily on the commercial air taxi forecasts

prepared specifically for VLJs. These forecasts may be of interest to airport operators, at least to provide an initial estimate of the scale of operations that may be expected from new generation aircraft.

The forecasts identified two potential market segments for new generation aircraft: traditional GA use and commercial air taxi use. Traditional GA use includes personal, business, corporate, and other non-air taxi uses. There is also some indication that VLJs may be a viable option in the fractional ownership market, given that some smaller fractional operators have indicated plans to include VLJs as an option in their fractional ownership programs. The commercial air taxi segment includes traditional charter use and on-demand air taxi and per-seat on-demand services. The two segments were analyzed separately with different techniques; the traditional GA model forecasted fleet sales directly, while the air taxi model was estimated using passenger trips as the basis for the analysis which was then translated into fleet requirements using load factor and equipment utilization factors.

For the traditional GA analysis, the forecasting assumed that GA use of new generation aircraft would come primarily from the replacement of existing aircraft (including high-end pistons, turboprops, and light jets) already in the fleet. Ultimately, a significant VLJ fleet may be used for traditional GA purposes, and growth in overall airport operations due to these new aircraft is not expected to vary much from historical averages observed over the past several years.

On the other hand, if the commercial air taxi market develops into a significant segment, that may have a much greater effect on GA airport operations given that much of the activity may represent new small aircraft activity (potentially displacing commercial air service and automobile trips). Consequently, an offshoot of the fleet projections for the air taxi market is a set of flight activity (operations) estimates broken out at the individual airport level. Candidate airports for the air taxi forecast were limited to public use airports in the lower 48 states with at least one 3,000-foot lighted runway and jet fuel available. Airports designated as Medium or Large hubs by the FAA were excluded based on observed and intended usage patterns of current and prospective air taxi operators. This yielded 1,842 candidate airports for potential air taxi services.

The airport-specific activity projections from the air taxi forecast are provided as Appendix A to the guidebook. Operators of airports included in the analysis are encouraged to access and review the forecasts.

A complete description of the forecast process and results is contained in a separate forecast document prepared in 2008. Relying on the same basic approach discussed above to assess potential demand, the air taxi forecast relied on detailed estimates of catchment areas and demographic data across the entire United States. The baseline year for the forecast was 2007, resulting in fleet forecasts for the years 2012 and 2017.

3.3.1 Forecast Results 10 Years Out

The forecast for the traditional GA segment projects that approximately 1,650 VLJs may be sold for use in the United States by 2012; by 2017, this total is projected to increase to around 3,500. The more speculative air taxi forecast projects 751 VLJs by 2012 and an increase in excess of 400 new low-cost piston aircraft that may be used for air taxi services. By 2017, the cumulative air taxi VLJ fleet may total more than 1,300, with about half that number added to the air taxi piston fleet. Figure 3-1 summarizes the cumulative fleet additions projected by 2017.

The projected VLJ cumulative total of about 4,800 aircraft over 10 years is somewhat lower than most other forecasts recently published, but this is not surprising given the recent downturn in the economy and some negative developments affecting participants in the industry during 2008. It is

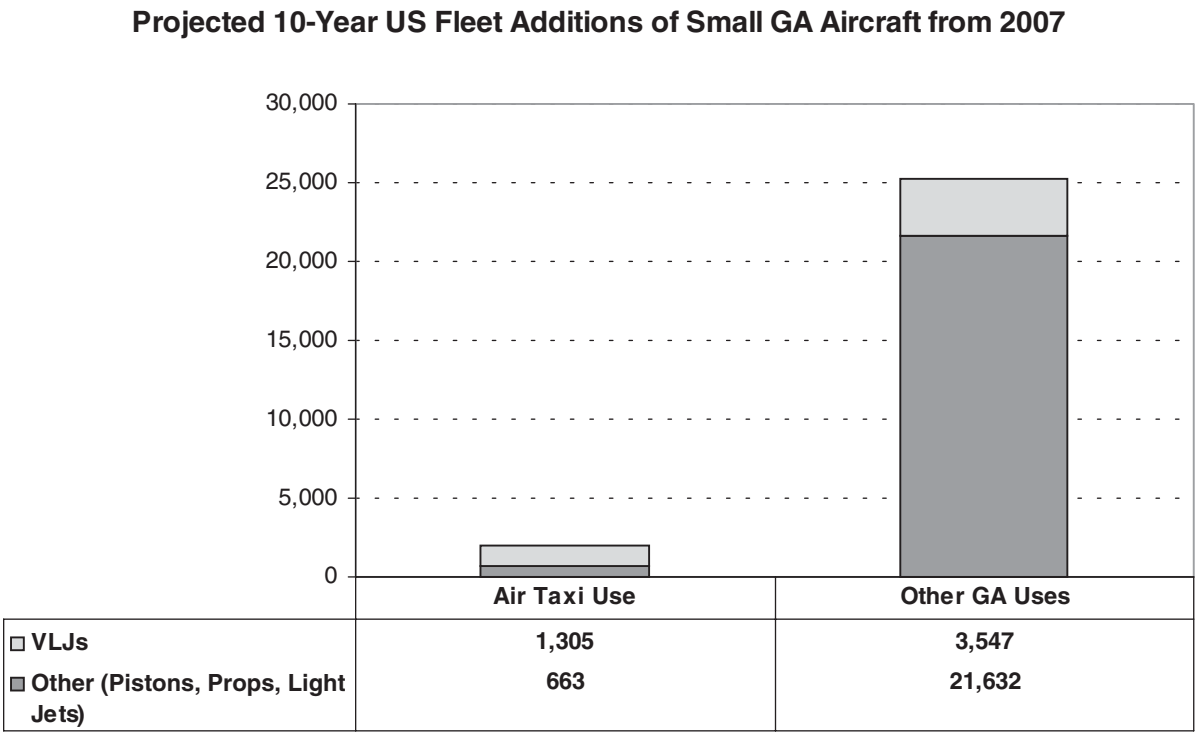


Figure 3-1. ACRP fleet forecast additions.

still anticipated, however, that the VLJ market will continue to grow, albeit somewhat more slowly than the optimistic projections forecasted by others.

The actual air taxi fleet projection levels depend heavily on basic assumptions, the most prominent of which are as follows:

- Definitions of the relevant universe for the automobile and commercial air travel markets;
- "Full price of travel" estimates of the various modes, which depend on (among other things) uncertain estimates of the unit costs of providing traditional charter services, wait and/or delay times associated with commercial air travel, and road congestion associated with automobile travel
- Actual availability of new per-seat on-demand VLJ services and/or low-cost piston services; and
- Perceived similarities or differences between new services and traditional charter services.

Using different assumptions for any of these factors could affect the estimated results significantly.

The overall level of activity at small airports is not likely to be affected much by VLJs purchased for traditional GA use because the main effect is anticipated to be displacement of sales of other small GA aircraft. On the other hand, the analysis indicates that sales of VLJs (and low-cost piston aircraft) for air taxi use are likely to displace automobile and commercial air traffic, potentially leading to substantial increases in activity at certain airports that can handle large numbers of aircraft being used to provide new air taxi services. Overall, the projected increase in operations by 2017 at candidate airports relative to 2007 is modest, on the order of 6%, as shown in Table 3-1.

The baseline air taxi trip estimates are all tied to specific location and airports, so the total number of associated air taxi operations can be estimated on an airport-specific basis. These estimates are contained in Appendix A, but they should be viewed cautiously. The projections are best interpreted as "market potential" targets, if and when low-cost air taxi services become available.

Table 3-1. Estimated incremental air taxi operations by region.

Region	TAF 2007 Total Operations	2017 Incremental Air Taxi Operations	Air Taxi % 2007 Operations
Central	2,973,922	144,751	4.9%
Eastern	8,002,088	418,472	5.2%
Great Lakes	12,556,805	749,353	6.0%
New England	3,106,122	81,938	2.6%
Northwestern Mountain	8,391,973	252,373	3.0%
Southern	17,920,957	914,709	5.1%
Southwestern	10,159,174	652,743	6.4%
Western Pacific	11,318,066	936,144	8.3%
Total	74,429,107	4,150,483	5.6%

3.3.2 Further Recommendations for Use of the Forecasts

The air taxi forecast projections need to be viewed and used with caution because they are subject to a large degree of uncertainty, particularly given recent events in the industry itself (the bankruptcy of both DayJet and Eclipse Aviation) and in the overall economy. Both DayJet and Eclipse were key players in the nascent VLJ air taxi market, and the forecasts were based on the assumption that the per-seat on-demand business model of DayJet (using Eclipse VLJs) would be successful and could spread across the country over the next 10 years, leading to significant activity at many GA airports. Although the specific set of assumptions used in the 10-year forecasts are probably now out of date, even very recent industry outlooks suggest that the VLJ air taxi market may still be viable, although the timing of when such activity may occur is uncertain. Thus, the forecast estimate for a given airport should not necessarily be interpreted as a specific prediction for 2017, but rather as a potential long-term activity target if the low-cost air taxi service business model becomes successful at some point in the future.

3.4 Summary

The air taxi segment will continue to be influenced by overall economic conditions as well as operator business plans. The results of the air taxi activity forecast are best used by an airport operator to ascertain the potential demand that may exist at an airport for air taxi operations and then to identify what factors may be affecting that potential.

3.5 Helpful References and Resources

ACRP Synthesis 4: Counting Aircraft Operations at Non-Towered Airports, http://onlinepubs.trb.org/onlinepubs/acrp/acrp_syn_004.pdf. This synthesis project identifies and evaluates the different methods used by states, airports, and metropolitan planning organizations (MPOs) for counting and estimating aircraft operations at non-towered airports with the goal of identifying best practices. Also identified are any new technologies that can be used for these counts and estimates.

Department of Transportation, Bureau of Transportation Statistics (BTS), http://www.transtats.bts.gov/Data_Elements.aspx?Data=2. BTS provides a wealth of information on aircraft operations at commercial airports and related data.

FAA, *General Aviation and Part 135 Activity Surveys,* http://www.faa.gov/data_statistics/aviation_data_statistics/general_aviation/. The purpose of the Survey is to provide the FAA with information on general aviation and on-demand Part 135 aircraft activity. The data collected are also used by other government agencies, the general aviation industry, trade associations, and private businesses to pinpoint safety problems and to form the basis for critical research and analysis of general aviation issues.

FAA, *Terminal Area Forecast,* http://aspm.faa.gov/main/taf.asp. This is the official forecast of aviation activity at FAA facilities. These forecasts are prepared in order to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public.

FAA, *Enhanced Traffic Management System,* http://aspm.faa.gov/etms/sys/. This database is one of many in a system which provides access to historical traffic counts, forecasts of aviation activity, and delay statistics.

FAA Office of Aviation Policy and Plans, *Forecasting Aviation Activity by Airport,* http://www.faa.gov/data_statistics/aviation_data_statistics/forecasting/media/AF1.doc#title. This report provides guidance to individuals who prepare airport activity forecasts as well as to those who review the forecasts. The guidance covers the basic steps required for producing forecasts.

FAA Office of Aviation Policy and Plans, *Model for Estimating General Aviation Operations at Non-Towered Airports,* http://www.faa.gov/data_statistics/aviation_data_statistics/general_aviation/media/GAModel3F.doc. This report provides a model for estimating GA operations at non-towered airports. In this report, a new model was developed in order to augment previous research by using additional variables for population, airport regional prominence, and certificated flight schools.

CHAPTER 4

Airport Evaluation Tool

4.1 Introduction

As described in Chapter 2, new generation aircraft range from single-engine pistons to light jets. Within this group, VLJs are most likely to represent a new market niche for airport operators. The physical characteristics and requirements of VLJs may have different implications for different airports. Depending on the existing operations at an airport, VLJs may constitute a new class of users for an airport or they may readily fit within the existing traffic at an airport. Moreover, in addition to traditional GA flying, VLJs and other new generation GA aircraft (including turboprops and pistons) may be flown for air taxi on-demand operations.

To help an airport in evaluating its existing capability to accommodate these new aircraft, this chapter presents three evaluation tools. The first tool, a quick comparison of existing aircraft to new generation aircraft, will help an airport operator assess whether current activity may be an indicator of the airport's ability to accommodate VLJs and other new generation aircraft. To provide a more detailed evaluation, a second tool examining typical airport facilities is provided to identify the airport's ability to accommodate new generation aircraft. This tool will help assess in more detail an airport's readiness to accommodate new generation aircraft with its current airfield and services/amenities; it essentially assumes that new generation aircraft will be used in traditional GA flying for business, corporate, and personal purposes. The third tool will help identify an airport's readiness to accommodate commercial operations such as air taxi or on-demand operations with new generation aircraft.

4.2 Quick Comparison with Existing GA Fleet

As part of the research, roundtable discussions and interviews were held with industry representatives and participants. During these meetings, the response from airport operators and others when considering new generation aircraft ranged from "Why should we care—our airport already serves all GA from the Boeing Business Jet to Piper Cubs" to "Can and will these aircraft use my airport?" Such responses represent concerns from accommodating additional aircraft at an already busy airport to the potential for new business. Given that many of the new generation aircraft have operating capabilities similar to the existing fleet, the aircraft currently accommodated at an airport can serve as a quick guide to the types of new generation aircraft that might be accommodated by the airport. This is shown in Table 4-1, which is a simple baseline for assessing an airport's readiness to accommodate new generation aircraft; the rest of this guidebook contains tools that an airport operator can use to determine readiness in greater detail.

Table 4-1. Quick guide to airport's ability to accommodate new generation GA aircraft.

Current Largest Aircraft Accommodated at Airport	New Generation GA Aircraft			
	Light Jet <12,500 pounds	Very Light Jet <10,000 pounds	Turboprop	Single Engine
Business Jets	Yes	Yes	Yes	Yes
Turboprop	Not likely	Maybe	Yes	Yes
Multi-engine piston	Not likely	Maybe	Maybe	Yes
Single-engine piston	No	No	Maybe	Yes

4.3 Airport Evaluation Tool and Readiness Level

While the Quick Guide (Table 4-1) compares aircraft, the Airport Evaluation Tool considers what facilities are desirable to accommodate new generation aircraft. By identifying an airport's level of readiness, the airport operator can readily determine what tools in Chapter 5 are most relevant to increase the level of readiness.

The Airport Evaluation Tool identifies readiness levels based on five key physical facility and service elements relevant for new generation aircraft being used for traditional GA purposes. These elements are

1. Airfield Infrastructure—how long is the runway, is it lighted, what taxiway system is present?
2. Instrument Approach—does the airport have an instrument approach or precision instrument approach to make it accessible in poor weather?
3. Ground Access—how do pilots and passenger travel between the airport and the community?
4. Ground Handling Services—does the airport provide core ground handling services such as fueling, line service, maintenance, and aircraft storage?
5. Landside Development—what aircraft parking, terminal facility, and other support buildings are on the airport?

(Special considerations related to accommodating commercial air taxi use of new generation aircraft are discussed in Section 4.4.)

The rest of section 4.3 helps an airport operator to perform a self-assessment of the five key elements to identify how ready an airport is to serve the new generation aircraft. This tool can help the airport operator understand what the airport has and what the airport may need in order to better serve these aircraft. To use the Airport Evaluation Tool in Figure 4-1, all boxes that apply to the airport in question should be checked. The New Generation GA Aircraft Readiness level is determined by the highest level that has all or most of the boxes checked.

Where in the Airport Evaluation Tool an airport identifies opportunities for improvements depends in large part on the existing level of facilities and personal, corporate, and/or business operations at the airport. To better assess the facilities needed to accommodate new generation aircraft, airports have been divided into four levels:

- **Level 1—Ready to Serve Smaller New Generation Aircraft**—Level 1 airports generally have facilities in place only to serve single-engine and some of the smaller turboprop new generation aircraft. With limited ground handling service, these aircraft probably are being used for personal flights. Level 1 airports typically are not supporting regular use by business aircraft; therefore, a typical first step would be to focus on determining runway infrastructure needs

Is the airport ready?

Readiness to serve new generation GA aircraft is identified by the highest level that has all or the most items checked.

Level 1	Level 2	Level 3	Level 4
❑ Runway <3,000' or turf	❑ Hard surface runway 3,000' – 3,900'*	❑ Hard surface runway 4,000' – 4,900'*	❑ Hard surface runway 5,000'+*
❑ 100LL Avgas only	❑ Runway lights	❑ Runway lights and other visual aids (PAPI, REIL, Approach lights)	❑ Runway lights and approach lights
❑ No instrument approach	❑ At least non-precision approach (500' – 1 mile minimums)	❑ Instrument approach with vertical guidance (300' – ¾ mile minimums)	❑ Precision Approach (200' – ½ mile minimum)
❑ Ground transportation by prearranged rides only	❑ At least partial parallel taxiway	❑ 100LL Avgas and JetA available 24 hours by request	❑ 100LL Avgas and JetA available 24 hours by request
	❑ 100LL Avgas and JetA available, business hours	❑ Terminal building with restrooms, seating, phone, vending and flight planning	❑ Terminal building with restrooms, counter space, seating, phone, vending, pilots room, flight planning and conference room
	❑ Terminal building with restrooms, seating and phone	❑ ARFF less than 10 minutes response time	❑ ARFF on field
	❑ ARFF less than 10 minutes response time	❑ Ground transportation by courtesy car, taxi or public transit	❑ Ground transportation by courtesy car, rental car, taxi, or public transportation
	❑ Ground transportation by courtesy car or prearranged rides	❑ Ample free auto parking	❑ Ample free auto parking
	❑ Free auto parking	❑ Minor repair services available	❑ Major aircraft maintenance repairs and avionics services available
			❑ Deicing provisions/ overnight hangar space

*Longer runway lengths may be needed at higher altitudes and temperatures; see Chapter 5.

Figure 4-1. Airport evaluation tool.

based on potential users identified through demographic and economic analysis, as discussed in Chapter 3.

- **Level 2—Ready to Serve Up to VLJs**—Level 2 airports generally have minimum physical facilities in place to accommodate new generation aircraft as large as VLJs and provide limited services and amenities. Level 2 airports may be accommodating occasional business aircraft. Operators of these airports probably will need to consider potential physical upgrades as well as services and amenities to attract operations by larger new generation aircraft.
- **Level 3—Ready to Serve All New Generation GA Aircraft**—Level 3 airports generally have the physical facilities to accommodate all small aircraft (12,500 pounds maximum takeoff weight) and may have fairly sophisticated services and amenities. Level 3 airports probably are

already supporting business aircraft that range up to larger turboprops such as the King Air or small jets such as the Citation I. Operators of these airports may want to consider additional service/amenity improvements or enhancements to attract additional new generation aircraft for business and corporate purposes, particularly if there is a further desire to accommodate commercial operations (charter, on-demand air taxi, and per seat on-demand.)

- **Level 4—Already Serving Most GA Aircraft**—Level 4 airports generally have all the physical attributes (or infrastructure) and services/amenities to accommodate most new generation aircraft. These airports probably are supporting a wide range of aircraft, including larger business jets with operations for personal, business, and corporate purposes. The challenges for Level 4 airports may be to have the capacity to serve additional aircraft and to ensure that the aircraft owners/operators receive first-class service. Operators of Level 4 airports may also need to consider the current capabilities and willingness to readily accommodate commercial operations by new generation aircraft and what improvements, if any, are needed.

4.4 Air Taxi Evaluation Tool and Readiness Level

In addition to establishing the physical infrastructure and services/amenities needed to serve new generation aircraft in traditional GA operations, airport operators may be interested in the potential for supporting commercial operations with these aircraft at their facilities. As described in Chapter 2, new generation aircraft are being used in and proposed for commercial operations such as charter, on-demand air taxi, and per-seat on-demand operations. From an airport operator's perspective, an important factor in handling commercial operations is recognizing that commercial passengers may be less familiar with general aviation in general and how GA airports function relative to larger commercial airports. The following Air Taxi Evaluation Tool examines additional key features of airport readiness for commercial air taxi operations, above and beyond basic airport readiness:

- Ground Access—additional public or private commercial ground transportation options; airport signage
- Ground Handling Services
  - Meet and Greet Services—personnel available to help passengers unfamiliar with the airport or community
  - Passenger Accommodations—indoor waiting area, restrooms, short walk to aircraft
  - Crew Accommodations—space to meet passengers, prepare for flight, and wait between flights

The rest of Section 4.4 guides an airport operator through a self-assessment of key elements to identify how ready an airport is to serve commercial operations by new generation aircraft. This tool can help the airport operator understand what is in place and what may be needed to support commercial operations. To use the Air Taxi Evaluation Tool in Figure 4-2, all boxes that apply to the airport in question should be checked. The Air Taxi Readiness level is determined by the highest level that has all or most of the boxes checked.

Where in the Air Taxi Evaluation Tool an airport identifies opportunities for improvements depends in large part on the existing level of facility infrastructure, personnel and air taxi operations at the airport. To better assess the facilities needed to accommodate new air taxi operations, airports have been divided into four levels.

- **Level 1—Not Ready**—Level 1 airports generally do not have the personnel available to provide the services required to accommodate regular commercial operations.
- **Level 2—Limited Service for Occasional Operations**—Level 2 airports generally have the basic services available to accommodate commercial operations, but probably would need to improve or enhance the services available to serve commercial operations regularly.

Is the airport air taxi ready?

Readiness to serve commercial operations is identified by the highest level that has all or the most items checked.

Level 1	Level 2	Level 3	Level 4
❑ Airport not attended	❑ Airport attended ❑ Self fueling ❑ Passenger seating ❑ Restrooms ❑ Phone ❑ Transportation arrangements ❑ First aid kit	❑ FBO service ❑ Full service fueling ❑ Counter space ❑ Passenger and package check-in provisions ❑ Crew lounge with Internet ❑ ADA accessible restrooms ❑ Phone ❑ Courtesy car or taxi ❑ First aid station ❑ Apron close to terminal ❑ Conference room ❑ Hotel and food within 10 miles ❑ Automated weight balance calculation ❑ Overnight hangar space	❑ FBO with air taxi support services ❑ Full service fueling ❑ Counter space ❑ Dedicated space for check-in and equipment storage ❑ Automated weight and baggage check ❑ Passenger waiting lounge ❑ Crew lounge ❑ Flight planning / weather briefing ❑ ADA accessible restrooms ❑ Phone ❑ Rental car/hotel shuttle ❑ Courtesy car, taxi or public transit ❑ First aid station ❑ Covered apron access ❑ Secured lighted parking ❑ Conference room and business center ❑ Wireless Internet ❑ Catering ❑ ATM machine access ❑ TV/newspaper available ❑ Hotel and food within 2 miles; shuttle service ❑ Overnight hangar space

Figure 4-2. Air taxi evaluation tool.

- **Level 3—Ready But May Need to Expand**—Level 3 airports generally have the services available to accommodate at least some commercial operations. If the level of commercial operations becomes significant, dedicated facilities or personnel may be needed.
- **Level 4—Ready to Serve**—Level 4 airports are generally ready to serve commercial operations and probably are serving frequent air taxi or charter operations. A bigger challenge at Level 4 airports may be having the physical space to accommodate additional operations.

4.5 Summary

The Quick Review and Airport and Air Taxi Readiness Evaluation Tools have been designed to help airport operators understand their existing facilities. This information is used to help the airport operator efficiently use the Airport Toolbox (Chapter 5) to identify areas for improvements and enhancements to better serve new generation GA aircraft.

CHAPTER 5

Airport Toolbox

5.1 Airport Toolbox Organization

This chapter provides a toolbox for assessing how key infrastructure elements at an airport can support traditional GA and/or commercial operations by new generation aircraft. Table 5-1 matches the Airport and Air Taxi Readiness levels identified during the self-evaluation in Chapter 4 with the key infrastructure areas that may need attention in order to support airport readiness for new generation aircraft. The elements in Table 5-1 are listed by the anticipated level of readiness, but this is only a suggestion because each airport is unique. The intent of the evaluation and toolbox guide is not to limit or restrict an airport from addressing other factors, but to help an airport operator focus on the factors that will most help it be ready to meet the needs of new generation GA aircraft.

In addition to addressing the need of traditional GA operations, the Ground Access and Ground Handling Services sections include additional considerations that apply primarily to commercial operations related to the air taxi evaluation discussed in Chapter 4. The toolbox also focuses on airport infrastructure, facilities, and personnel. Demographic and economic considerations applicable to all airports, regardless of infrastructure, were addressed in Chapter 3. Community outreach issues will be addressed in Chapter 6.

5.2 Airfield Infrastructure

5.2.1 Airport Reference Codes and Minimum Facility Requirements

The FAA provides facility development guidance through a series of Advisory Circulars (ACs). The FAA identifies the facility requirements to serve a specific type of aircraft based on the maximum takeoff weight, aircraft approach speed, and wingspan of what are termed "critical aircraft." These aircraft characteristics are used to identify the Airport Reference Code (ARC) for a specific airport, which is listed on the Airport Layout Plan (ALP). The layout plan is a set of drawings showing the existing conditions and planned improvements for the airport. Table 5-2 lists the five Aircraft Approach categories and six Airplane Design Group categories that together define the ARCs.

The new generation GA aircraft that are the focus of this guidebook typically range from ARC A-I to ARC B-II. Weighing less than 12,500 pounds maximum takeoff weight, they are all in the FAA's classification of small aircraft. In FAA AC 150/53090-13, *Airport Design,* the FAA groups the runway requirements for ARC A and B together. Throughout the Airport Toolbox, the standards for ARC B-I and B-II will focus on **small aircraft only** because these standards encompass all of the new generation aircraft being considered.

Table 5-1. Airport readiness toolbox reference guide.

	Level 1	Level 2	Level 3	Level 4
Airfield Infrastructure (Section 5.2)	✓			
Instrument Approach (Section 5.3)	✓	✓		
Ground Access (Section 5.4)	✓	✓	✓	
Ground Handling Services (Section 5.5)	✓	✓	✓	✓
Landside Development (Section 5.6)	✓	✓	✓	✓

Airside and Landside Functions

The airside and landside functions of an airport combine to provide the overall experience by the user. In the current context, the Airfield Infrastructure and Instrument Approach elements of the toolbox make up the airside functions, while Ground Access, Ground Handling Services and Landside Development make up the landside functions. The interrelationships of the airside and landside functions are illustrated below.

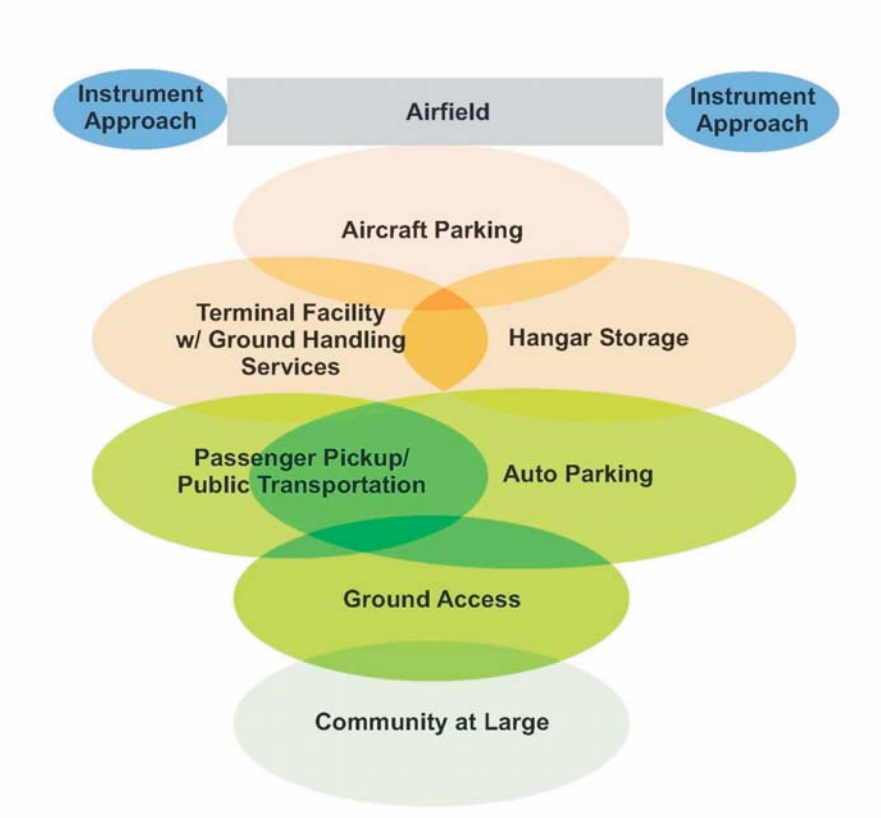


Table 5-2. Airport reference code (ARC) characteristics.

Aircraft Approach Category	Speed (knots)	Airplane Design Group	Wingspan (ft)	Tail Height (ft)
A	<91	I	<49	<20
B	91 - <121	II	49 - <79	20 - <30
C	121 - <141	III	79 - <118	30 - <45
D	141 - <166	IV	118 - <171	45 - <60
E	>166	V	171 - <214	60 - <66
		VI	214 - <262	66 - <80

Source: FAA AC 150/5300-13, Airport Design.

Key Runway Questions

- Is the runway long enough and wide enough for the critical design aircraft?
- What is the heaviest aircraft the runway can accommodate?
- What is the wind coverage?
- What is the condition of the runway pavement?
- Are the approaches clear of obstacles?
- Are the markings appropriate and clear?
- Are all the lights functioning properly?

The most fundamental piece of infrastructure at an airport is the runway (i.e., no runway, no airport). In addition to runway length, other important characteristics include runway width, pavement strength, runway safety and object-free zones, lighting, markings, and visual approach aids.

Table 5-3 and Figure 5-1 indicate the minimum facilities to accommodate all of the new generation aircraft in ARC B-I and B-II with varying instrument approach minimums. Each element of the runway infrastructure is described in more detail below, including instructions on how to adjust the runway length based on the airport location (elevation and mean maximum daily temperature.)

5.2.2 Runway Length

To determine the appropriate runway length for a specific airport, the airport's physical attributes need to be considered as well as the type of operations to be conducted. The design runway length at an airport is based on the critical aircraft using the airport. The FAA defines critical aircraft as the aircraft or group of aircraft with the most demanding requirements making at least 500 annual operations (takeoffs and landings). This equates to approximately one takeoff and landing each business day. Four primary physical attributes affect required runway length:

- Airport elevation,
- Mean maximum daily temperature,
- Maximum difference in runway centerline elevation, and
- Wet or dry pavement.

In addition, instrument approach requirements and operating regulations may increase the minimum runway length requirements. Appendix 16 in FAA AC 150/5300-13, *Airport Design,* identifies the minimum requirements to support an instrument approach. The minimum requirements are described in more detail in Section 5.3, Instrument Approach.

Operations conducted under FAR Part 91 Sub-part K (fractional operators) or FAR Part 135 are required to include an added margin of safety for the aircraft to be stopped within 60% of the available runway length (80% if the airport is an approved Destination Airport in that operator's manual.) The best method to determine minimum runway length requirements is coordination with operators of the critical aircraft. Other runway length guidance sources include manufacturers' aircraft handbooks and FAA AC 150/5325-4B,

Table 5-3. Minimum facility requirements for new generation GA aircraft.

	Minimum Facilities	All Small Aircraft	Minimum Facilities with Improved Minimums	All Small Aircraft and Improved Minimums	All Small Aircraft with Precision Approach Minimums
ARC	B-I	B-II	B-I	B-II	B-II
Approach Minimums	Not less than 1 mile		Not less than ¾ mile		Less than ¾ mile
Representative Design Aircraft	Cessna Mustang	Cessna CJ2+	Cessna Mustang	Cessna CJ2+	
Maximum Takeoff Weight	Small aircraft only, <12,500 lbs				
Runway Length, sea level	3,200 feet[1]	3,360 feet[2]	3,200 feet paved[1]	3,360 feet paved[2]	4,200 feet paved[1]
Runway Width	60 feet	75 feet	60 feet	75 feet	100 feet
Runway Safety Area (RSA)	120’ wide 240’ beyond ends	150’ wide 300’ beyond ends	120’ wide 240’ beyond ends	150’ wide 300’ beyond ends	300’ wide 600’ beyond ends
Object Free Area (OFA)	250’ wide 240’ beyond ends	500’ wide 300’ beyond ends	250’ wide 240’ beyond ends	500’ wide 300’ beyond ends	800’ wide 600’ beyond ends
Runway Protection Zone (RPZ) – inner width by length by outer width	250’ x 1,000’x 450’		1,000’ x 1,700’x 1,510’		1,000’ x 2,500’ x 1,750’
Obstacle Free Zone (OFZ)	250’ wide 200’ beyond ends				300’ wide 200’ beyond ends
Recommended Lighting	Medium Intensity Runway Lights (MIRL)				
Markings	Nonprecision				Precision
Approach Lights[2]	None		ODALS or MALS[1,3]		MALSR[1,3]
Parallel Taxiway	Recommend 25’ wide	Recommend 35’ wide	Required[3] 25’ wide	Required[3] 35’ wide	
Runway Centerline to Taxiway Centerline	150’	240’	150’	240’	300’

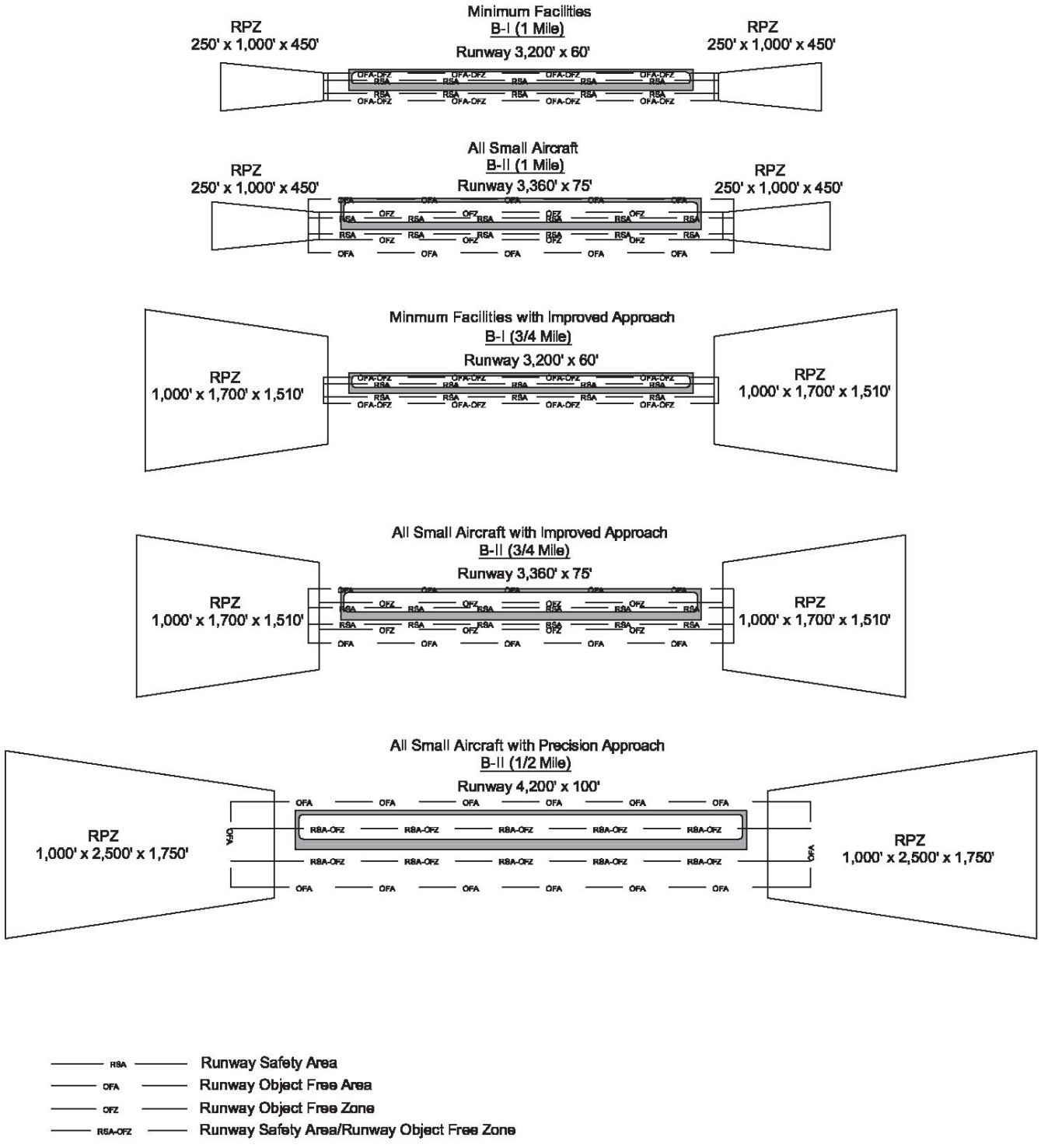
This table reflects the minimum requirements; an airport operator may choose to exceed these requirements to allow for greater future expansion potential.
[1] FAA AC 150/5300-13, Table A16-1
[2] Cessna manufacturer data
[3] For LPV based minima, approach lights are recommended, not required.

Source: FAA AC 150/5300-13, Airport Design.

Runway Length Requirements for Airport Design. If operations under Part 91(k) or Part 135 occur at the airport, then those additional safety factors need to be included in the design runway length.

Figure 2-1 showed the balanced field length of various small aircraft ranging from less than 2,000 feet to approximately 4,500 feet at sea level on a standard day (59°F). Additional data (e.g., temperature, elevation, and gradient) to reflect local conditions is needed to put these runway lengths into practice for a specific airport and type of operations (FAR Part 91, 91(k) or 135).

For many airports, the touted short field capability of VLJs is of particular interest because it could represent the potential for first-time jet use. However, in real-world operations, everyday



Source: FAA Advisory Circular 150/5300-13, Airport Design.

Figure 5-1. Minimum facility requirements for new generation GA aircraft.

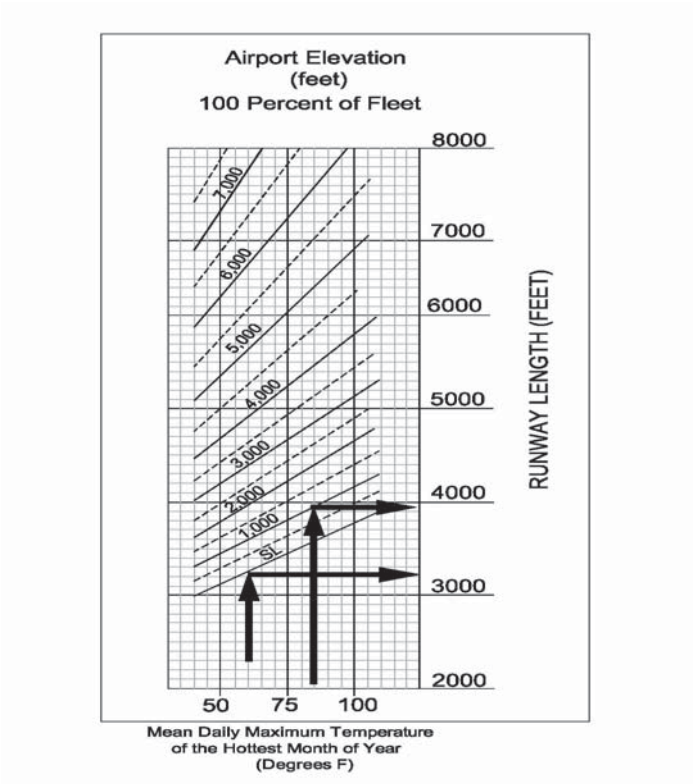
minimum runway length requirements are typically greater than those published by aircraft manufacturers. An example of assessing runway length needs for a particular aircraft is shown in Figure 5-2.

5.2.3 Runway Width

The required runway width is based on the ARC of the critical aircraft and consideration of wind coverage. Per FAA guidance, the minimum runway width may be increased for additional cross-wind tolerance (as discussed in 5.2.4) or as required to support a precision approach. Minimum

Local Conditions
Elevation: 1,000' MSL
Mean Maximum Daily Temperature: 85°F
Critical Aircraft: Cessna Mustang used for Part 135 operations, at an approved destination airport
Mustang Manufacturer Handbook Takeoff Distance (SL, ISA, MTOW): 3,110 feet

Guidance
Adjust runway length requirements using figure below for 100% fleet, *FAA AC 150-5025-4B, Runway Length Requirements for Airport Design* (while Mustang was not one of aircraft used by FAA to develop this table, its sea level standard day requirements are very similar to the general curves at 3,220 feet.)



Resulting Runway Length
3,940 feet of Runway
For Part 135 operations at approved destination airport- 4,730 feet (3,940 x 1.2 feet) of Runway

Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design, Cessna Mustang Specifications, Cessna Aircraft Company, and Aerofinity, Inc. analysis.

Figure 5-2. Sample runway length needs analysis.

runway width is 60 feet for ARC B-I and 75 feet for ARC B-II if the instrument approach minimum is not less than ¾ mile.

5.2.4 Wind Coverage

FAA AC 150/5300-13, *Airport Design,* states that "the most desirable runway orientation based on wind is the one which has the largest wind coverage (percent of time crosswind components are below an acceptable velocity) and minimum crosswind components." The desirable wind coverage for the crosswind component to be acceptable is 95% of the time for the type of aircraft using the airport. Where provision of a crosswind runway is impractical because of severe terrain constrains, consideration may be given to upgrading the airport layout to the next higher ARC.

Wind coverage is included on the ALP. It is calculated by obtaining weather data (typically for the last 10 years) from the National Climatic Data Center for the airport or a representative location and using the data in the FAA's Airport Design Program Version 4.2D.

5.2.5 Pavement Surface and Strength

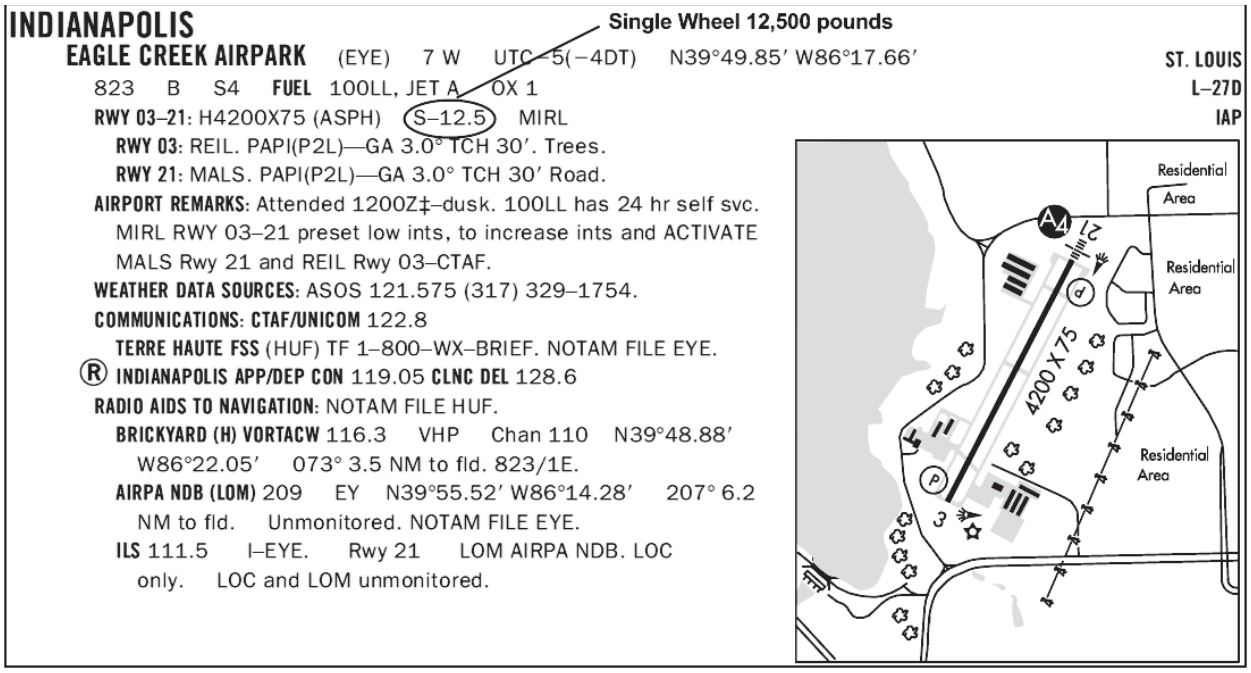
It is anticipated that most operators of new generation GA aircraft will prefer hard surface runways (i.e., asphalt or concrete); for new generation jet aircraft, a hard surface runway will be required. Runway pavement should be in good conditions to minimize the potential for Foreign Object Damage (FOD). The pavement strength also needs to be sufficient to accommodate the critical aircraft. Required pavement thickness depends on the type of underlying soils. The FAA design standards are detailed in FAA AC 150/5320-6D, *Airport Pavement Design and Evaluation,* which the FAA is updating.

If an airport can accommodate all small aircraft, the pavement should be designed for a maximum takeoff weight of 12,500 pounds single wheel (SW), which should be sufficient for all of the new generation aircraft identified in this study. If an airport has been accommodating only lighter aircraft (<12,500 pounds single wheel), the pavement strength may need to be increased through an overlay or reconstruction. An airport's pavement strength is generally listed on its ALP and in the FAA's Facility Directory, an example of which is shown in Figure 5-3.

5.2.6 Runway Clear Areas

There are specific areas beyond the ends and off the sides of the runway that the FAA requires to be clear. The size of the required clear areas increases as the airport serves larger aircraft or has a more precise instrument approach. Provision of the necessary clear areas increases the size of the runway footprint on the airport. These clear areas were depicted in the airfield layouts shown in Figure 5-1.

- **Runway Safety Area (RSA)** is a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.
- **Object Free Area (OFA)** is an area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects except for those that need to be in the OFA for air navigation or aircraft ground maneuvering purposes.
- **Object Free Zone (OFZ)** is a defined volume of airspace centered above the runway centerline whose elevation at any point is the same as the elevation of the nearest point on the runway centerline.



Source: http://www.naco.faa.gov/pdfs/ec_77_15JAN2009.pdf

Figure 5-3. Pavement strength indicator from FAA airport facility directory.

- **Runway Protection Zone (RPZ)** is trapezoidal in shape and centered on the extended runway centerline beginning 200 feet beyond the end of the hard surface area usable for takeoff or landing

5.2.7 Runway Lighting

Runway lighting can be divided into edge lighting and approach lighting. Runway edge lights are placed along the edge of a runway, generally at 200-ft intervals. Such lights are designed to help pilots identify the edge of the surface prepared for landings and takeoffs. Runway lighting is required to provide 24-hour accessibility and support nighttime instrument approaches. There are three types of runway edge lights:

1. **HIRL (high-intensity runway lights).** This is the most intense runway edge lighting system and is most often found at high-activity airports having wider runways and precision instrument approaches.
2. **MIRL (medium-intensity runway lights).** This is the most common type of runway edge lighting at most general aviation airports and is used to support an instrument approach.
3. **LIRL (low-intensity runway lights).** This type is most common in lower activity airports without instrument approaches.

MIRL is the most common lighting system at GA airports and would be adequate for airports serving the new generation GA aircraft discussed in this guidebook.

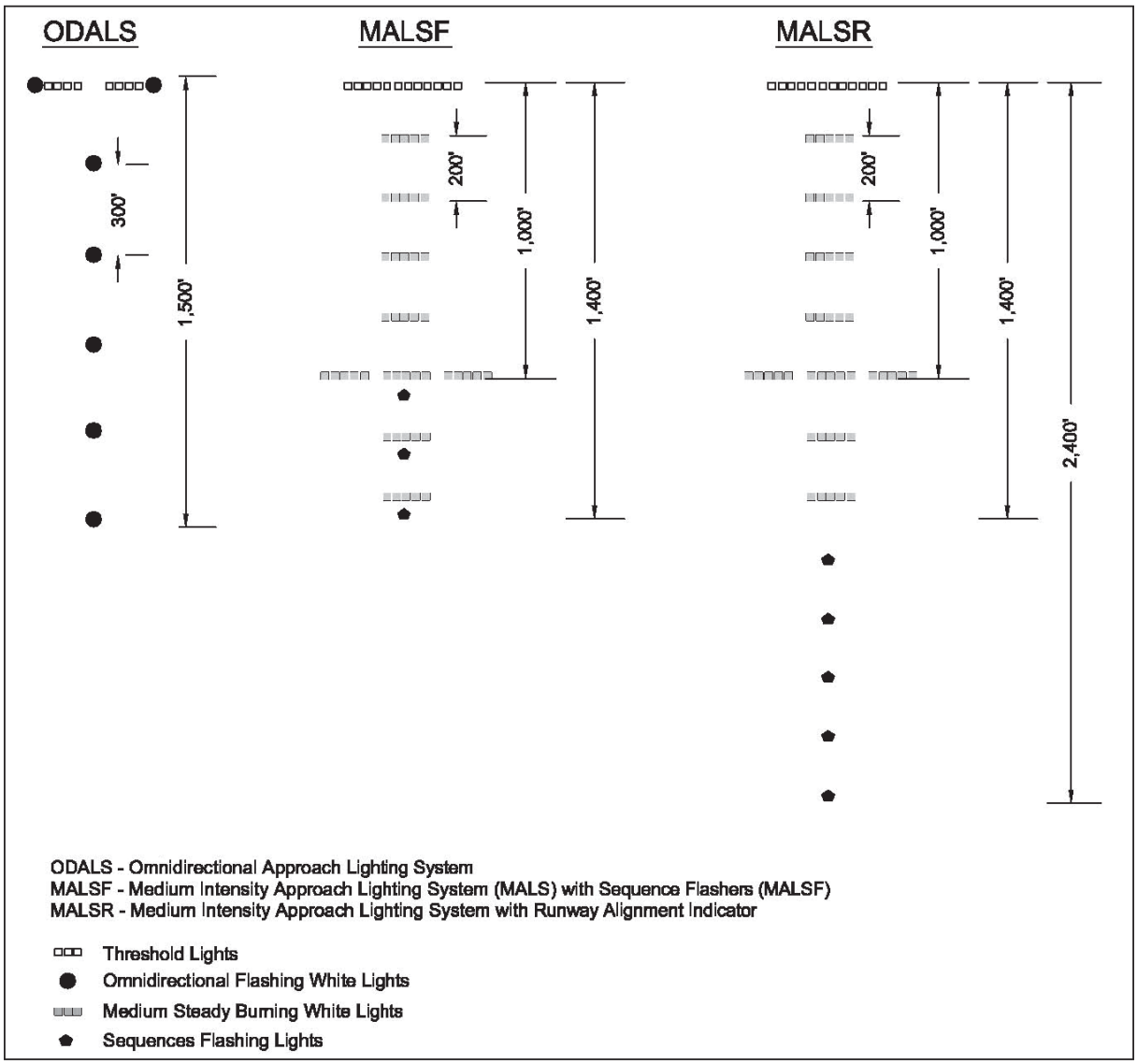
There are also lighted visual approach aids to help pilots locate the runway environment and establish a descent to a landing. Runway End Identifier Lights (REILs) are flashing strobe lights installed outboard of the end of the runway to help pilots locate the end of a runway. Precision Approach Path Indicators (PAPIs) or Visual Approach Slope Indicators (VASIs) provide a visual glide slope indication to the pilot through a series of red or white lights.

5.2.8 Approach Lighting Systems (ALS)

Approach lighting helps pilots identify the runway environment, particularly when executing an instrument approach. To obtain instrument approach minimums lower than 1-mile visibility, an ALS needs to be installed at the end of the runway. An ALS is a configuration of lights around the extended runway centerline that start at the runway threshold and extend outward into the approach zone. The system provides visual information on runway alignment, height, and horizon reference. The basic systems provide 1,400 feet of lights beyond the runway end. For a precision approach, the system is normally 2,400 feet long. The most common types of lighting systems for airports serving small aircraft are shown in Figure 5-4. The need for and use of an ALS is determined in conjunction with the establishment of instrument approach procedures.

5.2.9 Runway Markings

Runway markings provide additional data to pilots to identify their location relative to the runway. The more precise the approach, the more pavement markings are used to identify the loca-



Source: FAA Order 6850.2A, Visual Guidance Lighting System.

Figure 5-4. Approach lighting systems.

tion from the runway threshold. The most basic runway markings include the runway designation (numbers) and a centerline. Additional markings, which are based on the type of instrument approach, include threshold markings, aiming points, and runway edge markings. For an airport to accommodate new generation GA aircraft with instrument approach capability, at least nonprecision runway markings are recommended (see Figure 5-5).

5.2.10 Taxiways

The runway allows an aircraft to land and take off, but other airfield infrastructure increases the margin of safety and utility of an airport. Taxiways facilitate the movement of aircraft on an airport, enhance airport capacity, and support instrument approaches. The provision of a parallel taxiway avoids the need for aircraft to back-taxi on a runway. This increases the margin of safety at an airport and increases the amount of time the runway is available for arriving and departing aircraft. Per FAA AC 150/5300-13, *Airport Design,* Appendix 16, any instrument approaches with visibility minimums less than 1 mile require a parallel taxiway.

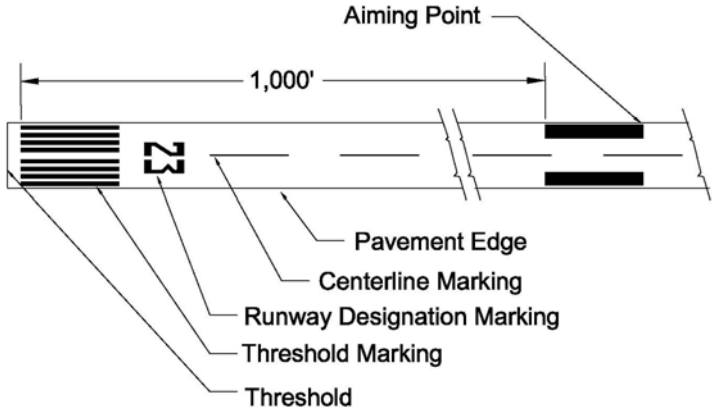
Key Taxiway Questions

- Is a parallel taxiway in place?
- If a parallel taxiway is not in place, are additional taxiways needed to support the desired instrument approach?
- What is the condition of the taxiway pavement and markings?
- Is the taxiway lighted or does it have reflectors?

There are two types of infrastructure to support aircraft taxiing operations: taxiways and taxilanes. Taxilanes are located within apron and hangar areas, where aircraft are assumed to be moving more slowly; thus, the FAA allows for some reduced clearances from other objects. Taxiways are used to provide access to all other areas of the airport. Table 5-4 summarizes taxiway standards for new generation GA aircraft.

5.2.11 Wildlife Hazard Management

In addition to providing the appropriate infrastructure, the airport operator also needs to provide a good operating environment for users of the facility; this includes minimizing potential hazards at the airport. The more activity and the larger the aircraft using the airport, the more important wildlife hazard management becomes. Airports certified under FAA Part 139 are required to consider wildlife hazard identification and mitigation as part of the certification process. Other airport operators may want to consider wildlife hazard management as well. As identified in the joint FAA-US Department of Agriculture (USDA) *Wildlife Hazard Management*



Source: FAA Advisory Circular 150/5340-1J, Standards for Airport Markings.

Figure 5-5. Recommended markings.

Table 5-4. Taxiway standards for new generation GA aircraft.

Visibility Minimum	ARC B-I small aircraft	ARC B-II small aircraft	ARC B-I small aircraft	ARC B-II small aircraft
	Not lower than ¾ mile		Lower than ¾ mile	
Width	25’	35’	25’	35’
Runway to Taxiway Separation	150’	240’	200’	300’
Taxiway Safety Area	49’	79’	49’	79’
Taxiway Object Free Area	89’	131’	89’	131’
Taxiway Object Free Area	79’	115’	79’	115’

Source: FAA AC 150/5300-13, Tables 2-1 and 4.1.

Key Wildlife Hazard Questions

- Are there existing wildlife issues at the airport?
- What steps has the airport taken to minimize these issues?
- Are there wildlife attractants on or near the airport area?
- Is a wildlife hazard assessment appropriate?

for Airports guidance document, wildlife hazards cause more than 500,000 hours of aircraft downtime and cost U.S. civil aviation in excess of $500 million every year.

The USDA can help airports in assessing wildlife hazards and identifying mitigation steps. The levels of management range from prescribed grass mowing heights to fencing to active discouragement. The USDA offers consultation and management assistance to assess wildlife conflicts at airports and improve safety by reducing hazards associated with wildlife. The FAA also provides guidance in FAA AC 150/5200-33B, *Hazardous Wildlife Attractant on or Near Airports,* to help an airport identify potential wildlife concerns. Wildlife hazard assessment and management plans are addressed on a case-by-case basis. If it is a concern at a specific airport, a good place to start is by contacting the local USDA office to enlist assistance.

Key Instrument Approach Questions

- How often do poor weather conditions (i.e., less than 1,000 ft ceiling and 3 miles visibility) occur?
- How are the aircraft using the airport equipped?
- If the airport has ground-based approaches, are sufficient parts and components readily available to maintain the equipment?
- What survey information is available or needed to identify terrain and obstacles located near the airport?
- Can the approach minimums be improved? What is involved? What is the cost?

5.3 Instrument Approach

One of the characteristics of new generation aircraft is the use of glass cockpits and other modern navigational equipment. Aside from an appropriate runway, having an instrument approach to provide all-weather access is probably the next most valuable asset for an airport seeking to attract new generation aircraft activity.

One of the critical factors in providing all-weather access is the availability of instrument approaches to the airport with minimums as low as the airport and surrounding objects can allow. The airport’s ability to accommodate instrument approaches is tied to the clear areas off the sides and ends of the runway and the terrain and obstacles near the airport. Instrument approaches are established to a specific runway end.

The use of satellite navigation has significantly reduced the financial investment needed to establish or improve an instrument approach. However, aircraft must have approved equipment installed onboard to use the satellite-based approaches, which may require an investment by the aircraft operator.

5.3.1 Required Area Navigation (RNAV) Approaches

RNAV refers to a general method of navigation where a pilot can choose any course within a network of navigation beacons, rather than navigating directly between beacons. An extension of RNAV is Required Navigation Performance (RNP); RNP involves a performance specification that an aircraft must meet before the intended flight path can be flown as well as a monitoring and alerting function if the performance specification is not met.

Instrument approaches that specifically provide some form of vertical guidance are known as APVs (Approach Procedures with Vertical guidance). With the advent of Wide Area Augmentation Systems (WAAS), the potential for vertically guided approaches to airports without a precision approach has become a reality. WAAS, developed by the FAA, provides improved global positioning system (GPS) accuracy for all phases of flight. WAAS uses a network of ground-based reference stations that measure changes in GPS satellite signals and transmit the corrections via other satellites to WAAS-enabled GPS receivers. RNAV approaches via GPS/WAAS are the primary type of procedure being developed by the FAA. The RNAV satellite-based approaches can include up to three sets of minimums:

- LPV (Localizer Performance with Vertical guidance)—applicable to aircraft with IFR GPS/WAAS receivers
- LNAV/VNAV (Lateral Navigation/Vertical Navigation)—applicable to aircraft with IFR GPS and barometric altimeter input
- LNAV (non-precision approach, Lateral Navigation only)—applicable to aircraft with at least an IFR GPS receiver

The new RNAV approaches via LPV or LNAV/VNAV can provide horizontal and vertical guidance with minimums as low as a 200- to 250-foot ceiling and ½-mile visibility, subject to airport facility and terrain/obstacle clearance requirements. Even if an airport cannot support the lowest minimums, RNAV approaches can still provide improved instrument approach capability. Three primary areas are considered by the FAA during the establishment of an instrument approach:

- Airport design standards
- Terrain/obstacles on and around the airport, particularly in the approach and missed approach surfaces
- Airspace, including procedures for surrounding airports

5.3.1.1 Airport Design Standards

FAA Order 8260.3B, U.S. Standards for Terminal Instrument Procedures (TERPS), is the primary guidance for establishing instrument approaches. According to TERPS Paragraph 122, "The runway landing surfaces must be adequate to accommodate the aircraft that can be reasonably expected to use the procedure. Appropriate runway markings, hold position markings, and signs required by AC 150/5340-1 shall be in place, and runway design standards in AC 150/5300-13 Appendix 16 must be met." The airport standards for precision instrument approaches, approach procedures with vertical guidance, and non-precision approaches are summarized in Table A16-1 in FAA AC 150/5300-13, *Airport Design.*

APV-RNP approaches provide the greatest opportunity for a GA airport operator to improve the facility's instrument approach procedures. Table 5-5 summarizes key airport design considerations

Table 5-5. APV/RNP approach establishment criteria.

Visibility Minimum	1 mile	¾ mile	½ mile
Runway Length	3,200'+		4,200'+
Clear OFZ (runway length plus 200' each end)	250' wide		300' wide
Runway Markings	Nonprecision		Precision
Holding Position Signs and Markings	Nonprecision		Precision
Runway Lighting	LIRL/MIRL	MIRL/HIRL	
Parallel Taxiway	Recommended	Required	
Approach Lights	Recommended	Recommended for LPV	
Clear Threshold Siting Surface[1] (inner width by length by outer width)	20:1 (400' x 10,000' x 3,800')	20:1 (800' x 10,000' x 3,800')	34:1 (800' x 10,000' x 3,800')
Glidepath Qualification Surface - GQS for vertical guidance[2] (inner width by length by outer width)	30:1 (runway width+100 feet each side x 10,000' x 1,520')		

[1] Airport design standards, also need to meet overlaying TERPS surfaces
[2] If 34:1 surface is clear, 30:1 surface for vertical guidance should be clear

Source: FAA AC 150/5300-13, Table A16-1B.

that will affect potential APV-RNP minimums for an instrument approach to serve new generation GA aircraft. In general, the lower the minimums, the larger the setback from the runway to buildings and other development. Although approaches that provide lower minimums are generally more precise, they also result in the aircraft descending closer to the airport and the ground before being required to establish visual reference to the airport, thus necessitating larger clear areas or zones.

Several steps are needed to establish a new or improved instrument approach procedure, particularly if survey information is not already on file with the FAA:

1. Review existing and future airport plans to determine if airport standards are met.
2. Review weather data (available from the National Climatic Data Center) to identify the need for an instrument approach, if not already identified in airport planning documents.
3. Determine if a vertically guided or non-vertically guided survey is needed.
4. Contract for surveying work per FAA specifications.
5. Complete the survey.
6. Submit the survey for validation.
7. After the survey is validated, formally request a new approach procedure.
8. Monitor the progress of approach procedure development.

Airport operators can check on whether or not the FAA is developing a new approach or monitor the status of a known approach procedure being developed at http://avnweb.jccbi.gov/schedule/production. Also, if it has not already occurred during an airport planning process, during steps 1 and 2 above, it is recommended that the airport operator coordinate with their FAA Airport District Office to ensure the FAA concurs with the type of instrument approach procedure being pursued. This coordination will allow the airport operator to ensure that the extent of the survey effort is appropriate.

5.3.1.2 Obstacles

As a part of requesting a new or improved instrument approach procedure, the airport operator must provide the FAA with survey data. Such surveys can be fairly costly (approximately $30,000 to $50,000+ depending on the existing data and character of the area to be surveyed). The FAA has three Advisory Circulars detailing the required survey process:

- FAA AC150/5300-16—*General Guidance and Specifications for Aeronautical Surveys: Establishment of Geodetic Control and Submission to the National Geodetic Survey*
- FAA AC 150/5300-17B—*General Guidance and Specifications for Aeronautical Survey Airport Imagery Acquisition and Submission to the National Geodetic Survey*
- FAA AC 150/5300-18A—*General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards*

5.3.1.3 Airspace

During the FAA's Airspace Analysis and approach procedure design process, the airspace for surrounding airports is also taken into consideration. Factors considered include other existing instrument procedures, arrival and departure routes, and any special use or restricted airspace in the airport vicinity. If the airport operator has concerns regarding surrounding airspace, such concerns should be discussed with the FAA Airport District Office before undertaking the survey effort.

5.3.2 Other Instrument Approach Procedure Improvements/Enhancements

In addition to the actual instrument approach procedure, the airport operator can install facilities to enhance weather information and communications at the airport. These additional enhancements maximize the utility of the instrument approach procedure by providing local weather information for the lowest available minimums and direct communication with approach control.

5.3.2.1 Automated Weather

Instrument approach procedures provide access to the airport, but the appropriate minimums for a specific instrument approach may depend on the local weather. Unless there is an airport traffic control tower (ATCT), local weather information is generally provided through an Automated Weather Observation System (AWOS) or Automated Surface Observation System (ASOS). The primary differences between the two systems are that ASOS can distinguish among types of precipitation and detect lightning.

5.3.2.2 Ground Communication

At airports without an ATCT, a desirable enhancement to an instrument approach procedure is direct ground communication with approach control. Without a means of direct communication with approach control, the pilot must call the local approach control facility over the phone to receive an IFR clearance and a void time. When this occurs, approach control holds all other IFR traffic from arriving or departing the airport and the pilot must depart within the window of time before the void time in the clearance. The need to hold other aircraft operations reduces the capacity of the airport.

To avoid phone clearances, airport operators may wish to consider the following ground communication systems:

- Ground Communications Outlet (GCO)—An unstaffed, remotely controlled, ground-to-ground communications facility. Pilots at uncontrolled airports may contact air traffic control and Flight Service Stations (FSS) via VHF to a telephone connection to obtain an instrument clearance or close a VFR or IFR flight plan. Pilots may also get an updated weather briefing prior to takeoff. The GCO system is intended to be used only on the ground.

- Remote Communications Outlet/Remote Transmitter Receiver (RCO/RTR)—An unmanned communications facility remotely controlled by air traffic personnel. RCOs serve Flight Service Stations. RTRs serve terminal ATC facilities. An RCO or RTR may be UHF or VHF and will extend the communication range of the air traffic facility. There are several classes of RCOs and RTRs. The class is determined by the number of transmitters or receivers. RCO and RTR class O facilities are nonprotected outlets established for the express purpose of providing ground-to-ground communications between air traffic control specialists and pilots located at a satellite airport for delivering en route clearances, issuing departure authorizations, and acknowledging IFR cancellations or departure/landing times. As a secondary function, they may be used for advisory purposes whenever the aircraft is outside the coverage of the primary air/ground frequency.

5.3.3 Next Generation Air Transportation System

Satellite-based approaches are the first step in the FAA's transition to the Next Generation Air Transportation System (NextGen). According to the FAA, NextGen is the "transformation of the National Airspace System, including the national system of airport using 21st century technologies to support aviation expected growth." The elements anticipated to be part of NextGen include

- Automatic Dependent Surveillance Broadcast (ADS-B)
- System Wide Information Management (SWIM)
- NextGen Data Communications
- NextGen Network Enabled Weather and National Airspace System (NAS) Voice Switch.

The benefits of NextGen include trajectory-based operations, collaborative air traffic management, and reduced weather impacts. NextGen air traffic control has been repeatedly identified by industry representatives as important to maximizing the utility of new generation GA aircraft. The envisioned benefits from NextGen include more direct routing and increased airspace capacity.

Two major new technologies will affect airports directly: WAAS/LPV discussed above and ADS-B (Automatic Dependent Surveillance—Broadcast). However, WAAS by itself is not a sufficient replacement for ILS because its accuracy does not match the least-demanding CAT I precision approach specifications. Therefore, the FAA is undertaking to develop LAAS (Local Area Augmentation System) to support satellite approaches with ILS-like minimums.

ADS-B is a technology where an aircraft determines its own position via GPS and then broadcasts the position (using "ADS-B out") to other aircraft and ground stations that have "ADS-B in" equipment that can receive the signals. In principle, the use of this technology could increase both airspace and terminal area capacity and safety by improving visual accuracy under VFR, allowing reduced spacing and separation of aircraft en route and on final approach, and providing safer ground operations under low-visibility conditions. The FAA has announced a three-phase timetable for implementation that stretches out to 2020. The FAA has been conducting trial programs using ADS-B. One area of concern is that it may be expensive for individual aircraft owners to equip their planes with the technology.

Key NextGen Questions

- What NextGen implementation is occurring in my region?
- Are there steps we can take to better position ourselves to take advantage of NextGen?

5.4 Ground Access

To complete the transportation process, ground access is often considered one of the most important facets of airport services after runway length and instrument approaches, particularly for commercial operations. The type of ground transportation needed is closely related to the pur-

pose of the aircraft operation. Any special considerations for commercial operations are identified within each of the ground access subsections below.

Operators of locally based aircraft have an established method of ground transportation. Aircraft being operated for business or corporate purposes may also have an established means of arranging for ground transportation. However, commercial operations by new generation aircraft that may bring or draw new users to the airport need assistance with ground access from the airport operator.

Although personal vehicles and airport courtesy cars may meet the needs of traditional GA operations by new generation aircraft, they may not be adequate for commercial operations. Public ground transportation probably will be extremely important for commercial operations, where passengers may have many different destinations. Depending on community size, taxi service, rental cars, and/or some form of on-demand public transportation may be needed. Passengers arriving via chartered aircraft may be able to make arrangements via the charter company.

Key Ground Access Questions

- How can arriving pilots and passengers travel from the airport to the community?
- Are there personnel at the airport to help arrange transportation and/or provide directions?
- Is good signage in place to make it easy to find the airport from the community? For air taxi operators, is there signage to where the operator is located on the airfield?
- If there is public transportation in the community, does it serve the airport?
- Are phones, maps, directions, etc. readily available?
- Is road access user-friendly and can it accommodate airport travelers by use of different modes of transportation?

The passenger's choice of ground transportation depends largely on trip time from origin to destination. According to the FAA AC 150/5070-6B, *Airport Master Plans:*

> If total trip time is under three hours, travelers are particularly sensitive to the duration of the ground access portion of an air travel trip. The regional roadway network, on-airport circulation roadways, and parking facilities are the principal components of the ground access system.

Although ground transportation options may be more limited at GA airports, the elements in the process are similar. These elements include

- Storage of vehicle during trip
- Mode of ground transportation
- Routing information
- Signage

Each community and each airport is unique, so no particular recommendation is appropriate for all. One of the most important steps in analyzing ground access is to understand the type of operations at the airport and the related needs of the airport users. The airport operator can ascertain the types of operations by interviewing key users of both based and transient aircraft as well as airport-based businesses. It is important to understand current ground access patterns and options as well.

5.4.1 Automobile Parking

Adequate automobile parking is important. Parking needs to be provided for airport users, employees, and patrons of other on-airport businesses. Automobile parking requirements are likely to be greater at airports that support commercial operations. The physical areas reserved for automobile parking should be paved if possible, well marked and signed, and clear of weeds or undesired vegetation. The area should have good access to the airport entrance road

or public road that serves the airport and the parking area should be as close as possible to the facilities from which passengers are dropped off or will be boarding aircraft. ADA parking requirements should also be incorporated.

The amount of area needed to accommodate automobile parking is driven by the passenger traffic that the airport currently has and is anticipating. A general rule of thumb for automobile parking is that a parking lot appears to be full if 85% of the parking spaces are full. Therefore, it is prudent to plan for approximately 118% of the necessary number of parking spaces to accommodate passenger traffic. As a starting point, the Aircraft Owners and Pilots Association (AOPA) Fact Card provides an estimate of 2.5 passengers per general aviation airplane. This figure needs to be increased as the size of the aircraft using the airport increases. A typical straight-in (90°) automobile parking space ranges from a minimum of 8.5 feet wide and 18 feet deep to 10 feet wide by 20 feet deep with a 20-foot wide travel lane. However, local development standards may dictate the required parking space size as well as the number of ADA-accessible spaces. If rental cars or other vehicles are kept at the airport, provisions to park these vehicles are also needed.

For automobile parking associated with FBO operations and corporate tenants, well thought out policies about the location, setbacks, aesthetics, and maintenance of the area will reflect well on the airport. At a minimum, parking must be sufficient to accommodate employees and patrons; beyond that, the amount of space required can be determined in many ways.

5.4.2 Passenger Pick-up and Drop-off

Along with vehicle parking, the provision of a passenger pick-up area can enhance the customer service experience at an airport. If passenger pick-up occurs at the airport, either via private vehicle, public transportation, or taxi, it is beneficial to have a curb front close to the terminal facility. The required length of the curb front should be determined based on the potential number of waiting vehicles, which in turn should be determined based on usage during a busy day. The curb front area should be wide enough for a vehicle to be parked and one to pass by. To serve automobiles, it is typical to provide two 10- to 12-foot-wide lanes.

5.4.3 Mode of Ground Transportation

When assessing the mode of transportation, it is important for the airport operator to identify what is feasible in the community and how the mode of transportation can best be accommodated on the airport. Although private vehicles may be the most common mode of transportation, an airport should explore other options that may be available. Is there public transportation that is or could provide access to the airport? Can arrangements be made to have rental cars available at the airport either through rental agencies or possibly an automobile dealership? Depending on the level of activity at the airport, an FBO may handle rental car arrangements as part of the services provided. Is taxi service available in the community? Depending on the level of demand, taxi service could be staged or by call. Table 5-6 identifies issues that should be considered for the various modes of ground transportation.

5.4.4 Routing Information

Although the airport operator cannot directly influence the off-airport transportation system, it is helpful to convey airport needs to the agencies responsible for the surrounding transportation system. Other agencies that may be involved with surrounding surface transportation include the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), State

Table 5-6. Ground access mode considerations.

	Private Vehicle	Public Transportation	Taxi	Rental Car	Bicycle
Likely Users	Local passengers; Employees; Business patrons; Prearranged rides for arriving passengers	Local and Transient Passengers; Employees; Business patrons	Transient passengers	Transient passengers	Pilot and passengers; Employees; Business patrons
Needs	Parking; Pick-up area	Pick-up area; Schedule information	Staging area; Call for ride provision	Parking Reservations provision	Storage rack
Challenges	Space for parking	Availability in community	Availability in community	Availability; Space for Parking	Safe route; Length of journey

Source: Aerofinity, Inc. analysis.

Department of Transportation (DOT), a Metropolitan Planning Organization (MPO), or a regional planning commission.

An open line of communication with surface transportation agencies can enable the airport operator to provide input if proposed off-roadway improvements will be detrimental to the airport (such as being too close to a runway end). In addition, some communities allow businesses or organizations to adopt a roadway to assist with clean-up.

Key Routing Information Questions

- Is there a direct route from the community to the airport?
- What are the road conditions?
- Is there more than one typical route?
- Are any roadway clean-up opportunities available?

5.4.5 Signage

If someone is traveling to or from the airport for the first time, signage is typically an important consideration. Good signage can become even more critical if the airport supports commercial operations. If additional signage is needed, it is important to know what agency has jurisdiction over each of the roadways in order to pursue the installation of additional signage. The jurisdiction is important because some agencies (e.g., state DOTs) may have more specific requirements that need to be met. At a minimum, it is desirable to have signage at key turns near the airport from all directions. Figure 5-6 shows an example of airport wayfinding signage.

At larger facilities, on-airport signage may be needed to direct travelers once they arrive at the facility. A clear and concise system of signage provides good customer service. At airports with multiple terminal facilities, on-airport signage is important for easy wayfinding, especially for commercial operations users who may be unfamiliar with the airport. In addition to providing directions, signs can be used for other purposes (e.g., to display the national GA security hotline phone number or to remind pilots to close their flight plan).

5.5 Ground Handling Services

The major amenities at an airport consist of ground handling services and landside facilities. Ground handling services are all those services provided by an airport operator or private business entity to support the aircraft while it is on the ground.

Source: Aerofinity, Inc.

Figure 5-6. Sample airport wayfinding sign.

The airport operator must understand the purpose of the aircraft operation in order to provide appropriate ground handling services. Although the operator of a single-engine piston aircraft on a personal flight may be very happy with cost-effective self-serve fuel and parking, typically business, corporate, or commercial operations want higher levels of customer service and the convenience of full service.

The most common methods of providing ground handling services at an airport are by contracting with a private FBO or providing the services with the airport operator's own employees. FBOs are commercial aviation businesses specializing in servicing aircraft. The busier an airport is, typically the more economically viable it is for an FBO to provide the services. At low-activity facilities, it is more common for an airport operator's employees to provide ground handling services. These services and accompanying terminal facilities may be a customer's first impression of the airport and community, so it is important to provide high-quality services.

A ground handling service provider generally recoups the cost of the services through fuel sales and other purchases. If an airport is primarily being used to drop off and pick up passengers, using ground handling services, but without the aircraft operators purchasing fuel or other supplies, some type of service fee may need to be considered to compensate the service provider and airport operator for the cost of accommodating the aircraft.

Key Ground Handling Questions

- When are ground handling services needed: business hours, business hours plus afterhours on call, or 24/7?
- How can an airport operator ensure that all aircraft are treated equally?
- Are staff qualified and appropriately trained, and is the service professional?
- What additional services beyond the core services should be provided at the airport to enhance the customer service experience? Can the existing provider offer those services?

5.5.1 Core Services

Core ground handling services generally include fueling, line service, aircraft maintenance, and aircraft storage. Other services that may be provided by an FBO or specialized service provider include but are not limited to flight training, aircraft rental, charter operations, avionics service, aircraft sales, and parts sales. This section will cover the core services, with additional consideration given to the physical buildings in the following landside development section.

The airport operator should pursue leases and contracts with the FBO that have a customer-service

focus. This can be accomplished through a comprehensive set of FBO minimum standards. Minimum standards prescribe the basic level of service required to be provided by different types of businesses located on the airport so as to provide a level playing field if multiple businesses are providing the same type of services. The airport operator should also ensure that leases and contracts protect the airport's ability to increase aircraft traffic, thereby serving the local community and are not just developed in a way that allows the FBO to maximize profits. FAA requirements regarding exclusive use and minimum standards are in FAA AC 150/5190-6, *Exclusive Rights at Federally Obligated Airports,* and FAA AC 150/5190-7, *Minimum Stations for Commercial Aeronautical Activities.*

Although fueling is the most essential ground handling service and typically one of the largest GA revenue generators, it is only one aspect of ground handling services. The level and type of activity at the airport, size of community, competition from surrounding airports, and expectation of users all need to be carefully considered by the airport operator to identify the appropriate level of ground handling service needed at the airport. Table 5-7 lists many of the common ground handling services and is intended to be a guide for reviewing

Table 5-7. Core ground handling services.

	Potential Service Items	Considerations
Fueling	100LL Jet A Lubricants	Self-serve or full-serve Sufficient demand for JetA to sell within shelf life Fuel supplier as resource if establishing new system Number and size of fuel tanks Number and size of fuel trucks
Line Service (services)	Convenient aircraft parking Tug service Load/unload assistance Escorted apron auto access Covered aircraft loading area Auto pick-up loading area Ground power unit Battery cart Lavatory service Oxygen/nitrogen service Crew cars Engine pre-heat Complimentary coffee/ice Catering Rental cars Aircraft cleaning Deicing Hotel/restaurant reservations	Size of aircraft using airport Purpose of flight of aircraft using airport Demand for 24 hour service Provisions for after hour on-call service Employee training Security for parked aircraft Basic or red carpet service expectations Compliance with regulations for chemical use Expedite service with on-line arrival reservations
Line Service (facilities)	Restrooms Counter space/office Waiting lounge Pilot lounge/rest areas Weather/flight planning Snack/vending/restaurant Business center Conference room Wireless Internet	Visual impression of operations ADA accessibility Would restaurant serve primarily airport users or general public also? Would meeting provisions make airport destination rather than travel into community?
Maintenance	Engine Structures Avionics	Employee training/certification (A&P mechanic) Type of aircraft to be served Competition from surrounding airports
Aircraft storage	Long-term hangar space Overnight hangar space Tie-downs	Size of aircraft that need to be accommodated In-out service Space available for future development

Source: Aerofinity, Inc. analysis.

the current and potential ground handling services at an individual airport. Not all services are available or appropriate at all airports.

5.5.2 Aircraft Parking Aprons

Aircraft need a place to go after landing. Although locally based aircraft may taxi to a storage facility, transient aircraft need a place to park. The aircraft parking apron is designed to serve transient aircraft and may also serve any locally based aircraft not stored in hangars. The ideal aircraft parking apron is visible from the airfield to assist the pilots in wayfinding and should be located near the terminal facility. The size of the apron should be based on typical busy day (i.e., 10% more traffic than an average day) demand, considering both number and size of aircraft. A survey of aircraft parking and/or interviews with ground handling service providers is often a good way to identify busy day demand.

Key Parking Apron Questions

- How close is the apron parking space to the terminal building?
- If apron parking space is congested, are there plans for expansion?
- Is tug service available to park/stage aircraft more closely?
- If facilities are limited, are there steps the airport can take to make sure a high level of customer service is still being provided?

To accommodate the full range of new generation GA aircraft, apron pavements should be designed to accommodate aircraft weighing up to 12,500 pounds. Although airfield pavements can be either asphalt or concrete, generally it is recommended that aprons be constructed of concrete to avoid heavier aircraft sinking into asphalt pavement when parked on hot days and to avoid potential chemical interaction between any spilled or dripped fuels and the pavement. In addition, keeping the apron clear of debris is an important maintenance consideration.

Most new generation GA aircraft that are the subject of this guidebook fall into Airplane Design Group I, with a few models in Group II that have slightly larger than a 49-foot wingspan. Table 5-8 lists estimated apron areas to accommodate Group I and II aircraft, including an allowance for 10-foot wingtip clearance. These dimensions are based on pull-through parking.

Nesting of aircraft can increase apron area utilization by maximizing the parking area associated with each taxilane as shown in Figure 5-7 for ARC B-I.

To provide the highest level of customer service, some airports (or FBOs) have developed covered loading and unloading areas, as shown in Figure 5-8.

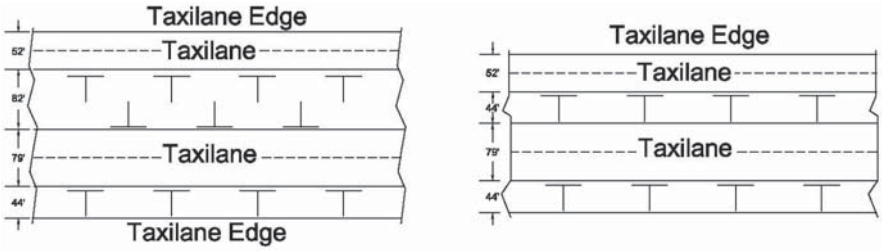
5.5.3 Hangar Development

Aircraft hangars provide protected storage for airplanes while planes are on the ground. The sophistication of hangars can vary from open storage (roof only) to a full-service corporate hangar. The location of an airport determines in part the type of shelter desired for aircraft storage, and the

Table 5-8. Apron area planning guidelines.

Airplane Design Group	Without Taxilane (sq. yards)	With Taxilane at Edge (sq. yards)	With Taxilane (sq. yards)
Group I	360	755	960
Group II	490	1,075	1,385
"Taxilane at Edge" refers to the taxilane at the edge of the apron with the object free area extending off apron over the grass.			

Source: FAA Central Region, Apron Size Calculator for Transient Aircraft.



Source: FAA Advisory Circular 150/5300-13, Airport Design Appendix 5.

Figure 5-7. Apron layout for ARC B-I.

use of the aircraft can also influence the type of hangar facilities needed. Some key issues related to hangars include existing availability, developable space, and priority for accommodation if space is limited.

As described in Table 5-9, four typical types of hangars exist at an airport: T-hangars, conventional hangars, executive or box hangars, and corporate hangars.

Airport operators should assess if existing hangars can accommodate the various types of new generation GA aircraft. The size of the hangar and door height determine the size of aircraft that can be accommodated. When assessing T-hangars it is important to consider both wing depth and tail depth, as shown on Figure 5-9.

Two methods typically are used when considering further hangar development—airport operator development and private enterprise development. Depending on airport policies and funding availability, the airport operator may develop hangars or may lease the

Key Aircraft Hangar Questions

- If a new operator wants to base at the airport, is there space for the development of additional hangars?
- Is the hangar space turn-key with taxiways, roadways, and utilities in place, or does utility infrastructure need to be provided before the area can be developed?
- If development space is limited, is there a process for determining the priority to accommodate aircraft, by size, first-come first-serve, costs of development, etc.?
- Is the space convenient for the FBO to provide services?
- Are overnight accommodations available for transient aircraft?
- Are minimum standards in place to protect the investment in a hangar?

Source: Montgomery Aviation, Indianapolis Executive Airport.

Figure 5-8. All weather arrival and departure canopy.

Table 5-9. Common types of hangar facilities.

T-hangar	A grouping of hangars in a rectangular shaped building. The name is derived from the shape that the hangar within the rectangular building takes in the form of a T. Typical T-hangars have door widths of approximately 45 feet.
Conventional Hangar	A square or rectangular-shaped hangar with large open-bay spaces capable of accommodating multiple aircraft in a community setting. Conventional hangars typically range in size from 75 feet by 75 feet to upwards of 100,000 square feet per building. Such hangars are typically owned and operated by an FBO. Conventional hangars are also referred to as community hangars.
Executive (Box) Hangar	A square or rectangular-shaped hangar that usually stands alone and is designed primarily to accommodate the business aircraft operations of a single company or individual who may or may not service (and stage) their own aircraft. Executive hangars are typically larger than stand-alone T-hangars, but smaller than most corporate hangars. In many cases, office, shop, and/or storage space is located within the structure.
Corporate Hangar	A square or rectangular-shaped hangar similar to a conventional hangar, but used to accommodate the business aircraft operations of a single company who typically services (and stages) its own aircraft. Corporate hangars, which typically stand alone, are usually larger than executive hangars.

Source: Aerofinity, Inc.

ground to a private developer who, in turn, constructs hangar facilities. In either case, the operator may want to develop specific construction guidelines to be followed. If an airport has received FAA grant funds, it is important that leases are at fair market value to meet FAA grant assurances.

5.5.4 Commercial Operations

Commercial operations, particularly on-demand air taxi and per-seat on-demand, may require additional ground handling services. Although the services identified in Table 5-10 could apply to all aircraft regardless of flight purpose, these services may be more important in serving commercial operations whose passengers may be less familiar with GA.

5.6 Landside Development

Landside facilities support airport activity by accommodating aircraft operators and passengers transitioning between the landside and airside environments. These facilities are the interface between the airport and the community. The interrelationship between various landside facilities

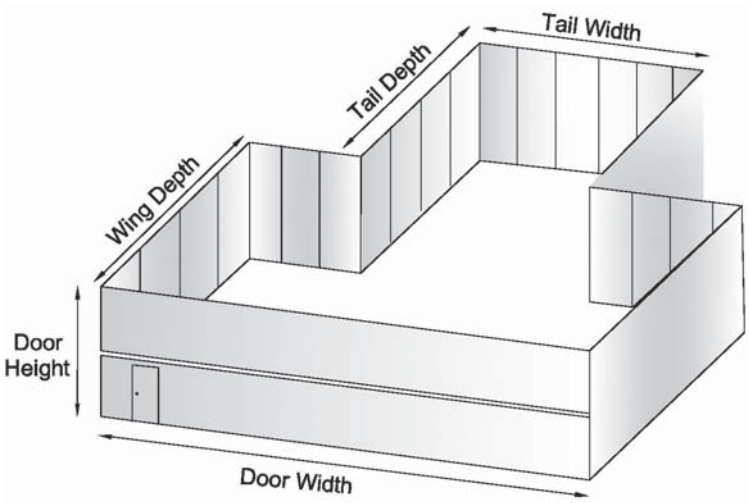


Figure 5-9. T-hangar dimensions.

Table 5-10. Ground handling services for commercial operations.

	Potential Service Items	Considerations
Passenger Check-in	Counter space Office space Secured storage space Baggage weight and check	Number of passengers Frequency Contracted through an existing business
Waiting Area	Restrooms Seating Vending Phone Wireless Internet	Can passengers intermix with traditional GA users? Length of wait time
Other	Ground Transportation Assistance First aid station ATM Community information	What other services make access more convenient?

Source: Aerofinity, Inc. analysis.

should enhance the customer service experience at an airport. The primary landside facilities generally include the terminal facility and other support facilities.

5.6.1 Terminal Facility

As with commercial service airports, many GA airports have a building that serves as a terminal. The terminal facility provides a "meet and greet" location on the airport site. Depending on the circumstances, a single building may serve as the terminal and house various airport-related businesses, or there may be one or more independent FBO facilities that serve as terminals. At some smaller airports, the terminal facility may also house the administrative functions of the airport.

Key Terminal Facility Questions

- Is building convenient to the airfield?
- Who needs to use the building?
- When is the building open (business hours, 24/7, etc.)?
- What basic services inside the building should be provided?
- What additional services/amenities could be offered to improve the customer service experience?

The terminal building needs to meet the functional needs of the aircraft operators. The level of operations at an airport will drive the amenities provided in the terminal. All terminals should at least provide the basics of shelter, restrooms, and telephone communications. Additional services may include food vending machines or more full-service food and beverage options, as well as flight planning provisions and weather briefings for pilots. If the terminal facility is a public-use building, then ADA accessibility will be required.

Table 5-11 lists potential terminal facility functions and planning considerations. The core functions are listed first followed by potential improvements or enhancements based on the type of operations and demand at the airport.

5.6.2 Other Support Facilities

5.6.2.1 Airport Rescue and Fire Fighting (ARFF)

Many GA airports do not operate under FAR Part 139 certificates that require ARFF facilities to be present on the airfield. Without the requirement for ARFF facilities, some airports have worked cooperatively with their local communities to develop fire stations on or near the airport that serve the community and provide a quick response to any incidents at the airport. To enhance these

Table 5-11. Terminal facility functions and considerations.

Function	Use Consideration	Other Considerations
Restrooms	Separate men's and women's ADA compliant	Keep clean and well stocked Shower provisions for transient pilot 24 hour access
Counter Space	Potential Users: Ground service provider Commercial operations Rental cars	Length of counter dependent on size of operation Office space in close proximity
Office Space	Potential Users: Airport operator Airport businesses	Varies by number of people to be accommodated in space
Storage Space	Secured storage for supplies	Depends on business demand
Lounge/Waiting Area	Waiting space for passengers and/or pilots	View of airfield What is usage on busy day? How many passengers could be on the largest aircraft? Proximity to counter space
Flight planning	Computer, Internet and telephone access	Separate room shielded from ambient noise
Vending/Kitchenette	Food and drink provision for customers and employees	Eating area Additional refrigerated storage needed for catering aircraft?
Retail Sales	Pilot supplies or aviation items for sale	Depends on demand
Pilot Rest Area	Separate quiet sleep/rest area	How many transient pilots are typically present at once?
Meeting Room Space	Airport operator use for board meetings Could be made available or rented for business use	Depends on board meeting requirements Video presentation equipment?
Business Center	Computer, fax, Internet access Complement to meeting space	Separate room shielded from ambient noise
Classroom Space	May be used for flight training	Could be a multi-purpose room
Wireless Internet	For waiting pilots and passengers	Accommodate increased pilot use of electronic flight bags Service for waiting passengers
Restaurant	Food service at higher activity facilities	Could it draw from airport employees, customers and community? Could also assist in providing aircraft catering

Source: Aerofinity, Inc. analysis.

services, communities may also provide airport familiarity and aviation-specific response training to fire department personnel.

5.6.2.2 Airport Maintenance Building

Landside development may also include airport operator-owned buildings to support maintenance responsibilities, including but not limited to, mowing, facility repair, and snow removal (in northern climates). These buildings are generally sized on a case-by-case basis to meet the needs of the airport operator.

5.6.2.3 Security

Although GA airports are not under the same guidelines as commercial FAA Part 139 airports, GA security regulations have become more strict since the terrorist attacks of September 11th and are anticipated to become even stricter over time. Limiting airfield access and providing well-lit facilities is important to creating a safe and secure environment. The Transportation Security Administration (TSA) has published security guidelines for GA airports. These guidelines recognize that every GA airport is unique. The TSA guidelines include a self-evaluation tool to help airports identify the most appropriate security measures to consider. Also, a national hotline (866-GA-SECURE) has been established to allow for the reporting of suspicious activity at GA airports.

5.7 Summary

This chapter provides airport operators with general guidance for evaluating the current capability of an airport to accommodate the various sizes of new generation GA aircraft. Airport development is complex and requires compliance with federal, state, and local regulatory measures and standards. This document is not intended to replace professional planning and design services or agency coordination, but to provide information to help the airport operator determine what assistance may be required.

5.8 Helpful References and Resources

ACRP Synthesis 3: General Aviation Safety and Security Practices, http://onlinepubs.trb.org/onlinepubs/acrp/acrp_syn_003.pdf. This synthesis study identifies current practices in safety and security at GA airports. It reviews resources used by the general aviation community in (1) developing safety and security programs and funding sources and (2) addressing issues that determine the amount of money spent on such programs. This synthesis also describes current practices that GA airports use to keep facilities safe and secure.

American Association of Airport Executives (AAAE) training program website, http://www.aaae.org/training_professional_development/interactive_employee_training/. The Interactive Employee Training (IET) System is an interactive computer-based training system that uses digital video captured on location at an airport. The interactive program is loaded onto specialized, dedicated IET workstations installed at the airport. The IET operating system automatically stores and tracks each individual training record.

Consortium for Aviation System Advancement, *Florida NGATS Airports Classification Report,* http://www.casa.aero/adminUploads/CASA%20Florida%20NGATS%20Airport%20Classification%20Report%20A.pdf. This report establishes a Next Generation Air Transportation System (NGATS) classification standard to classify an airport based on the facilities and services available at that airport.

U.S. Department of Transportation, Research and Innovative Technology Administration (RITA), *Airport Ground Access Planning Guide,* http://ntl.bts.gov/DOCS/AGAPP.html. This report outlines the process for planning ground access to airports within the context of current laws, regulations, and procedures. The report identifies the key components of an airport access work program, discusses performance measures, and provides extensive information on alternative strategies for improving airport access conditions.

Erect-a-Tube.com. *Erect-a-Tube Hangar Size Chart,* http://www.erect-a-tube.com/size_2.html. This site provides a list of aircraft models and wing spans, heights, and lengths with Erect-A-Tube's associated hangar model.

FAA Advisory Circular 150/5070-6B, *Airport Master Plans,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5070-6B/150_5070_6b_chg1.pdf. This advisory circular provides guidance for preparing master plans for airports that range in size and function from small GA to large commercial service facilities. Specifically, Chapter 4 covers a public involvement program and Chapter 8 covers airport facility requirements.

FAA Advisory Circular 150/5190-4A, *Model Zoning Ordinance to Limit Height of Objects Around Airports,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/35e1883669b46c6a86256c690074e920/$FILE/150_5190_4a.pdf. This advisory circular provides a model zoning ordinance to be used as a guide to control the height of objects around airports.

FAA Advisory Circular 150/5190-6, *Exclusive Rights at Federally Obligated Airports,* http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/3df9402e6cae52048625725d00699cb2/$FILE/150_5190_6.pdf. This advisory circular provides guidance on how an airport operator can comply with the statutory prohibition on the granting of exclusive rights, which is one of the obligations assumed by the airport sponsors of public airports that have accepted federal assistance, either in the form of grants or property conveyances.

FAA Advisory Circular 150/5190-7, *Minimum Standards for Commercial Aeronautical Activities,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5190-7/150_5190_7.pdf. This advisory circular provides basic information pertaining to the FAA's recommendations on minimum standards and related policies for commercial activities on airports. Although minimum standards are optional, the FAA highly recommends their use and implementation so as to minimize the potential for violations of Federal obligations at federally obligated airports.

FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/532dcafa8349a872862573540068c023/$FILE/150_5200_33b.pdf. This advisory circular provides guidance on certain land uses that can attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants.

FAA Advisory Circular 150/5200-36, *Qualification for Wildlife Biologists Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/9F72C90F40350F598625719B006A018D?OpenDocument&Highlight=wildlife. This advisory circular describes the qualifications for wildlife biologists who conduct Wildlife Hazard Assessments for airports certificated under Title 14, CFR Part 139 (14 CFR, Part 139). In addition, it addresses the minimum wildlife hazard management curriculum for the initial and recurrent training of airport personnel involved in implementing an FAA-approved Wildlife Hazard Management Plan.

FAA Advisory Circular 150/5220-10D, *Guide Specification for Aircraft Rescue and Fire Fighting Vehicles,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5220-10D/150_5220_10d.pdf. This advisory circular contains information, references, and guidelines for a family of aircraft rescue and fire fighting (ARFF) vehicles.

FAA Advisory Circular 150/5300-13, *Airport Design,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5300-13/150_5300_13.pdf. This advisory circular contains the FAA's standards and recommendations for airport design. Specifically, Appendix 16 addresses new instrument approach procedures.

FAA Advisory Circular 150/5300-14B, *Design of Aircraft Deicing Facilities,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/f78f1ca0bb3a1f7a862573ed004fddcc/$FILE/150_5300_14b.pdf. This advisory circular provides standards, specifications, and guidance for designing aircraft deicing facilities.

FAA Advisory Circular 150/5300-16A, *General Guidance and Specification for Aeronautical Surveys: Establishment of Geodetic Control and Submission to the National Geodetic Survey,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5300-16A/150_5300_16a.pdf. The establishment of geodetic control by permanent survey monuments in the airport vicinity is critical to the National Airspace System (NAS). These monuments and their accurate connections to the National Spatial Reference System (NSRS) assure accurate relativity between surveyed points on an airport and between these points and other surveyed points and facilities in the NAS, including the navigation satellites. This advisory circular explains the specifications for establishing geodetic control on or near an airport. It also describes how to submit the information to the National Geodetic Survey (NGS) for approval and inclusion in the NSRS in support of aeronautical information surveys.

FAA Advisory Circular 150/5300-17B, *General Guidance and Specifications for Aeronautical Survey Airport Imagery Acquisition and Submission to the National Geodetic Survey,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5300-17B/150_5300_17b.pdf. This advisory circular provides the specifications for Airport Imagery acquisition and how to submit the imagery for review and approval in support of aeronautical information and airport engineering surveys.

FAA Advisory Circular 150/5300-18B, *General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5300-18B/150_5300_18B_planning_guidance_only.pdf. The primary purpose of this advisory circular is to list the requirements for data collection conducted at airports in support of the FAA Airport Surveying–GIS Program.

FAA Advisory Circular AC 150/5320-6D, *Airport Pavement Design and Evaluation,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/F514949B9B3E8AE686256C750070206E?OpenDocument&Highlight=pavement. This advisory circular provides guidance on the design and evaluation of pavements at civil airports.

FAA Advisory Circular 150/5320-12C, *Measurement, Construction and Maintenance of Skid Resistance Airport Pavement Surfaces,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/2b97b2812be290e986256c690074f20c/$FILE/150-5320-12C.pdf. This advisory circular provides guidance on how to locate and restore areas on the pavement surface where friction has deteriorated below acceptable levels for aircraft braking performance.

FAA Advisory Circular 150/5325-4B, *Runway Length Requirements for Airport Design,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5325-4B/150_5325_4b.pdf. This advisory circular provides guidance for airport designers and planners to determine recommended runway lengths for new runways or extensions to existing runways.

FAA Advisory Circular 150/5340-1J, *Standards for Airport Markings,* http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/8852E94E6586FDD28625700300509565?OpenDocument&Highlight=standards%20for%20airport%20markings. This advisory circular contains the FAA standards for markings used on airport runways, taxiways, and aprons.

FAA Advisory Circular 150/5340-30D, *Design and Installation Details for Airport Visual Aids,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/260F28AEBB44618F862574E300685FAA?OpenDocument. This advisory circular provides guidance and recommendations on the installation of airport visual aids, including lighting systems.

FAA Advisory Circular 150/5360-9, *Planning and Design of Terminal Buildings at Non-Hub Locations,* http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5360-9/150_5360_9.pdf. This advisory circular provides guidance material for the planning and design of airport terminal buildings at nonhub locations.

FAA, Design Software, http://www.faa.gov/airports_airtraffic/airports/construction/design_software/. This website links to software programs relevant for various aspects of airport pavement design and airspace analysis.

FAA, *Airport/Facility Directory,* http://www.naco.faa.gov/afd.asp?cycle=afd_15JAN2009&eff=01-15-2009&end=03-12-2009. This publication details the facilities available at public use airports in the United States.

FAA Bulletin, *Best Practices—Surface Access to Airports,* http://www.faa.gov/airports_airtraffic/airports/resources/publications/reports/media/bulletin_1_surface_access_best_practices.pdf. This document provides information to facilitate airport coordination with surface transportation agencies. It also identifies current and future research in the planning and design of airport surface access facilities related to terminal curbside, access roads, and pedestrian walkways.

FAA, *Digital Procedures Publication,* http://www.naco.faa.gov/index.asp?xml=naco/online/d_tpp. This provides PDF files of the U.S. Terminal Instrument Procedures, including approach, arrival, and departure procedures. The document includes the instrument procedure as well as associated minimums.

FAA, *Maximizing Airport Operations Using the Wide Area Augmentation System (WAAS),* http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/media/MaximizingAirportOperationsUsingWAAS.pdf. This document provides an overview of the benefits that WAAS offers to airports and provides information on the steps that airports can take now to begin realizing these benefits.

FAA, Next Generation Air Transportation System website, http://www.faa.gov/about/initiatives/nextgen/. This site provides information and updates on the development of FAA's NextGen initiative.

FAA Order 6850-2A, *Visual Guidance Lighting Systems,* http://www.faa.gov/documentLibrary/media/Order/ND/6850.2A.pdf. This order contains installation criteria for all visual guidance lighting systems.

FAA Order 8260.3, *US Terminal Instrument Procedures (TERPS),* http://rgl.faa.gov/Regulatory_and_Guidance_Library%5CrgOrders.nsf/0/12B3D4C9B4F46DCE862572D700538895?OpenDocument. This order contains the criteria used to develop instrument approach procedures for airports.

FAA, *Wildlife Hazard Mitigation website,* http://wildlife-mitigation.tc.faa.gov. This site provides users with information that will allow them to better understand and practice wildlife hazard mitigation at airports through wildlife control.

FAA and USDA, *Wildlife Hazard Management for Airports, a Manual for Airport Personnel,* http://wildlife.pr.erau.edu/EnglishManual/2005_FAA_Manual_complete.pdf. This manual contains a compilation of information to assist airport personnel in conducting Wildlife Hazard Assessments and in developing, implementing, and evaluating Wildlife Hazard Management Plans.

FAR Part 77 (14 CFR Part 77), *Objects Affecting Navigable Airspace,* http://www.access.gpo.gov/nara/cfr/waisidx_07/14cfr77_07.html. This Federal Aviation Regulation establishes the standard for determining if a structure (e.g., antenna tower, flag poles, lights, etc.) is an obstruction of navigable airspace.

FTA, *Americans with Disabilities Act,* http://www.fta.dot.gov/civilrights/civil_rights_2360.html. This site provides information on The Americans with Disabilities Act of 1990 (ADA) which prohibits discrimination and ensures equal opportunity and access for persons with disabilities.

General Aviation Manufacturers Association (GAMA), *Statistical Databook and Industry Outlook.* http://www.gama.aero/media-center/industry-facts-and-statistics/statistical-databook-and-industry-outlook. GAMA produces a statistical databook each year containing general aviation and general aviation manufacturers' activity.

National Air Trade Association (NATA), http://www.nata.aero. NATA represents aviation service businesses. Some ground handling service providers use the services of NATA to train personnel.

National Business Aircraft Association (NBAA), Professional Development Programs, http://www.nbaa.org/. NBAA represents companies who use GA aircraft. NBAA offers a range of professional development programs and certification information.

National Climatic Data Center (NCDC) website, http://www.ncdc.noaa.gov/oa/ncdc.html. This site provides an archive of historic weather data.

Transportation Research Board (TRB), *Intermodal Access to Airports, A Planning Guide—A Good Start,* http://ntl.bts.gov/lib/7000/7500/7502/789764.pdf. This document has been prepared to help airport operators, local governments, MPOs, consultants, and others identify the nature of airport access problems, identify alternative solutions, and evaluate their effectiveness.

TSA, *Airport Security Guidelines for General Aviation Airports,* http://www.tsa.gov/assets/pdf/security_guidelines_for_general_aviation_airports.pdf. This guidance document is intended to provide GA airport owners, operators, and users with guidelines and recommendations on aviation security concepts, technology, and enhancements. It is a set of federally endorsed security enhancements for GA airports and a method for determining when and where these enhancements may be appropriate.

TSA, *Security Initiatives: General Aviation,* http://www.tsa.gov/what_we_do/tsnm/general_aviation/security_initiatives.shtm. This site gives advice for security related to the GA industry.

University of Nebraska, *Prevention and Control of Wildlife Damage Handbook,* http://icwdm.org/handbook/index.asp. This document details identification, control, and management measures for over 90 species of wildlife.

CHAPTER 6

Community Outreach

6.1 Introduction

New generation GA aircraft provide both opportunities and challenges for airport operators in community outreach. The press generated by these aircraft has raised the awareness of GA. The goal of the airport operator's community outreach program should be to use this awareness to formulate a positive message for the airport. This is especially important for communities in which these aircraft represent first-time business jet operations. A well thought out communication and education program is important to managing community expectations and fostering good relationships with the community.

Community outreach is not only a way to educate the public on new generation aircraft, but an opportunity to remind the public of the airport and its important role in the community as a transportation and economic development asset. It is an opportunity to build good will for the airport. There are four key components in a community outreach program: audience, message, medium, and timeframe.

If there is no existing community outreach program, it may increase the responsibility of an airport operator; however, protecting the airport and promoting its future may be one of the most important roles of the airport operator. A community outreach program does not need to be expensive, but it does require some effort. The three main reasons to undertake a community outreach program are as follows:

- Inform and Educate. Increase better understanding of the value of the airport to the community; inform the community about new generation aircraft characteristics; and obtain community support for the airport and users.
- Gather Information. Gather information about local needs and concerns.
- Establish Credibility. Establish the airport operator as a credible resource; build good will for the airport by establishing a reputation of being fair and honest.

6.2 The Audience

In a community outreach program, it is important to build as many bridges as possible between the airport and those people and organizations in the community that can influence the airport's success. The potential audience is broad and should cover the airport's catchment area discussed in Chapter 3. Table 6-1 identifies potential audience groups. When reaching beyond the airport users, local civic associations can be a good place to start because many hold regular meetings and may be in need of speakers.

Along with the target audiences, the airport operator may find that there is an airport opposition group. Opposition groups should not be excluded from community outreach efforts.

Table 6-1. Potential audiences.

Audience	Examples	Purpose of Outreach
Users	Tenants, pilots associations, EAA Chapters, Civil Air Patrol	• Create informed spokespeople • Remind users to be good neighbors
Community Organizations	Civic, service, and fraternal organizations, such as the League of Women Voters, Kiwanis Club, Optimist Club, Rotary Club, American Legion, Lions Club, Elks Club, Jaycees, Knights of Columbus, Shriners Club, Veterans of Foreign Wars (VFW), and neighborhood associations	• Increase knowledge and understanding of the airport • Develop support for the airport
Business Community	Chamber of commerce, economic development associations, merchants associations, and businesses that benefit from serving airport users	• Develop informed supporters
Elected Officials	Local, state, and federal elected officials. Some local officials may be in an oversight capacity; others may be able to help promote the airport or pursue funding for improvements	• Develop support for the airport
Land Use Planners	Zoning Commission and Area Planning Commission members, MPOs	• Make the airport part of the planning process • Develop support for the airport
Media	Local TV, radio, and newspaper reporters	• Become a known entity and a potential press liaison
Educational Organizations	School groups, scout troops	• Nurture aviation interest • Promote the benefits of GA • Reach out to potential future users

Source: Aerofinity, Inc.

Key Community Outreach Questions

- What do people outside the airport fence know about the airport? Do they even know it is there?
- What do people believe the airport offers the community?
- What are the goals of the community and how does the airport fit within those goals?
- Are community members aware of new generation aircraft, particularly VLJs? If so, do they have concerns about noise or other issues?

However, because it is difficult to change a negative viewpoint, most effort should focus on the broader segment of the population, who along with existing airport supporters, can generate support to overcome opponents.

6.3 The Message

Before formulating the message, it is vital to listen to the community and be aware of perceptions (positive and negative) about the airport.

The goal of community outreach is to make the airport's value known and identify positive events that otherwise may go unnoticed. The message for an airport will vary based on the current and past community outreach program. At airports with a limited or non-existent community outreach program, the spread of new generation GA aircraft can provide a reason to increase awareness and inform the community about the airport.

The message should be factual and centered on the local airport. Aviation jargon should be avoided where possible, but it is also important not to speak down to the audience. Table 6-2 identifies potential discussion points to include in the message to inform the community about

Table 6-2. Potential message presentation points.

Category	Points
Existing Facilities	Size and type of facilities Instrument approaches Type of aircraft served
Operations	Traffic levels Number of based aircraft Purpose of flight (e.g., business or training) Other communities accessible from airport
Economic Impact	Number of businesses at the airport Number of jobs and payroll at airport Businesses that rely on the airport for transportation and jobs generated by these businesses Revenue and taxes generated by airport operations Tax dollars returned to the community during development projects
Social Impact	Medical emergencies Vocational or flight training Military support Emergency response

the transportation and economic development asset that the airport represents. These points can be tailored to discuss new generation aircraft that may use the airport, or they can be broadened to cover the airport at large, depending on the audience. Overall, the message should address the questions and views identified during the listening process while promoting the value and positive contribution of the airport to the community.

The value an airport provides to the community can far exceed the money generated from the airport. It can be difficult to quantify the value of the airport to a community, although an economic impact analysis is one method to assign a dollar value to airport activity. Therefore, it is important to include examples of activities beneficial to the community.

Airports provide a connection to the rest of the world. Defining the physical distances that can be traveled and the different cities that can be reached from the airport enables the airport operator to illustrate the connection between the community and the rest of the world. For example, if a small airport in Montana has enough runway length for business jets to reach Chicago, Illinois, with relative ease, that connection can be a tremendous value that the airport provides for the local community. If that connection can be translated into jobs occurring or supported in the community, it helps members of the general public better recognize the value of the airport even if they are not direct users.

Information about aircraft that can use the airport, the airport classification and what that means, as well as the benefits of compatible land use are all valuable details to include in the message. Airports operators need to educate community leaders early and often so that they understand the facility's benefits to the community clearly. This early education can be important to airport operators if and when land use planning and/or zoning changes are needed later on.

6.4 The Medium

Determining the most appropriate medium for the message will help dictate how successfully the communication is received. There are several different ways to reach out to the community, as shown in Table 6-3.

Table 6-3. Potential methods for community outreach.

Method	Example
Attend Meetings	Planning Commission, Zoning Board
Make Presentations	Formal and informal presentations to the Planning Commission and Zoning Board
Personal Meetings	Meetings with elected officials and/or the media Invite them to the airport, and keep them informed Be a resource for them to respond to constituents or readers/viewers Generate interest in the airport
Give Interviews	Local newspapers, radio stations, and TV stations
Handouts	Brochures, pamphlets, flyers, etc.
Arrange Events	Static displays of aircraft, airport anniversary celebrations, military reserve days, air races, fly-in breakfasts, dedication of new buildings, youth group activities, career days, student art showings, warbird displays, airport days, airport tours, etc.
Press Releases	About any of the above events
Newsletters	Keeps tenants informed Use as an outreach tool
Website	Make airport facts readily available Post press releases

6.4.1 Presentations

Presentations can be a low-cost method to reach a broad community audience. Public speaking can be intimidating, so it is important to prepare. Some guidelines for a good presentation follow:

- Know the audience and the material.
- Dress appropriately.
- Speak slowly and with conviction, enunciate clearly, and establish a rapport.
- Project voice as needed.
- Be conscious of body language.
- Use visual aids as enhancements—ensure that all equipment is set up and working prior to the presentation; have a backup plan if there are technical difficulties.
- Make sincere eye contact—look straight into the eyes of a person in the audience for 3 seconds at a time.
- Bring notes, but do not read from them for extended lengths of time.
- Pause to allow the audience time to reflect and an opportunity to think.
- Have handouts ready and distribute them at the appropriate time.
- Listen to audience questions, respond to audience reactions, and adjust and adapt to the mood of the audience.
- Know when it is time to stop talking.

6.4.2 Media Relations

Local media may be interested in various airport-related activities. When dealing with reporters, it is important to establish a relationship and credibility and assume everything said or written will be printed. The best time to get to know the media is before there is a problem or crisis. Tips for establishing a beneficial relationship with the media follow:

- Identify which newspapers or stations are good vehicles to communicate the message.
- Identify which section of the paper or broadcast is appropriate for the message.
- Identify editors or reporters of that section or segment of the broadcast.
- Visit editors or reporters and get to know these individuals—establish a relationship, introduce them to the airport, and be sure to have relevant information available.

- Establish credibility—be honest and accurate, do not dodge controversy, avoid "no comment" responses, and return phone calls or emails promptly (remember that emails may become public).
- Assume everything that is said or written will be printed.
- If caught off guard by a question, provide a response as soon as the issue has been adequately researched and studied.

Depending on the news, a press release may be a more appropriate way to get the message out to the community. A press release needs to be well written and concise—tips follow:

- Send in the release in advance of an event (at least 3 days).
- Provide a short summary at the top of the document.
- Put the most important information in the first paragraph.
- Keep the entire document to a single page.
- Use short sentences and simple language.
- Write in the active voice.
- Provide contact information.

6.4.3 Aviation Events

An aviation event may be a way to invite the community to the airport and get the message out. It may also provide an opportunity to partner with local community groups in support of other organizations, such as a charity fundraiser. If some new generation GA aircraft are based at the airport, it might be appropriate to organize an "airport awareness day" around them. Events must be properly planned and executed if they are to be effective communication tools. A lot of work goes into a successful event, beginning with establishing a clear purpose. Some tips for event planning follow:

- Understand the purpose of the event.
- Set the goals for the event (e.g., number of people to attend and what attendees are expected to gain from it).
- Set an event budget and date.
- Select a location on the airport—consider capacity, lighting, parking, electrical supply, and restrooms.
- Set up a project timeline with tasks that must be accomplished by specific dates.
- Make an official announcement of the event and notify the media.
- Prepare and print promotional materials (e.g., brochures and invitations).
- Select a caterer, entertainment, and/or photographers if needed.
- Determine audiovisual needs.
- Review and sign necessary contracts.
- Finalize the agenda/program.
- Confirm with attendees.
- Prepare materials for the event (e.g., name badges and signage).
- Determine if any special licenses or permits are needed.
- Determine if traffic control is needed.

6.5 Timing of Community Outreach

The best time for community outreach is before it is needed. Develop airport allies in different groups, including community leaders, community members, and the media. Reach out early and often. Community support often comes from understanding and acceptance. Airport operators who only approach their communities when they need something usually find opposition. Operators who communicate regularly usually find support or at least a

Hosting an Event

The Indianapolis Airport Authority took advantage of a relationship with an Eclipse 500 VLJ owner and invited him to fly the aircraft to a reliever airport for a luncheon event. Elected and local community leaders and media representatives were invited to a lunch at the airport, so they could experience the capability of the airport to support business jet aircraft and the low noise level of the Eclipse.

willingness to work with the airport. It is important to communicate regularly with community leaders, community members, and the media, even if it only involves updates to information already provided. Examples of these types of communication follow:

- Making annual reports available without the local media having to ask for them.
- Asking local newspapers to run airport information articles.
- Regularly providing positive press releases.
- Regularly making presentations to local business and community organizations.

6.6 Addressing Specific Issues

It is important to be proactive in addressing specific issues that may arise. Although it may not be feasible to resolve the issue immediately, demonstrating an understanding and willingness to work with the community is important to generating good will. If the airport operator is undertaking a development program, it is important to build on the existing community outreach program to address the project specifics.

A common issue at many airports is noise. One of the advantages associated with new generation GA aircraft is the opportunity to publicize their small noise footprint. As discussed in Chapter 2, these aircraft are quiet—in fact VLJs have noise characteristics similar to (or better than) other existing small piston and turboprop aircraft.

Airport operators need to be careful when addressing the issue of noise. It is important to address existing community noise concerns, but it is not desirable to generate new noise concerns. The FAA has a program through FAR Part 150, *Airport Noise Compatibility Planning,* that can be used to address noise issues; but if an airport does not have significant noise issues that can be addressed through undertaking a Part 150 study, it will not be a benefit. There is a difference between a high level of operations with a consistent noise level and localized complaints from a few individuals about a small number of aircraft or operations.

Addressing a few localized complaints can be handled by trying to identify the aircraft in question. If possible, talk to the pilot to determine if the aircraft can be operated in a more community-friendly manner. Some airport operators have also established preferred departure procedures. Although these procedures may be voluntary, they can help pilots be better neighbors by directing departures away from the most noise-sensitive areas or having the aircraft climb higher before flying over noise-sensitive areas.

An airport operator can also take steps to minimize noise complaints by owning the RPZs and other protective areas beyond the end of the runway, as described in Chapter 5. Also, it is important for the airport operator to work with the community to establish compatible zoning/land use near the airport to try to reduce the level of noise-sensitive development near the airport.

The level of surrounding community interest in aviation noise is one factor that can be used by an airport operator to identify an appropriate noise program. For example, the Boca Raton Airport Authority in Florida has a Noise Abatement Program designed to mitigate aircraft noise and educate the public on the procedures used to operate a noise-sensitive airport. Through

NMT#2 - January Long Average Noise Levels by Type					
Aircraft Type		N-Number	Lmax	SEL	Duration
	GLF3	Gulfstream III	**91.4**	99.2	37.2
	LJ55	LearJet 55	**81.1**	88.5	22.9
	H25B	Hawker	**80.8**	88.7	28.1
	C560	Citation 5	**77.8**	87.1	26.2
	C550	Citation 2	**77.1**	85.9	24.2
	B350	King Air	**69.9**	78.8	23.0
	EA50	Eclipse Jet	**69.6**	77.7	12.4
	C172	Cessna 172	**68.6**	79.9	28

Source: http://airquality.ucdavis.edu/pages/events/2008/flying_presentations/BUCK.pdf. Presentation by Russell Buck, Boca Raton Airport Authority, 2008 US Davis, Symposium on Aviation Noise & Air Quality.

Figure 6-1. Example aircraft noise levels at Boca Raton Airport.

this program, average noise levels have been compiled to use as an educational tool. Figure 6-1 (a page from a presentation made by the Authority) shows that the Eclipse VLJ has a smaller noise footprint than a King Air 350, a common turboprop, both in terms of the highest noise level (Lmax) and cumulative acoustical energy (SEL).

6.7 Summary

Community outreach should be an ongoing and proactive effort by the airport operator. The spread of new generation GA aircraft provides an opportunity to share good news about general aviation with the community. Depending on the airport, it may also provide the opportunity to discuss the ability to improve or enhance the services provided by the airport for the community.

A community outreach program should focus on developing an understanding of the airport and its value within the community at large, before support is needed. This chapter has provided basic guidance on the potential audience, message, medium, and timeframe. Given that each airport and community is unique, the airport operator is the most knowledgeable to take the information from this chapter, assess the current community outreach program, and develop and implement a new program or improve and enhance an existing program to address the challenges and opportunities presented by new generation GA aircraft.

6.8 Helpful References and Resources

APTA, *Public Transportation: Wherever Life Takes You,* http://www.publictransportation.org/default.asp. This site is designed to better inform the public about the benefits and importance of public transportation. Under the Transit Systems tab, there is a link to transit systems to airports.

Airport Owners and Pilots Association (AOPA), Airport Support Network, http://www.aopa.org/asn/. AOPA represents the interests of individual aircraft owners and pilots. The Airport Support Network is a program

made up of AOPA members who volunteer as a representative at each airport to promote, protect, and defend community airports.

AOPA Online, Guide to Obtaining Community Support for Your Local Airport http://www.aopa.org/asn/airportpr/. This guide provides suggestions for developing a public relations program for an airport.

FAA Advisory Circular 150/5020-1, *Noise Control and Compatibility Planning for Airports,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/f4fae43a49d9f2fe86256c720077ad35/$FILE/150-5020-1.pdf. This advisory circular provides guidance for noise control and compatibility planning for airports under FAR Part 150 and the Aviation Safety and Noise Abatement Act of 1979 (ASNA).

FAA Advisory Circular 150/5050-4, *Citizen Participation in Airport Planning,* http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/8290f2506b1ab49086256c690074e645/$FILE/150-5050-4.pdf. This advisory circular provides guidance for citizen involvement in airport planning. It is intended as a guide for airport sponsors, planners, and interested citizens in achieving citizen participation in airport planning studies.

FAA, *Community Involvement,* http://www.faa.gov/about/office_org/headquarters_offices/aep/planning_toolkit/media/VI.A.pdf. This manual is designed to provide practical guidelines for involving the community in various aviation planning situations.

CHAPTER 7

Funding Alternatives

7.1 Introduction

Many of the considerations addressed in this guidebook may require airport operators to make significant financial investments in infrastructure and/or facilities. But with the wide range of existing facilities, localized development considerations, and varying material costs around the country, it is not feasible to provide general cost guidance. Working with a local airport development professional is the best way to identify the costs that may be incurred for a specific airport.

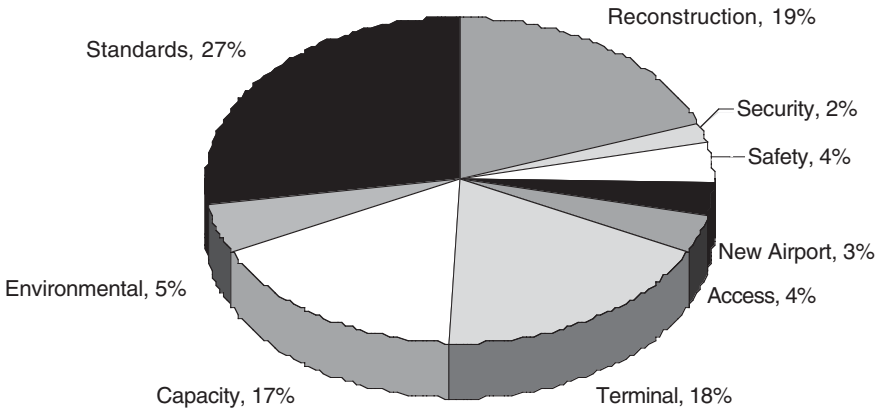
Developing a list of future desired airport projects to be ready for the new generation of GA aircraft is the easier part; funding the implementation may be more of a challenge. Several sources exist today that are being used for the development of airports, the most common being FAA grant monies. Overall, GA airports may have limited funding options unless they are part of a larger community or airport system.

7.2 Federal Grants

FAA Airport Improvement Program (AIP) monies are the typical source of funding for airport development. The most recent AIP funding authorization, Vision 100—Century of Aviation Reauthorization Act, continued the non-primary baseline appropriation of $150,000 per year per airport that was established in Federal fiscal year 2001 by its predecessor Act, AIR-21, providing that the minimum appropriation was made by Congress. All GA and reliever airports included in the National Plan of Integrated Airport Systems (NPIAS), which is a Federal plan comprising more than 3,400 existing and proposed airports, are eligible for non-primary funding.

GA airports may also be able to obtain AIP apportionment and discretionary funding by working with the FAA and State oversight agencies. The FAA uses a priority system to identify projects, with the highest priority being given to safety, security, and preservation of existing infrastructure. The existing AIP provides 95% of the funds at GA airports for eligible development projects with the remaining 5% coming from state grants and/or local funds. Eligible development projects typically are non-revenue-producing, although current legislation allows some revenue-producing projects to be funded, if all other airport needs are met. AIP funding is used for a range of projects as shown in Figure 7-1.

The preparation of an Airport Capital Improvement Program (ACIP), which is a 5-year plan showing desired airport improvement projects, is the first step in documenting facility needs. Airspace and environmental approval is also required before a project is eligible for AIP funding. Airspace approval typically is accomplished through inclusion of the project on the airport's approved Airport Layout Plan or other airspace approval process. Environmental approval



Source: FAA, National Plan of Integrated Airport Systems 2009-2013.

Figure 7-1. NPIAS expenditures by project type.

is accomplished through the preparation of the necessary environmental documents to meet the requirements of the National Environmental Policy Act (NEPA). Environmental documents range from Categorical Exclusions to Environmental Assessments to Environmental Impact Statements.

In addition to AIP funding for specific projects, funding from other government agencies may also be available (e.g., from the TSA for security improvements).

7.3 State Grants

Many states support aviation development. The two most common forms of state funding are matching grants for AIP-funded projects or state-local grant programs that are not eligible for Federal funding. The level of state participation, eligibility of projects, and application process varies from state to state. Typically, the State DOT aviation department or office oversees any state aviation funding programs.

7.4 Airport Revenues

Local funds for GA airports typically come from local airport revenues or the operating governmental entity for publicly owned airports. When a GA airport is part of a larger airport system, additional airport revenue funds may be available to support the overall system.

The most common sources of airport-generated revenues at a GA airport are as follows:

- Fuel sales or fuel flowage fees
- Land and facility leases (such as building and hangar rents)
- Tenant contract revenue (FBO, rental car, etc.)
- Activity and usage fees (such as aircraft tie-downs)
- Advertising revenues

Whether these revenues flow to the airport owner or to a tenant depends on the contractual arrangement for services at the airport. When the revenues are less than the funds needed for the operation of the airport, the next source of funding usually comes from the airport owner or sponsor. This may include the relevant taxing authority through its governing body.

7.5 Bonds

For significant capital improvement programs, another local funding option is the issuance of bonds. There are two basic types of bonds: general obligation and revenue bonds.

7.5.1 General Obligation Bonds

General obligation bonds are secured by the full faith, credit, and taxing authority of the issuing government agency. General obligation bonds are instruments of credit and, because of the government guarantee, the interest rate that must be paid to the bondholders is reduced. This type of bond uses tax revenues to retire the debt and a key element is usually the approval of the electorate of a tax levy to support airport development. Government entities generally have limits established for the maximum level of indebtedness that can be assumed.

7.5.2 Revenue Bonds

Another type of bond is an airport revenue bond, which is secured only by the revenues of the airport. Revenue bonds are retired solely from the revenue of a particular project or from the operating income of the issuing agency. Generally, they fall outside the statutory limitation on public indebtedness and in many cases do not require voter approval. Revenue bonds normally carry a higher interest rate because they lack the security of general obligation bonds. An additional challenge is that revenue bonds usually require a large reserve if there are no firm guarantees. Often it is required that the net income (total revenue less maintenance and operating expenses) available for debt service must be at least 1.25 to 1.5 times the annual debt service. This money must be put in a fund to be used only for payment of the bond's principal and interest if net revenues in any particular year are not sufficient to meet these payments.

It is possible to mix the benefits of a general obligation bond with some of the advantages of a revenue bond. When this is done, it is generally intended that the bond will be retired from revenues, as is the case with a true revenue bond. However, if the revenues would not be enough to meet all debt service payment, the community's tax base would have to make up the difference.

Some states also have bond banks or another form of pooled credit through which smaller projects can be combined for bond issuance. Where bond banks exist, there is a potential to lower the costs of initiating a bond.

7.6 Private Investment

If a project is intended to serve a specific corporate user, in some cases it may be possible to obtain support from the corporate users of the facility. Although corporate support may not cover the full cost or full local share, it can contribute to the overall funding, while delivering a strong message about the importance of the improvement.

Some airport operators have successfully used bank financing for obtaining airport development capital. Generally two conditions are required to obtain bank financing: the airport must demonstrate the ability to repay the loan at current interest rates, and the capital improvement must be less than the value of the facility.

Another important source for development funding is the private sector. There are many areas in which private development can occur at an airport. In these cases, typically the airport owner grants the developer a land lease and the private developer provides the funding to construct the improvement. Private-sector funding typically is associated with revenue-producing development rather than airfield infrastructure.

7.7 Privatization

Most airports in the United States are operated as not-for-profit entities with oversight by a politically appointed or governmental agency. Privatization can refer to a broad range of activities that entail varying levels of private involvement in the operations of an airport, ranging from partial to full privatization.

7.8 Summary

Although there are a number of potential revenue sources, identifying the appropriate one for a specific airport requires coordination with the relevant governmental oversight agencies. The purpose of the project and the airport revenues also affect the potential revenue sources. Airport funding is best identified as part of a longer term capital improvement program developed in conjunction with the airport's budget.

7.9 Helpful References and Resources

ACRP Synthesis 1 Innovative Finance and Alternative Sources of Revenue for Airports, http://onlinepubs.trb.org/onlinepubs/acrp/acrp_syn_001.pdf. This synthesis provides an overview of common capital funding sources used by airport operators, a review of capital financing mechanisms used by airports, descriptions of various revenue sources developed by airport operators, and a review of privatization options available to U.S. airport operators.

FAA, *Airport Improvement Program Handbook,* http://www.faa.gov/airports_airtraffic/airports/aip/aip_handbook/. This handbook provides guidance and sets forth policy and procedures on how the FAA is to administer the Airport Improvement Program (AIP). AIP is a grant program for airport planning and development projects available to airports within the National Plan of Integrated Airport Systems (NPIAS).

FAA Order 5190.6A, *Airport Compliance Requirements,* http://www.faa.gov/airports_airtraffic/airports/resources/publications/orders/media/Obligations_5190_6a.pdf. This order provides policies and procedures related to airport compliance with obligations under FAA grant programs.

Glossary

A

AC. See **Advisory Circular.**

ACIP. See **Airport Capital Improvement Program.**

ACRP. See **Airport Cooperative Research Program.**

ADG. See **Airplane Design Group.**

ADS-B. See **Automatic Dependent Surveillance Broadcast.**

Advisory Circular (AC). A series of publications from the FAA detailing the requirements for various facets of aviation and airports.

AIP. See **Airport Improvement Program.**

Air Taxi Operations. See **On-Demand Services.**

Air Traffic Activity Data System (ATADS). An FAA database that contains the official National Airspace System air traffic operations data available for public release.

Aircraft Approach Category. A grouping of aircraft defined by FAA based on 1.3 times the stall speed at maximum certificated landing weight.

Aircraft Owners and Pilots Association (AOPA). A not-for-profit trade organization dedicated to general aviation was incorporated on May 15, 1939.

Aircraft Rescue and Firefighting (ARFF). A special category of firefighting that involves the response, hazard mitigation, evacuation, and possible rescue of passengers and crew of an aircraft involved in an airport ground emergency.

Airfield. Runways, taxiways, and other facilities that accommodate the takeoff, landing, and movement of aircraft on the ground.

Airplane Design Group (ADG). A grouping of airplanes defined by FAA based on wingspan and tail height.

Airport Capital Improvement Program (ACIP).

Airport Cooperative Research Program (ACRP). An industry-driven, applied research program focused on developing solutions to problems faced by airport operators. ACRP is managed by the Transportation Research Board of the National Academies and sponsored by the FAA.

Airport Improvement Program (AIP). The 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 National Plan of Integrated Airport Systems (NPIAS).

Airport Layout Plan (ALP). A set of drawings showing the existing conditions and planned improvements for the airport.

Airport Reference Code (ARC). A system used by the FAA to relate airport planning and design criteria to the operational and physical characteristics of the aircraft intended to use the airport. Also see **Aircraft Approach Category** and **Airplane Design Group.**

Airport Traffic Control Tower (ATCT).

ALP. See **Airport Layout Plan.**

ALS. See **Approach Lighting Systems.**

AOPA. See **Aircraft Owners and Pilots Association**

Approach Lighting Systems (ALS). A system of lights starting at the runway threshold and extending outward into the approach zone providing visual information to a pilot on runway alignment and location relative to the runway threshold. The system is classified as high-intensity or medium-intensity based on the types of lamps and equipment used.

Apron. A defined area on an airport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance.

APVs. See **Approach Procedures with Vertical guidance.**

ARC. See **Airport Reference Code.**

Area Navigation (RNAV). A general method of navigation where a pilot can choose any course within a network of navigation beacons, rather than navigating directly between beacons.

ARFF. See **Airport Rescue and Fire Fighting.**

ASNA. See **Aviation Safety and Noise Abatement Act of 1979.**

ASOS. See **Automated Surface Observation System.**

ATADS. See **Air Traffic Activity Data System.**

ATCT. See **Airport Traffic Control Tower.**

Automated Surface Observation System (ASOS). Equipment that takes and broadcasts automated weather readings.

Automated Weather Observation System (AWOS). Equipment that takes and broadcasts automated weather readings.

Automatic Dependent Surveillance Broadcast (ADS-B). The ADS-B system is a crucial component of the Next Generation Air Transportation System (NextGen). It provides surveillance and improved situational awareness simultaneously to pilots and air traffic controllers. ADS-B is designed to improve the safety, capacity and efficiency of the national airspace system while providing a flexible, expandable platform to accommodate future air traffic growth. ADS-B is surveillance, like radar, but offers more precision and additional services, such as weather and traffic information. ADS-B provides air traffic controllers and pilots with much more accurate information to help keep aircraft safely separated in the sky and on runways.

Aviation Safety and Noise Abatement Act of 1979 (ASNA). Established Airport Noise Compatibility Planning (14 CFR Part 150) or part 150. Did not change the legal authority of states and local governments to control uses of land within their jurisdictions, i.e., zoning.

AWOS. See **Automated Weather Observation System.**

A-Weighted Sound Level (dBA). A noise metric designed to account for people's sensitivity to noise at different frequencies; applicable in noise measurement standards for turboprop and piston aircraft. Also see **Effective Perceived Noise Level.**

B

Balanced Field Length (BFL). A metric that measures the runway length required for an aircraft to successfully complete a takeoff with a failed engine; not directly applicable to all aircraft types.

BFL. See **Balanced Field Length.**

C

Cargo Service Airports. As defined by the FAA, any airports that are served by aircraft providing cargo-only transportation with a total annual landed weight of more than 100 million pounds. An airport may be both a Commercial Service and Cargo Service Airport.

Catchment Area. The surrounding geographic area from which an airport draws users.

Charter Operations. See **On-Demand Services.**

Commercial Service Airports. As defined by the FAA, publicly owned airports that have at least 2,500 passenger boardings (enplanements) in a calendar year and which have scheduled passenger service. Commercial Service Airports are further broken down as follows:

- Primary Airports—more than 10,000 annual boardings
  - Large Hubs—1% or more of total U.S. annual boardings
  - Medium Hubs—0.25%–1% of total U.S. annual boardings
  - Small Hub—0.05%–0.25% of total U.S. annual boardings
  - Nonhubs—More than 10,000, but less than 0.05% of total U.S. annual boardings
- Nonprimary Commercial Service Airports—At least 2,500, but no more than 10,000 annual boardings.

Also see **Cargo Service Airports, Reliever Airports,** and **General Aviation Airports.**

Critical Aircraft. That aircraft or combination of aircraft with the most demanding requirements at a particular airport making at least 500 annual operations (takeoffs and landings).

D

Day-Night Average Sound Level (DNL or Ldn). The predicted average noise level in an area around the airport for a typical 24-hour period. A weighing factor equivalent to a penalty of 10 decibels is applied to operations between 10 p.m. and 7 a.m.

dBA. See **A-Weighted Sound Level.**

Deicing. The removal of ice deposited on any object, especially as applied to aircraft icing, by heating, chemical treatment, and mechanical rupture of the ice deposit.

DNL. See **Day-Night Average Sound Level.**

E

Effective Perceived Noise Level (EPNL). A noise metric that uses a sophisticated frequency weighting scheme to determine perceived noise levels; applicable in noise measurement standards for jet aircraft. Also see **A-Weighted Sound Level.**

Enhanced Traffic Management System (ETMS). A real-time aircraft tracking system used by the FAA to monitor and direct aircraft traffic flow in the National Airspace System (NAS).

EPNL. See **Effective Perceived Noise Level.**

ETMS. See **Enhanced Traffic Management System.**

F

FAR. See **Federal Aviation Regulations.**

FAR Part 135 (Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons on Board Such Aircraft). Aviation regulations, with more stringent standards than Part 91, governing commuter and on-demand (charter) operations.

FAR Part 150 (Airport Noise Compatibility Planning). Aviation regulations governing how airport operators must assess and mitigate noise on and around airports. Specific FAA guidance is provided in *Advisory Circular 150/5020-1.*

FAR Part 23 (Airworthiness Standards: Normal, Utility, Acrobatic and Commuter Airplanes). Aviation regulations governing airworthiness requirements for aircraft in the cited categories, which are aircraft that have a maximum take-off weight of no more than 12,500 pounds (19,000 pounds for Commuter aircraft).

FAR Part 25 (Airworthiness Standards: Transport Category Airplanes). Aviation regulations, more stringent than Part 23, governing airworthiness requirements for Transport aircraft, generally defined as those that have a maximum take-off weight greater than 12,500 pounds.

FAR Part 91 (General Operating and Flight Rules). Aviation regulations governing general operating rules for all aircraft. Sub-Part K contains operating rules specifically for fractional ownership programs.

FBO. See **Fixed-Base Operator.**

Federal Aviation Administration (FAA). The federal agency responsible for the safety and efficiency of the national airspace and air transportation system.

Federal Aviation Regulations (FAR). Regulations issued by the FAA governing all aviation activities in the United States; part of Title 14 of the Code of Federal Regulations, organized into separate sections called "Parts," e.g., Part 91.

Federal Highway Administration (FHWA). The federal agency responsible for the safety and efficiency of the national highway system.

Federal Transit Administration (FTA). The federal agency responsible for the safety and efficiency of the national transit system.

FHWA. See **Federal Highway Administration.**

Fixed-Base Operator (FBO).

Flight Service Station (FSS).

FOD. See **Foreign Object Damage.**

Foreign Object Damage (FOD). Any damage attributed to a foreign object that can be expressed in physical or economic terms which may or may not degrade the product's required safety and/or performance characteristics.

Fractional Ownership. Shared ownership of an aircraft. The aircraft is usually part of a fleet operated by a professionally managed company that provides pilots, maintenance, insurance, and other services. Fractional owners usually have on-demand access to available aircraft in the fleet for a pre-determined number of hours per year. Regulations governing fractional ownership operations are under FAR Part 91, Sub-Part K.

FSS. See **Flight Service Station.**

FTA. See **Federal Transit Administration.**

G

GA. See **General Aviation.**

GAMA. See **General Aviation Manufacturers Association.**

GCO. See **Ground Communications Outlet.**

General Aviation Airports. Any airports not defined by the FAA as Commercial Service, Cargo Service or Reliever; includes privately owned, public-use airports having 2,500 or more annual boardings and which have scheduled passenger service.

General Aviation (GA). All types of aviation other than that performed by air carriers and the military.

General Aviation Manufacturers Association (GAMA). Founded in 1970, the General Aviation Manufacturers Association (GAMA) fosters and advances the general welfare, safety, interests and activities of general aviation by promoting a better understanding of general aviation and the role it plays in economic growth and in serving the transportation needs of communities, companies, and individuals worldwide.

GAMA represents over 65 of the world's leading manufacturers of fixed-wing general aviation airplanes, engines, avionics, and components. In addition to building nearly all of the general aviation airplanes flying worldwide today, GAMA member companies also operate fleets of airplanes, fixed-based operations, pilot/technician training centers, and maintenance facilities worldwide.

Glass Cockpit. Refers to an aircraft cockpit that has primarily electronic instrument displays rather than mechanical gauges.

Global Positioning System (GPS). A series of satellites that transmit a signal used for navigation.

GPS. See **Global Positioning System.**

GPU. See **Ground Power Unit.**

Ground Communications Outlet (GCO).

Ground Power Unit (GPU). A power unit on the ground which can be used in place of power generated by an aircraft engine. Also called power carts.

H

High-Intensity Runway Lights (HIRL). Lights placed along the edge of a runway generally at 200-foot intervals. The lights are designed to help pilots identify the edge of the surface prepared for landings and takeoffs. This is the most intense runway edge lighting system and is most commonly found at high-activity airports having wider runways and precision instrument approaches.

HIRL. See **High-Intensity Runway Lights.**

Hub Airport. Can refer to an airport that is part of a "hub-and-spoke" network where a commercial airline provides high frequencies of scheduled service to the hub in order to aggregate demand from the spokes and then distributes that demand to their final destinations. Alternatively, can refer to the FAA system for categorizing airports—see **Commercial Service Airports.**

I

IET. See **Interactive Employee Training.**

IFR. See **Instrument Flight Rules.**

Instrument Approach. A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

Instrument Flight Rules (IFR). Regulations and procedures for flying an aircraft by referring only to the aircraft instrument panel for navigation. Also see **Visual Flight Rules.**

Instrument Landing System (ILS). A precision instrument approach system. An ILS consists of two radio transmitters that serve a specific runway end; one radio beam is the localizer and the other is the glide slope. The localizer indicates to pilots whether they are left or right of the correct alignment for approach to the runway. The glide slope indicates the correct angle of descent to the runway (glide slopes vary from 2° to 3°). An ILS serves only one runway end.

Instrument Operation. An aircraft operation flown in accordance with an IFR flight plan or as one where IFR separation between aircraft is provided by air traffic controllers.

Instrument Runway. A runway equipped with electronic and visual navigation aids for which a precision approach with vertical guidance, or non-precision approach procedure having straight-in landing minimums is available.

Interactive Employee Training (IET).

K

Knots. Nautical miles per hour, equal to 1.15 statute miles per hour.

L

LAAS. See **Local Area Augmentation System.**

Landside. Facilities that support the movement of people and commerce between the air transportation system and the roadway network.

Ldn. See **Day-Night Average Sound Level.**

LIRL. See **Low-intensity runway lights.**

LNAV/VNAV. See **Lateral Navigation/Vertical Navigation.**

Local Area Augmentation System (LAAS). A ground-based augmentation to GPS that focuses its service on the airport area (approximately a 20–30 mile radius) for precision approach, departure procedures and terminal area operations. It broadcasts its correction message via a very high frequency (VHF) radio data link from a ground-based transmitter. LAAS will yield the extremely high accuracy, availability, and integrity necessary for Category I, II, and III precision approaches and will allow for flexible, curved approach paths. LAAS demonstrated accuracy is less than 1 meter in both the horizontal and vertical axis.

Localizer Performance with Vertical Guidance (LPV). An instrument approach that uses GPS and WAAS to provide both vertical and horizontal guidance. Minimums are established based on airport infrastructure and surrounding terrain and obstacles.

LPV. See **Localizer Performance with Vertical Guidance.**

M

Medium-Intensity Runway Lights (MIRL). Lights placed along the edge of a runway, generally at 200-foot intervals. The lights are designed to help pilots identify the edge of the surface prepared for landings and takeoffs.

Metropolitan Planning Organization (MPO). A transportation policymaking organization made up of representatives from local government and transportation authorities.

Metropolitan Statistical Area (MSA). The general concept of a **metropolitan area** is that of a large population nucleus, together with adjacent communities having a high degree of social and economic integration with that core. Metropolitan areas comprise one or more entire counties, except in New England, where cities and towns are the basic geographic units.

The Office of Management and Budget (OMB) defines metropolitan areas for purposes of collecting, tabulating, and publishing federal data. Metropolitan area definitions result from applying published standards to Census Bureau data.

A metropolitan area identified as a consolidated metropolitan statistical area (CMSA) has a population of one million or more and also has separate component areas (PMSAs—primary metropolitan statistical areas) meeting statistical criteria and supported by local opinion.

Minimums. A set of conditions specified for operations of aircraft during IFR approach and departure under adverse weather conditions.

MIRL. See **Medium-Intensity Runway Lights.**

MPO. See **Metropolitan Planning Organization.**

MSA. See **Metropolitan Statistical Area**

N

NAS. See **National Airspace System.**

NATA. See **National Air Transportation Association.**

National Air Transportation Association (NATA). An organization representing aviation service businesses such as fixed-base operators, charter providers, aircraft management companies including those supporting fractional shareholders, maintenance and repair organizations, flight training and airline service companies. Founded in 1940.

National Airspace System (NAS).

National Business Aircraft Association (NBAA). An organization for companies that rely on general aviation aircraft to help make their businesses more efficient, productive and successful. The Association represents more than 8,000 Member Companies of all sizes and located across the country.

National Climatic Data Center (NCDC). NCDC is the world's largest active archive of weather data. NCDC produces numerous climate publications and responds to data requests from all over the world.

National Environmental Policy Act (NEPA). National Environmental Policy Act (NEPA), one of the first environmental laws ever written, requires federal agencies to consider the environmental impacts of proposed federal projects that could significantly affect the environment.

National Geodetic Survey (NGS). NOAA's NGS defines and manages a national coordinate system. This network, the National Spatial Reference System (NSRS), provides the foundation for transportation and communication; mapping and charting; and a multitude of scientific and engineering applications.

Committed to making transportation and navigation safer, NGS conducts aerial photography surveys near airports in the United States and its possessions to position obstructions and aids to air travel. NGS develops Federal standards for geodetic surveys and helps to coordinate surveying methods.

National Plan of Integrated Airport Systems (NPIAS). The National Plan of Integrated Airport Systems (NPIAS) identifies more than 3,400 existing and proposed airports that are significant to national air transportation and thus eligible to receive federal grants under the Airport Improvement Program (AIP). It also includes estimates of the amount of AIP money needed to fund infrastructure development projects that will bring these airports up to current design standards and add capacity to congested airports. The FAA is required to provide Congress with a 5-year estimate of AIP eligible development every 2 years

National Spatial Reference System (NSRS). See **National Geodetic Survey.**

NBAA IFR Range. A distance metric that measures the maximum range of an aircraft with all passenger seats occupied and allowance for landing at a 200-mile alternate location; applicable to turboprop and jet aircraft. Also see **VFR Range.**

NEPA. See National Environmental Policy Act.

NextGen. See **Next Generation Air Transportation System.**

Next Generation Air Transportation System (NextGen or NGATS). The transformation of the ground-based air traffic control system of today to a satellite-based system of the future.

NGATS. See **Next Generation Air Transportation System.**

Noise Contours. Lines drawn on a map surrounding a noise source indicating constant energy levels of noise exposure. Day-Night Average Sound Level (DNL) is usually the metric used by the FAA to describe community exposure to noise.

O

Object Free Area (OFA). A two-dimensional ground area centered on a runway, taxiway, or taxilane centerline which is clear of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground-maneuvering purposes.

Object Free Zone (OFZ). A three-dimensional volume of airspace which protects for the transition of aircraft to and from the runway. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible navigation aid (NAVAID) locations fixed by function. Additionally, vehicles, equipment, and personnel may be authorized by air traffic control to enter the area using the provisions of Order 7110.65, Air Traffic Control, paragraph 3–5. The runway OFZ and when applicable, the inner-approach OFZ, and the inner-transitional OFZ, comprise the OFZ.

OFA. See **Object Free Area.**

OFZ. See **Object Free Zone.** Also referred to as Obstacle Free Zone.

On-Demand Services. Non-scheduled air services, generally referring to commercial entities that provide air travel via charter or air taxi. Traditional air charter usually involves exclusive rental of an entire aircraft for a fixed hourly rate plus charges for repositioning (if an aircraft must be flown from a remote location to the preferred pick-up spot) and overnight/waiting times. "Air taxi" is a generic term that can include charter or other forms of on-demand services; recently it has been used to describe aircraft rentals where all costs are built into the hourly rate and no separate fees are charged for repositioning or overnight/waiting times. "Per-seat on-demand" goes even further by charging not for the entire aircraft, but on a per-seat basis—similar to purchasing a ticket from a commercial airline, but there is no fixed flight schedule. The operation of on-demand services is generally governed by FAR Part 135 regulations. Also see **Fractional Ownership.**

Operation. A departure or arrival at an airport. There are two types of operations—local and itinerant. Local operations include arrivals and departures of aircraft which operate in the local traffic pattern or within sight of the tower and are known to be departing for or arriving from flights in local practice areas within a 20-mile radius of the airport and/or control tower; plus simulated instrument approaches or low passes at the airport executed by any aircraft. Itinerant operations include all aircraft arrivals and departures other than the local operations described above.

P

PAPIs. See **Precision Approach Path Indicators.**

Per-Seat On-Demand Operations. See **On-Demand Services.**

Precision Approach Path Indicator (PAPI)/Visual Approach Slope Indicator (VASI). A navigational aid which visually identifies the glide path to the runway. PAPI/VASI lights project red and white beams from the approach end of the runway.

Precision Approach Path Indicators (PAPIs).

R

Regional Jet (RJ). Generally describes short-haul commercial jet aircraft with approximately 35–90 seats.

REIL. See **Runway End Identifier Lights**

Reliever Airports. Airports designated by the FAA to relieve congestion at Commercial Service Airports and to provide improved general aviation access; may be publicly or privately owned.

Required Navigation Performance (RNP). A method of navigation involving a performance specification that an aircraft must meet before the intended flight path can be flown; also includes a monitoring and alerting function in case the performance specification is not met.

Research and Innovative Technology Administration (RITA). The Research and Innovative Technology Administration (RITA) coordinates the U.S. Department of Transportation's (DOT) research programs and is charged with advancing the deployment of cross-cutting technologies to improve the U.S. transportation system. As directed by Congress in its founding legislation, RITA leads DOT in:

- Coordinating, facilitating and reviewing the Department's research and development programs and activities;
- Advancing innovative technologies, including intelligent transportation systems;
- Performing comprehensive transportation statistics research, analysis and reporting; and
- Providing education and training in transportation and transportation-related fields.

RITA. See **Research and Innovative Technology Administration.**

RJ. See **Regional Jet.**

RNAV. See **Area Navigation.**

RNP. See **Required Navigation Performance.**

RPZ. See **Runway Protection Zone.**

RSA. See **Runway Safety Area.**

Runway End Identifier Lights (REIL). Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

Runway Protection Zone (RPZ). An area off the runway end (formerly the clear zone) used to enhance the protection of people and property on the ground.

Runway Safety Area (RSA). The RSA is an integral part of the runway environment. RSA dimensions are established in AC 150/5300-13, Airport Design and are based on the Airport Reference Code (ARC). The RSA is intended to provide a measure of safety in the event of an aircraft's excursion from the runway by significantly reducing the extent of personal injury and aircraft damage during overruns, undershoots and veer-offs.

Runway. A defined area on an airport prepared for the landing and takeoff of aircraft. Runways are normally numbered in relation to magnetic direction.

S

single wheel (SW)

SW. See **single wheel.**

SWIM. See **System Wide Information Management.**

System Wide Information Management (SWIM). A National Airspace System (NAS)-wide information system that supports Next Generation Air Transportation System (NextGen) goals.

T

Taxilane. The movement area within an aircraft parking area or hangar area used for access between taxiways and aircraft parking positions.

Taxiway. A defined path established for the taxiing of aircraft from one part of an airport to another. Taxiways are planned and constructed primarily to allow aircraft movement to and

from the runway system and to provide a connection between the runways and apron areas on an airport.

TERPS. See **Terminal Instrument Procedures.**

Terminal Instrument Procedures (TERPS).

Threshold. The beginning of that portion of a runway useable for landing.

Transportation Security Administration (TSA).

TSA. See **Transportation Security Administration.**

U

Ultra High Frequency (UHF).

USDA. See **U.S. Department of Agriculture.**

U.S. Department of Agriculture (USDA)

UHF. See **Ultra High Frequency.**

V

VASIs. See **Visual Approach Slope Indicators.**

Very High Frequency (VHF).

Very Light Jet (VLJ). Small single- or twin-engine jet airplane weighing less than 10,000 pounds, generally capable of seating three to six passengers.

VFR Range. A distance metric that measures the maximum range of an aircraft with all passenger seats occupied; applicable to piston aircraft. Also see **NBAA IFR Range.**

VFR. See **Visual Flight Rules.**

VHF. See **Very High Frequency.**

Visual Approach Slope Indicators (VASIs).

Visual Flight Rules (VFR). Regulations and procedures for flying an aircraft using visual cues under certain meteorological conditions. Also see **Instrument Flight Rules.**

VLJ. See **Very Light Jet.**

W

WAAS. See **Wide Area Augmentation System.**

Wide Area Augmentation System (WAAS). System of satellites and ground-based stations that provide GPS signal corrections that increase position accuracy.

APPENDIX A

Projected Air Taxi Operations

APPENDIX A: PROJECTED AIR TAXI OPERATIONS

Projections from Final Report - VLJ Forecast prepared for ACRP 10-04
Airports and the Newest Generation of General Aviation Aircraft

Notes: Projected incremental operations represent net additions by VLJ aircraft from air taxi activity and do not include GA operations by VLJs that are projected to replace other GA activity.

The results for certain airports should be viewed with a high degree of caution due to the current observed high levels of long-distance automobile traffic. For example, two airports in particular - North Las Vegas Airport (VGT) and Addison Airport (ADS) near Dallas - have very high levels of auto traffic: Southern California to Las Vegas in the case of VGT, and the Dallas-Austin/San Antonio and Dallas-Houston corridors in the case of ADS. The statistical model used in the forecast projects that significant shares of this traffic could be attracted to low-cost on-demand air taxi service if it were to be offered in these markets.

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
						2012	2017
ACE	1MO	Mountain Grove Memorial	Mountain Grove	MO	4,350	151	158
ACE	2K3	Stanton County Muni	Johnson	KS	10,300	18	18
ACE	3AU	Augusta Muni	Augusta	KS	36,000	42	52
ACE	3JC	Freeman Field	Junction City	KS	5,402	448	403
ACE	8WC	Washington County	Potosi	MO	0	343	570
ACE	AAO	Colonel James Jabara	Wichita	KS	38,300	674	889
ACE	AFK	Nebraska City Muni	Nebraska City	NE	5,300	13	20
ACE	AIA	Alliance Muni	Alliance	NE	10,057	6	7
ACE	AIZ	Lee C Fine Memorial	Kaiser Lake Ozark	MO	10,320	123	141
ACE	ALO	Waterloo Rgnl	Waterloo	IA	29,206	88	178
ACE	AMW	Ames Muni	Ames	IA	23,290	261	412
ACE	ANW	Ainsworth Muni	Ainsworth	NE	1,960	17	19
ACE	AWG	Washington Muni	Washington	IA	3,185	66	102
ACE	AXA	Algona Muni	Algona	IA	4,410	32	36
ACE	BBW	Broken Bow Muni	Broken Bow	NE	2,700	34	37
ACE	BFF	Western Neb. Rgnl/William B. Heilig Field	Scottsbluff	NE	26,160	42	80
ACE	BNW	Boone Muni	Boone	IA	9,800	77	95
ACE	BRL	Southeast Iowa Rgnl	Burlington	IA	18,300	164	248
ACE	CBF	Council Bluffs Muni	Council Bluffs	IA	38,690	244	327
ACE	CBK	Shalz Field	Colby	KS	3,440	47	53
ACE	CCY	Northeast Iowa Rgnl	Charles City	IA	5,640	150	178
ACE	CDR	Chadron Muni	Chadron	NE	2,947	8	9
ACE	CEK	Crete Muni	Crete	NE	12,010	30	33
ACE	CFV	Coffeyville Muni	Coffeyville	KS	5,550	38	69
ACE	CGI	Cape Girardeau Rgnl	Cape Girardeau	MO	24,427	490	614
ACE	CID	The Eastern Iowa	Cedar Rapids	IA	63,804	502	1,097
ACE	CIN	Arthur N Neu	Carroll	IA	5,885	62	85
ACE	CKP	Cherokee County Rgnl	Cherokee	IA	11,530	79	110
ACE	CNC	Chariton Muni	Chariton	IA	5,390	63	103
ACE	CNU	Chanute Martin Johnson	Chanute	KS	4,660	48	68
ACE	COU	Columbia Rgnl	Columbia	MO	29,755	112	182
ACE	CSQ	Creston Muni	Creston	IA	2,210	76	96
ACE	CWI	Clinton Muni	Clinton	IA	6,870	229	338
ACE	DBQ	Dubuque Rgnl	Dubuque	IA	52,269	172	310
ACE	DDC	Dodge City Rgnl	Dodge City	KS	23,501	525	658
ACE	DEH	Decorah Muni	Decorah	IA	6,901	705	699
ACE	DMO	Sedalia Memorial	Sedalia	MO	3,930	63	69
ACE	DNS	Denison Muni	Denison	IA	4,170	78	111
ACE	DSM	Des Moines Intl	Des Moines	IA	106,211	5,314	6,695
ACE	DVN	Davenport Muni	Davenport	IA	28,251	60	101
ACE	EAR	Kearney Rgnl	Kearney	NE	33,672	131	179
ACE	EBS	Webster City Muni	Webster City	IA	4,170	154	235
ACE	EGT	Wellington Muni	Wellington	KS	7,840	23	38
ACE	EMP	Emporia Muni	Emporia	KS	10,800	258	193
ACE	EOK	Keokuk Muni	Keokuk	IA	6,370	170	187
ACE	EOS	Neosho Hugh Robinson	Neosho	MO	9,065	11	16
ACE	EQA	Captain Jack Thomas	El Dorado	KS	5,880	50	66
ACE	EWK	Newton City County	Newton	KS	65,044	87	99
ACE	FAM	Farmington Rgnl	Farmington	MO	7,595	276	293
ACE	FET	Fremont Muni	Fremont	NE	7,600	64	84
ACE	FFL	Fairfield Muni	Fairfield	IA	8,825	127	180
ACE	FOD	Fort Dodge Rgnl	Fort Dodge	IA	22,200	133	167
ACE	FOE	Forbes Field	Topeka	KS	39,989	92	146
ACE	FSK	Fort Scott Muni	Fort Scott	KS	4,415	60	74
ACE	FSW	Fort Madison Muni	Fort Madison	IA	5,060	142	158
ACE	GBD	Great Bend Muni	Great Bend	KS	9,570	269	270
ACE	GCK	Garden City Rgnl	Garden City	KS	21,456	701	821
ACE	GGI	Grinnell Rgnl	Grinnell	IA	2,205	52	90
ACE	GLD	Renner Fld /Goodland Muni/	Goodland	KS	5,650	44	55
ACE	GLY	Clinton Memorial	Clinton	MO	7,554	175	184
ACE	GPH	Midwest National Air Center	Mosby	MO	11,970	410	675

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
						2012	2017
ACE	GRI	Central Nebraska Rgnl	Grand Island	NE	22,727	129	157
ACE	H21	Camdenton Memorial	Camdenton	MO	6,376	47	61
ACE	H88	Fredericktown Rgnl	Fredericktown	MO	5,104	101	110
ACE	HNR	Harlan Muni	Harlan	IA	6,375	84	118
ACE	HPT	Hampton Muni	Hampton	IA	3,920	42	49
ACE	HQG	Hugoton Muni	Hugoton	KS	5,635	80	93
ACE	HSI	Hastings Muni	Hastings	NE	9,070	75	84
ACE	HUT	Hutchinson Muni	Hutchinson	KS	50,363	379	386
ACE	HYS	Hays Rgnl	Hays	KS	32,200	443	471
ACE	I75	Osceola Muni	Osceola	IA	3,928	57	84
ACE	IBM	Kimball Muni/Robert E Arraj	Kimball	NE	4,165	1	1
ACE	ICL	Schenck Field	Clarinda	IA	5,622	93	144
ACE	ICT	Wichita Mid-Continent	Wichita	KS	166,637	1,374	1,666
ACE	IDP	Independence Muni	Independence	KS	6,130	97	137
ACE	IFA	Iowa Falls Muni	Iowa Falls	IA	6,679	41	66
ACE	IIB	Independence Muni	Independence	IA	5,635	101	118
ACE	IKV	Ankeny Rgnl	Ankeny	IA	44,000	862	1,335
ACE	IOW	Iowa City Muni	Iowa City	IA	13,990	57	259
ACE	IRK	Kirksville Rgnl	Kirksville	MO	7,380	103	113
ACE	ISB	Sibley Muni	Sibley	IA	0	131	143
ACE	IXD	New Century Aircenter	Olathe	KS	57,563	552	883
ACE	JEF	Jefferson City Memorial	Jefferson City	MO	25,990	293	426
ACE	JLN	Joplin Rgnl	Joplin	MO	29,399	76	152
ACE	JYR	York Muni	York	NE	6,370	15	18
ACE	K02	Perryville Muni	Perryville	MO	6,130	137	154
ACE	K46	Blair Muni	Blair	NE	15,500	133	238
ACE	K57	Gould Peterson Muni	Tarkio	MO	2,205	44	72
ACE	K78	Abilene Muni	Abilene	KS	35,800	208	209
ACE	K88	Allen County	Iola	KS	3,922	53	58
ACE	LBF	North Platte Rgnl Airport Lee Bird Field	North Platte	NE	37,814	85	108
ACE	LBL	Liberal Mid-America Rgnl	Liberal	KS	43,550	517	710
ACE	LBO	Floyd W. Jones Lebanon	Lebanon	MO	7,105	78	108
ACE	LNK	Lincoln	Lincoln	NE	79,879	336	499
ACE	LQR	Larned-Pawnee County	Larned	KS	6,125	129	127
ACE	LRJ	Le Mars Muni	Le Mars	IA	4,900	126	154
ACE	LWC	Lawrence Muni	Lawrence	KS	12,260	55	77
ACE	LXN	Jim Kelly Field	Lexington	NE	6,370	40	43
ACE	LXT	Lee's Summit Muni	Lee's Summit	MO	92,040	1,200	1,882
ACE	M05	Caruthersville Memorial	Caruthersville	MO	1,960	93	79
ACE	M17	Bolivar Muni	Bolivar	MO	18,701	85	92
ACE	M58	Monett Muni	Monett	MO	4,655	202	218
ACE	MBY	Omar N Bradley	Moberly	MO	3,680	74	82
ACE	MCK	Mc Cook Rgnl	Mc Cook	NE	6,942	44	61
ACE	MCW	Mason City Muni	Mason City	IA	30,992	109	158
ACE	MHK	Manhattan Rgnl	Manhattan	KS	28,016	1,216	1,172
ACE	MIW	Marshalltown Muni	Marshalltown	IA	6,872	193	305
ACE	MKC	Charles B. Wheeler Downtown	Kansas City	MO	95,438	6,205	8,283
ACE	MLE	Millard	Omaha	NE	72,300	852	1,517
ACE	MNF	Mountain View	Mountain View	MO	3,190	275	270
ACE	MO8	North Central Missouri Rgnl	Brookfield	MO	1,020	45	48
ACE	MPR	Mc Pherson	Mc Pherson	KS	8,580	85	88
ACE	MPZ	Mount Pleasant Muni	Mount Pleasant	IA	3,675	88	132
ACE	MUT	Muscatine Muni	Muscatine	IA	8,090	299	543
ACE	MXO	Monticello Rgnl	Monticello	IA	4,410	198	241
ACE	MYJ	Mexico Memorial	Mexico	MO	12,100	81	99
ACE	NVD	Nevada Muni	Nevada	MO	5,145	63	70
ACE	OFK	Karl Stefan Memorial	Norfolk	NE	26,934	74	91
ACE	OGA	Searle Field	Ogallala	NE	1,960	10	11
ACE	OJC	Johnson County Executive	Olathe	KS	70,438	1,896	3,058
ACE	OLU	Columbus Muni	Columbus	NE	12,260	77	93
ACE	OLZ	Oelwein Muni	Oelwein	IA	3,920	80	91

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
						2012	2017
ACE	ONL	The O'Neill Muni-John L Baker	O'Neill	NE	8,820	30	33
ACE	OOA	Oskaloosa Muni	Oskaloosa	IA	6,620	111	171
ACE	ORC	Orange City Muni	Orange City	IA	2,060	130	159
ACE	OTM	Ottumwa Industrial	Ottumwa	IA	6,630	270	292
ACE	OXV	Knoxville Muni	Knoxville	IA	6,370	110	164
ACE	PEA	Pella Muni	Pella	IA	6,130	67	105
ACE	PHG	Phillipsburg Muni	Phillipsburg	KS	1,472	146	165
ACE	PLK	M. Graham Clark - Taney	Point Lookout	MO	0	279	308
ACE	PMV	Plattsmouth Muni	Plattsmouth	NE	20,500	76	100
ACE	POF	Poplar Bluff Muni	Poplar Bluff	MO	8,830	699	702
ACE	PPF	Tri-City	Parsons	KS	6,000	46	63
ACE	PRO	Perry Muni	Perry	IA	4,410	154	164
ACE	PTS	Atkinson Muni	Pittsburg	KS	8,340	170	197
ACE	PTT	Pratt Industrial	Pratt	KS	6,862	107	112
ACE	RCM	Skyhaven	Warrensburg	MO	0	170	394
ACE	RDK	Red Oak Muni	Red Oak	IA	3,920	61	84
ACE	SDA	Shenandoah Muni	Shenandoah	IA	4,866	43	67
ACE	SGF	Springfield-Branson National	Springfield	MO	74,504	1,407	2,198
ACE	SHL	Sheldon Muni	Sheldon	IA	4,905	147	186
ACE	SIK	Sikeston Memorial Muni	Sikeston	MO	6,380	293	349
ACE	SLB	Storm Lake Muni	Storm Lake	IA	6,370	60	69
ACE	SLN	Salina Muni	Salina	KS	80,109	427	434
ACE	SNY	Sidney Muni/Lloyd W. Carr	Sidney	NE	2,210	16	22
ACE	SPW	Spencer Muni	Spencer	IA	29,472	72	93
ACE	STJ	Rosecrans Memorial	St Joseph	MO	33,907	113	229
ACE	SUS	Spirit of St Louis	St Louis	MO	146,384	7,606	12,830
ACE	SUX	Sioux Gateway/Col. Bud Day	Sioux City	IA	24,134	176	280
ACE	SWT	Seward Muni	Seward	NE	3,922	15	19
ACE	TKX	Kennett Memorial	Kennett	MO	3,430	78	80
ACE	TNU	Newton Muni	Newton	IA	5,395	114	169
ACE	TOP	Philip Billard Muni	Topeka	KS	64,557	13	22
ACE	TQE	Tekamah Muni	Tekamah	NE	4,655	17	21
ACE	TQK	Scott City Muni	Scott City	KS	8,000	65	77
ACE	TRX	Trenton Muni	Trenton	MO	3,442	182	178
ACE	TVK	Centerville Muni	Centerville	IA	2,450	136	140
ACE	TZT	Belle Plaine Muni	Belle Plaine	IA	2,424	148	208
ACE	UKL	Coffey County	Burlington	KS	5,880	54	57
ACE	ULS	Ulysses	Ulysses	KS	10,050	221	255
ACE	UNO	West Plains Muni	West Plains	MO	6,615	263	268
ACE	UUV	Sullivan Rgnl	Sullivan	MO	14,180	263	485
ACE	VER	Jesse Viertel Memorial	Boonville	MO	9,815	47	50
ACE	VIH	Rolla National	Rolla/Vichy	MO	15,930	165	176
ACE	VTN	Miller Field	Valentine	NE	3,675	35	64
ACE	WLD	Strother Field	Winfield/Arkansas City	KS	5,150	98	148
AEA	0G7	Finger Lakes Rgnl	Seneca Falls	NY	8,465	805	1,499
AEA	1B1	Columbia County	Hudson	NY	19,200	55	156
AEA	1N9	Allentown Queen City Muni	Allentown	PA	55,973	926	1,071
AEA	22N	Jake Arner Memorial	Lehighton	PA	27,653	566	621
AEA	29D	Grove City	Grove City	PA	6,104	0	1
AEA	2G4	Garrett County	Oakland	MD	17,800	11	12
AEA	2G9	Somerset County	Somerset	PA	21,544	8	9
AEA	2W6	St. Mary's County Rgnl	Leonardtown	MD	52,618	428	565
AEA	48I	Braxton County	Sutton	WV	6,100	418	485
AEA	4G6	Hornell Muni	Hornell	NY	19,902	342	409
AEA	5B2	Saratoga County	Saratoga Springs	NY	38,550	193	208
AEA	6G1	Titusville	Titusville	PA	11,063	108	158
AEA	6L4	Logan County	Logan	WV	2,425	1,177	1,351
AEA	6V3	Tazewell County	Richlands	VA	5,880	755	971
AEA	8G2	Corry-Lawrence	Corry	PA	3,838	80	122
AEA	ABE	Lehigh Valley Intl	Allentown	PA	122,097	4,685	5,858
AEA	ACY	Atlantic City Intl	Atlantic City	NJ	116,798	415	474
AEA	AFJ	Washington County	Washington	PA	40,204	585	992

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
						2012	2017
AEA	AGC	Allegheny County	Pittsburgh	PA	82,185	8,848	13,858
AEA	ALB	Albany Intl	Albany	NY	104,432	2,506	3,260
AEA	AOO	Altoona-Blair County	Altoona	PA	26,734	48	51
AEA	ART	Watertown Intl	Watertown	NY	51,000	872	1,040
AEA	AVC	Mecklenburg-Brunswick Rgnl	South Hill	VA	1,000	129	324
AEA	AVP	Wilkes-Barre/Scranton Intl	Wilkes-Barre/Scranton	PA	79,304	93	110
AEA	AXQ	Clarion County	Clarion	PA	5,288	109	132
AEA	BCB	Virginia Tech Montgomery Executive	Blacksburg	VA	14,550	557	796
AEA	BFD	Bradford Rgnl	Bradford	PA	19,936	291	362
AEA	BGM	Greater Binghamton/Edwin A Link Field	Binghamton	NY	25,090	250	314
AEA	BKT	Allen C Perkinson/Baaf	Blackstone	VA	0	109	186
AEA	BKW	Raleigh County Memorial	Beckley	WV	6,330	1,562	1,680
AEA	BLF	Mercer County	Bluefield	WV	16,680	1,440	1,549
AEA	BTP	Butler County/K W Scholter Field	Butler	PA	63,100	1,249	1,835
AEA	BVI	Beaver County	Beaver Falls	PA	83,744	1,189	1,750
AEA	CBE	Greater Cumberland Rgnl	Cumberland	MD	14,300	17	18
AEA	CDW	Essex County	Caldwell	NJ	100,301	219	590
AEA	CGE	Cambridge-Dorchester	Cambridge	MD	25,698	31	32
AEA	CHO	Charlottesville-Albemarle	Charlottesville	VA	74,824	363	440
AEA	CJR	Culpeper Rgnl	Culpeper	VA	47,000	142	197
AEA	CKB	Harrison/Marion Rgnl	Clarksburg	WV	60,157	2,533	2,722
AEA	CPK	Chesapeake Rgnl	Norfolk	VA	47,000	3,492	4,494
AEA	CRW	Yeager	Charleston	WV	76,333	1,111	1,416
AEA	CXY	Capital City	Harrisburg	PA	41,597	198	270
AEA	CZG	Tri-Cities	Endicott	NY	18,200	185	261
AEA	DAN	Danville Rgnl	Danville	VA	30,092	215	337
AEA	DKK	Chautauqua County/Dunkirk	Dunkirk	NY	37,548	11	12
AEA	DMW	Carroll County Rgnl/Jack B Poage Field	Westminster	MD	153,690	711	1,481
AEA	DUJ	Du Bois-Jefferson County	Du Bois	PA	15,423	172	202
AEA	DYL	Doylestown	Doylestown	PA	45,521	143	168
AEA	EKN	Elkins-Randolph Co-Jennings Randolph Fld	Elkins	WV	10,500	688	734
AEA	ELM	Elmira/Corning Rgnl	Elmira/Corning	NY	42,961	85	100
AEA	ELZ	Wellsville Muni Arpt,Tarantine Fld	Wellsville	NY	19,100	347	386
AEA	EMV	Emporia-Greensville Rgnl	Emporia	VA	7,455	34	77
AEA	ERI	Erie Intl/Tom Ridge Field	Erie	PA	35,829	277	392
AEA	ESN	Easton/Newnam Field	Easton	MD	160,000	377	498
AEA	FCI	Chesterfield County	Richmond	VA	82,500	1,127	1,539
AEA	FDK	Frederick Muni	Frederick	MD	162,643	1,139	1,901
AEA	FIG	Clearfield-Lawrence	Clearfield	PA	6,636	82	94
AEA	FKL	Venango Rgnl	Franklin	PA	24,305	136	213
AEA	FKN	Franklin Muni-John Beverly Rose	Franklin	VA	12,300	145	183
AEA	FME	Tipton	Fort Meade(Odenton)	MD	48,000	1,694	5,387
AEA	FOK	Francis S Gabreski	Westhampton Beach	NY	89,240	128	158
AEA	FRG	Republic	Farmingdale	NY	190,731	4,458	5,744
AEA	FVX	Farmville Rgnl	Farmville	VA	9,225	180	211
AEA	FWQ	Rostraver	Monongahela	PA	44,176	442	546
AEA	FYJ	Middle Peninsula Rgnl	West Point	VA	41,840	224	382
AEA	FZY	Oswego County	Fulton	NY	20,550	2,197	3,710
AEA	GAI	Montgomery County Airpark	Gaithersburg	MD	104,813	3,528	7,058
AEA	GED	Sussex County	Georgetown	DE	50,821	838	877
AEA	GFL	Floyd Bennett Memorial	Glens Falls	NY	37,325	24	35
AEA	GKJ	Port Meadville	Meadville	PA	13,363	235	334
AEA	GVQ	Genesee County	Batavia	NY	90,760	115	153
AEA	H30	Hamilton Muni	Hamilton	NY	17,310	993	1,254
AEA	HEF	Manassas Rgnl/Harry P. Davis Field	Manassas	VA	110,132	8,106	12,886
AEA	HGR	Hagerstown Rgnl-Richard A Henson Fld	Hagerstown	MD	45,380	69	76

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AEA	HLG	Wheeling Ohio Co	Wheeling	WV	38,312	280	417
AEA	HLX	Twin County	Galax Hillsville	VA	7,500	431	493
AEA	HMZ	Bedford County	Bedford	PA	17,841	120	143
AEA	HPN	Westchester County	White Plains	NY	202,572	15,923	25,259
AEA	HSP	Ingalls Field	Hot Springs	VA	5,000	219	244
AEA	HTO	East Hampton	East Hampton	NY	54,250	130	159
AEA	HTS	Tri-State/Milton J. Ferguson Field	Huntington	WV	31,845	90	101
AEA	HZL	Hazleton Muni	Hazleton	PA	25,072	58	63
AEA	IAG	Niagara Falls Intl	Niagara Falls	NY	39,413	8,299	15,134
AEA	IDI	Indiana County/Jimmy Stewart Fld/	Indiana	PA	26,771	321	393
AEA	ILG	New Castle	Wilmington	DE	127,902	2,322	2,533
AEA	IPT	Williamsport Rgnl	Williamsport	PA	26,281	34	39
AEA	ISP	Long Island Mac Arthur	Islip	NY	185,468	1,494	1,964
AEA	ITH	Ithaca Tompkins Rgnl	Ithaca	NY	48,776	751	1,088
AEA	JHW	Chautauqua County/Jamestown	Jamestown	NY	33,574	40	44
AEA	JST	John Murtha Johnstown-Cambria Co	Johnstown	PA	53,627	21	23
AEA	JYO	Leesburg Executive	Leesburg	VA	119,328	1,500	4,245
AEA	LBE	Arnold Palmer Rgnl	Latrobe	PA	44,238	1,188	1,437
AEA	LDJ	Linden	Linden	NJ	42,925	918	3,042
AEA	LHV	William T. Piper Memorial	Lock Haven	PA	41,382	65	72
AEA	LKU	Louisa County/Freeman Field	Louisa	VA	6,250	115	193
AEA	LNP	Lonesome Pine	Wise	VA	6,115	747	1,400
AEA	LNS	Lancaster	Lancaster	PA	103,830	694	824
AEA	LWB	Greenbrier Valley	Lewisburg	WV	21,207	712	776
AEA	LYH	Lynchburg Rgnl/Preston Glenn Fld	Lynchburg	VA	62,686	295	316
AEA	MDT	Harrisburg Intl	Harrisburg	PA	71,919	671	763
AEA	MGJ	Orange County	Montgomery	NY	136,393	899	1,464
AEA	MGW	Morgantown Muni-Walter L. Bill Hart Fld	Morgantown	WV	52,408	1,144	1,279
AEA	MIV	Millville Muni	Millville	NJ	42,610	28	35
AEA	MJX	Robert J. Miller Air Park	Toms River	NJ	37,267	2,566	2,999
AEA	MKJ	Mountain Empire	Marion/Wytheville	VA	5,300	342	396
AEA	MMU	Morristown Muni	Morristown	NJ	175,971	1,182	2,582
AEA	MPO	Pocono Mountains Muni	Mount Pocono	PA	17,242	132	154
AEA	MQS	Chester County G O Carlson	Coatesville	PA	0	970	1,099
AEA	MRB	Eastern WV Rgnl/Shepherd Fld	Martinsburg	WV	84,786	632	803
AEA	MSS	Massena Intl-Richards Field	Massena	NY	9,335	483	533
AEA	MSV	Sullivan County Intl	Monticello	NY	31,613	195	291
AEA	MTN	Martin State	Baltimore	MD	86,187	4,151	6,874
AEA	MTV	Blue Ridge	Martinsville	VA	22,750	624	933
AEA	N23	Sidney Muni	Sidney	NY	7,800	122	142
AEA	N27	Bradford County	Towanda	PA	23,529	34	36
AEA	N66	Oneonta Muni	Oneonta	NY	21,600	215	246
AEA	N79	Northumberland County	Shamokin	PA	22,104	35	37
AEA	N81	Hammonton Muni	Hammonton	NJ	14,198	100	130
AEA	NY0	Fulton County	Johnstown	NY	9,700	106	130
AEA	OFP	Hanover County Muni	Richmond/Ashland	VA	59,650	526	782
AEA	OGS	Ogdensburg Intl	Ogdensburg	NY	2,750	426	496
AEA	OIC	Lt Warren Eaton	Norwich	NY	17,300	161	177
AEA	OKV	Winchester Rgnl	Winchester	VA	34,500	618	1,279
AEA	OLE	Cattaraugus County-Olean	Olean	NY	25,550	636	731
AEA	OMH	Orange County	Orange	VA	22,020	190	380
AEA	OXB	Ocean City Muni	Ocean City	MD	37,000	56	61
AEA	OYM	St Marys Muni	St Marys	PA	6,856	160	182
AEA	PEO	Penn Yan	Penn Yan	NY	21,200	519	922
AEA	PHF	Newport News/Williamsburg Intl	Newport News	VA	214,986	2,990	3,708
AEA	PJC	Zelienople Muni	Zelienople	PA	30,807	502	839

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AEA	PKB	Mid-Ohio Valley Rgnl	Parkersburg	WV	39,899	35	37
AEA	PLB	Clinton Co	Plattsburgh	NY	14,150	348	407
AEA	PNE	Northeast Philadelphia	Philadelphia	PA	101,787	2,806	4,596
AEA	POU	Dutchess County	Poughkeepsie	NY	99,914	161	164
AEA	PSB	Mid-State	Philipsburg	PA	3,764	0	0
AEA	PSK	New River Valley	Dublin	VA	3,930	439	501
AEA	PTB	Dinwiddie County	Petersburg	VA	39,359	191	296
AEA	RDG	Reading Rgnl/Carl A Spaatz Field	Reading	PA	104,921	1,933	2,042
AEA	RIC	Richmond Intl	Richmond	VA	121,164	2,007	2,488
AEA	RME	Griffiss Airfield	Rome	NY	0	2,180	2,613
AEA	RMN	Stafford Rgnl	Stafford	VA	7,667	1,038	1,954
AEA	ROA	Roanoke Rgnl/Woodrum Field	Roanoke	VA	80,606	243	254
AEA	ROC	Greater Rochester Intl	Rochester	NY	119,526	839	974
AEA	RVL	Mifflin County	Reedsville	PA	19,761	138	161
AEA	SBY	Salisbury-Ocean City Wicomico Rgnl	Salisbury	MD	48,217	194	208
AEA	SCH	Schenectady County	Schenectady	NY	70,000	393	430
AEA	SEG	Penn Valley	Selinsgrove	PA	28,423	145	158
AEA	SFQ	Suffolk Executive	Suffolk	VA	43,607	730	1,318
AEA	SHD	Shenandoah Valley Rgnl	Staunton/Waynesboro/Harrisonburg	VA	23,944	382	420
AEA	SLK	Adirondack Rgnl	Saranac Lake	NY	14,071	230	245
AEA	SWF	Stewart Int'L	Newburgh	NY	84,031	4,770	10,540
AEA	SXL	Summersville	Summersville	WV	14,020	747	912
AEA	SYR	Syracuse Hancock Intl	Syracuse	NY	107,749	10,272	16,506
AEA	TEB	Teterboro	Teterboro	NJ	202,193	13,620	23,672
AEA	TTN	Trenton Mercer	Trenton	NJ	91,606	2,875	3,250
AEA	UCP	New Castle Muni	New Castle	PA	48,728	548	622
AEA	UKT	Quakertown	Quakertown	PA	29,918	74	86
AEA	UNV	University Park	State College	PA	69,377	50	58
AEA	VAY	South Jersey Rgnl	Mount Holly	NJ	53,351	226	319
AEA	VJI	Virginia Highlands	Abingdon	VA	24,485	278	341
AEA	VVS	Joseph A. Hardy Connellsville	Connellsville	PA	18,579	308	361
AEA	W22	Upshur County Rgnl	Buckhannon	WV	2,200	688	737
AEA	W66	Warrenton-Fauquier	Warrenton	VA	40,800	150	287
AEA	W99	Grant County	Petersburg	WV	10,820	168	189
AEA	WBW	Wilkes-Barre Wyoming Valley	Wilkes-Barre	PA	32,766	30	35
AEA	WWD	Cape May County	Wildwood	NJ	20,192	74	80
AEA	ZER	Schuylkill County /Joe Zerbey/	Pottsville	PA	27,901	129	129
AGL	06C	Schaumburg Rgnl	Chicago/Schaumburg	IL	84,360	866	4,801
AGL	08D	Stanley Muni	Stanley	ND	1,540	2	2
AGL	0D8	Gettysburg Muni	Gettysburg	SD	8,500	17	25
AGL	0G6	Williams County	Bryan	OH	10,010	34	80
AGL	10G	Holmes County	Millersburg	OH	22,158	74	123
AGL	16G	Seneca County	Tiffin	OH	60,165	149	187
AGL	1C5	Bolingbrook's Clow Intl	Bolingbrook	IL	50,000	596	3,431
AGL	1G0	Wood County	Bowling Green	OH	27,405	20	103
AGL	1G3	Kent State Univ	Kent	OH	72,500	114	232
AGL	1H2	Effingham County Memorial	Effingham	IL	25,000	133	520
AGL	29G	Portage County	Ravenna	OH	9,621	84	176
AGL	3BS	Jack Barstow	Midland	MI	26,391	109	222
AGL	3CK	Lake in the Hills	Chicago/Lake in the Hills	IL	34,000	1,081	5,605
AGL	3FM	Fremont Muni	Fremont	MI	17,227	205	630
AGL	3G3	Wadsworth Muni	Wadsworth	OH	42,359	308	1,525
AGL	3G4	Ashland County	Ashland	OH	49,240	29	175
AGL	3GM	Grand Haven Memorial Airpark	Grand Haven	MI	17,406	93	258
AGL	3LF	Litchfield Muni	Litchfield	IL	14,800	339	982
AGL	3MY	Mount Hawley Auxiliary	Peoria	IL	21,300	492	1,307
AGL	3TR	Jerry Tyler Memorial	Niles	MI	3,188	31	36

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AGL	49B	Sturgis Muni	Sturgis	SD	23,700	27	30
AGL	4I3	Knox County	Mount Vernon	OH	20,150	73	230
AGL	4I7	Putnam County	Greencastle	IN	26,068	263	657
AGL	50I	Kentland Muni	Kentland	IN	5,130	37	74
AGL	57C	East Troy Muni	East Troy	WI	51,250	197	1,173
AGL	5A1	Norwalk-Huron County	Norwalk	OH	7,232	49	222
AGL	5G7	Bluffton	Bluffton	OH	10,080	27	40
AGL	6D8	Barnes County Muni	Valley City	ND	7,850	21	24
AGL	6G5	Barnesville-Bradfield	Barnesville	OH	10,150	0	0
AGL	7W5	Henry County	Napoleon	OH	15,637	15	35
AGL	82C	Mauston-New Lisbon Union	New Lisbon	WI	6,600	107	231
AGL	98D	Onida Muni	Onida	SD	3,950	6	7
AGL	9D1	Gregory Muni, Flynn Field	Gregory	SD	4,500	114	126
AGL	9V9	Chamberlain Muni	Chamberlain	SD	16,700	24	32
AGL	ABR	Aberdeen Rgnl	Aberdeen	SD	44,798	268	385
AGL	ACB	Antrim County	Bellaire	MI	11,516	307	786
AGL	ADG	Lenawee County	Adrian	MI	41,996	246	493
AGL	AEL	Albert Lea Muni	Albert Lea	MN	26,175	13	54
AGL	AHH	Amery Muni	Amery	WI	13,900	144	678
AGL	AID	Anderson Muni-Darlington Field	Anderson	IN	30,576	319	1,080
AGL	AIG	Langlade County	Antigo	WI	8,250	161	469
AGL	AIT	Aitkin Muni-Steve Kurtz Field	Aitkin	MN	18,913	9	19
AGL	AKR	Akron Fulton Intl	Akron	OH	25,488	176	345
AGL	ALN	St Louis Rgnl	Alton/St Louis	IL	78,569	432	1,521
AGL	AMN	Gratiot Community	Alma	MI	8,924	289	695
AGL	ANE	Anoka County-Blaine Arpt(Janes Field)	Minneapolis	MN	86,656	1,475	5,017
AGL	ANJ	Sault Ste Marie Muni/Sanderson Field	Sault Ste Marie	MI	0	211	944
AGL	ANQ	Tri-State Steuben County	Angola	IN	18,066	48	122
AGL	AOH	Lima Allen County	Lima	OH	32,500	82	241
AGL	APN	Alpena County Rgnl	Alpena	MI	17,636	484	1,192
AGL	ARB	Ann Arbor Muni	Ann Arbor	MI	72,895	659	1,742
AGL	ARR	Aurora Muni	Chicago/Aurora	IL	68,210	1,300	4,817
AGL	ARV	Lakeland/Noble F. Lee Memorial Field	Minocqua-Woodruff	WI	27,190	212	550
AGL	ASW	Warsaw Muni	Warsaw	IN	24,583	292	686
AGL	ASX	John F Kennedy Memorial	Ashland	WI	13,025	200	997
AGL	ATW	Outagamie County Rgnl	Appleton	WI	46,440	1,976	11,897
AGL	ATY	Watertown Rgnl	Watertown	SD	16,900	1,081	1,406
AGL	AUM	Austin Muni	Austin	MN	25,420	35	129
AGL	AUW	Wausau Downtown	Wausau	WI	45,000	17	69
AGL	AXN	Chandler Field	Alexandria	MN	26,548	70	135
AGL	AXV	Neil Armstrong	Wapakoneta	OH	29,456	40	105
AGL	AZO	Kalamazoo/Battle Creek Intl	Kalamazoo	MI	63,476	125	389
AGL	BAK	Columbus Muni	Columbus	IN	39,411	472	1,577
AGL	BAX	Huron County Memorial	Bad Axe	MI	12,000	166	454
AGL	BCK	Black River Falls Area	Black River Falls	WI	12,320	96	247
AGL	BDE	Baudette Intl	Baudette	MN	12,881	29	165
AGL	BDH	Willmar Muni-John L Rice Field	Willmar	MN	17,850	12	237
AGL	BEH	Southwest Michigan Rgnl	Benton Harbor	MI	38,341	30	38
AGL	BFR	Virgil I Grissom Muni	Bedford	IN	19,096	235	802
AGL	BIS	Bismarck Muni	Bismarck	ND	49,053	191	336
AGL	BIV	Tulip City	Holland	MI	52,520	373	941
AGL	BJI	Bemidji Rgnl	Bemidji	MN	12,344	168	654
AGL	BJJ	Wayne County	Wooster	OH	39,801	135	201
AGL	BKL	Burke Lakefront	Cleveland	OH	72,727	2,350	10,281
AGL	BKX	Brookings Rgnl	Brookings	SD	36,622	438	506
AGL	BLV	Scott AFB/Midamerica	Belleville	IL	38,206	168	182
AGL	BMG	Monroe County	Bloomington	IN	33,230	196	868

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AGL	BMI	Central Il Regl Arpt at Bloomington-Normal	Bloomington/Normal	IL	39,108	54	177
AGL	BPP	Bowman Muni	Bowman	ND	2,910	2	2
AGL	BRD	Brainerd Lakes Rgnl	Brainerd	MN	39,439	63	103
AGL	BTL	W K Kellogg	Battle Creek	MI	106,134	104	262
AGL	BUU	Burlington Muni	Burlington	WI	55,300	59	275
AGL	BWP	Harry Stern	Wahpeton	ND	10,040	26	57
AGL	C09	Morris Muni - James R. Washburn Field	Morris	IL	41,999	116	634
AGL	C15	Pekin Muni	Pekin	IL	9,000	212	689
AGL	C29	Middleton Muni - Morey Field	Middleton	WI	46,318	478	1,869
AGL	C35	Reedsburg Muni	Reedsburg	WI	14,300	40	121
AGL	C62	Kendallville Muni	Kendallville	IN	15,089	57	164
AGL	C65	Plymouth Muni	Plymouth	IN	10,579	103	252
AGL	C73	Dixon Muni-Charles R. Walgreen Field	Dixon	IL	39,999	59	139
AGL	C75	Marshall County	Lacon	IL	18,998	47	104
AGL	CAD	Wexford County	Cadillac	MI	17,059	383	1,013
AGL	CAK	Akron-Canton Rgnl	Akron	OH	103,977	696	1,120
AGL	CEV	Mettel Field	Connersville	IN	9,207	170	728
AGL	CFJ	Crawfordsville Muni	Crawfordsville	IN	14,559	257	589
AGL	CFS	Tuscola Area	Caro	MI	15,000	200	589
AGL	CGF	Cuyahoga County	Cleveland	OH	48,595	2,143	8,533
AGL	CIU	Chippewa County Intl	Sault Ste Marie	MI	2,416	138	583
AGL	CKC	Grand Marais/Cook County	Grand Marais	MN	3,626	20	97
AGL	CKN	Crookston Muni Kirkwood Fld	Crookston	MN	39,951	0	0
AGL	CMI	University of Illinois-Willard	Champaign/Urbana	IL	108,832	267	319
AGL	CMX	Houghton County Memorial	Hancock	MI	17,456	95	261
AGL	COQ	Cloquet Carlton County	Cloquet	MN	15,078	38	142
AGL	CPS	St Louis Downtown	Cahokia/St Louis	IL	114,342	4,281	11,506
AGL	CQA	Lakefield	Celina	OH	16,212	16	41
AGL	CQM	Cook Muni	Cook	MN	5,950	3	4
AGL	CUT	Custer County	Custer	SD	4,100	30	40
AGL	CVX	Charlevoix Muni	Charlevoix	MI	33,368	425	845
AGL	CWA	Central Wisconsin	Mosinee	WI	24,596	26	40
AGL	CYO	Pickaway County Memorial	Circleville	OH	35,450	50	205
AGL	D60	Tioga Muni	Tioga	ND	2,950	1	1
AGL	D98	Romeo State	Romeo	MI	25,444	731	2,539
AGL	DAY	James M Cox Dayton Intl	Dayton	OH	96,803	1,606	5,135
AGL	DCY	Daviess County	Washington	IN	16,174	331	855
AGL	DEC	Decatur	Decatur	IL	47,864	33	40
AGL	DET	Coleman A. Young Muni	Detroit	MI	77,571	3,551	12,033
AGL	DFI	Defiance Memorial	Defiance	OH	9,130	29	63
AGL	DIK	Dickinson - Theodore Roosevelt Rgnl	Dickinson	ND	11,362	22	35
AGL	DKB	De Kalb Taylor Muni	De Kalb	IL	36,998	103	423
AGL	DLH	Duluth Intl	Duluth	MN	69,384	77	106
AGL	DLL	Baraboo Wisconsin Dells	Baraboo	WI	33,470	104	339
AGL	DLZ	Delaware Muni	Delaware	OH	49,637	91	268
AGL	DNV	Vermilion County	Danville	IL	9,998	129	696
AGL	DPA	Dupage	Chicago/West Chicago	IL	104,354	2,735	7,536
AGL	DRM	Drummond Island	Drummond Island	MI	7,482	49	129
AGL	DTL	Detroit Lakes-Wething Field	Detroit Lakes	MN	14,405	120	469
AGL	DVL	Devils Lake Rgnl	Devils Lake	ND	23,342	19	23
AGL	EAU	Chippewa Valley Rgnl	Eau Claire	WI	34,810	106	127
AGL	EDJ	Bellefontaine Rgnl	Bellefontaine	OH	10,323	34	98
AGL	EFC	Belle Fourche Muni	Belle Fourche	SD	6,800	11	12
AGL	EFT	Monroe Muni	Monroe	WI	17,320	169	517
AGL	EGV	Eagle River Union	Eagle River	WI	21,076	165	485
AGL	EKM	Elkhart Muni	Elkhart	IN	33,211	72	93
AGL	ELO	Ely Muni	Ely	MN	17,810	14	22
AGL	ENL	Centralia Muni	Centralia	IL	28,000	179	852
AGL	ENW	Kenosha Rgnl	Kenosha	WI	61,865	289	1,248
AGL	EOP	Pike County	Waverly	OH	2,012	19	40

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
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AGL	ESC	Delta County	Escanaba	MI	48,816	1,096	1,733
AGL	ETB	West Bend Muni	West Bend	WI	50,263	546	1,535
AGL	EVM	Eveleth-Virginia Muni	Eveleth	MN	17,700	1	1
AGL	EVV	Evansville Rgnl	Evansville	IN	69,790	831	1,073
AGL	EYE	Eagle Creek Airpark	Indianapolis	IN	44,853	774	2,728
AGL	FAR	Hector Intl	Fargo	ND	72,996	312	614
AGL	FBL	Faribault Muni	Faribault	MN	18,595	65	308
AGL	FCM	Flying Cloud	Minneapolis	MN	124,279	1,645	6,467
AGL	FDY	Findlay	Findlay	OH	19,800	90	155
AGL	FEP	Albertus	Freeport	IL	33,373	202	348
AGL	FFM	Fergus Falls Muni-Einar Mickelson Fld	Fergus Falls	MN	7,715	26	111
AGL	FKR	Frankfort Muni	Frankfort	IN	7,802	20	93
AGL	FLD	Fond Du Lac County	Fond Du Lac	WI	63,050	352	1,256
AGL	FNT	Bishop Intl	Flint	MI	85,054	285	808
AGL	FOA	Flora Muni	Flora	IL	10,000	192	689
AGL	FRH	French Lick Muni	French Lick	IN	5,096	162	741
AGL	FRM	Fairmont Muni	Fairmont	MN	7,030	21	90
AGL	FSD	Joe Foss Field	Sioux Falls	SD	83,763	477	1,077
AGL	FWA	Fort Wayne Intl	Fort Wayne	IN	71,708	389	457
AGL	FWC	Fairfield Muni	Fairfield	IL	8,000	325	1,157
AGL	FZI	Fostoria Metropolitan	Fostoria	OH	7,900	21	44
AGL	GAF	Hutson Field	Grafton	ND	4,910	30	61
AGL	GAS	Gallia-Meigs Rgnl	Gallipolis	OH	19,800	62	164
AGL	GBG	Galesburg Muni	Galesburg	IL	13,998	300	619
AGL	GDW	Gladwin Zettel Memorial	Gladwin	MI	9,156	161	371
AGL	GEZ	Shelbyville Muni	Shelbyville	IN	26,498	106	356
AGL	GFK	Grand Forks Intl	Grand Forks	ND	225,091	63	161
AGL	GGP	Logansport/Cass County	Logansport	IN	5,550	57	124
AGL	GLR	Gaylord Rgnl	Gaylord	MI	17,102	509	862
AGL	GPZ	Grand Rapids/Itasca Co-Gordon Newstrom Fld	Grand Rapids	MN	25,234	114	297
AGL	GRB	Austin Straubel Intl	Green Bay	WI	84,440	275	950
AGL	GRE	Greenville	Greenville	IL	25,000	126	554
AGL	GRR	Gerald R. Ford Intl	Grand Rapids	MI	103,514	3,381	5,996
AGL	GSH	Goshen Muni	Goshen	IN	34,183	30	48
AGL	GWB	De Kalb County	Auburn	IN	17,693	59	83
AGL	GYY	Gary/Chicago Intl	Gary	IN	36,713	1,760	10,860
AGL	HAI	Three Rivers Muni Dr Haines	Three Rivers	MI	12,175	19	116
AGL	HAO	Butler Co Rgnl	Hamilton	OH	61,356	293	1,336
AGL	HEI	Hettinger Muni	Hettinger	ND	2,830	4	7
AGL	HFY	Greenwood Muni	Indianapolis	IN	35,584	646	2,449
AGL	HHG	Huntington Muni	Huntington	IN	17,621	15	25
AGL	HIB	Chisholm-Hibbing	Hibbing	MN	16,537	6	7
AGL	HNB	Huntingburg	Huntingburg	IN	16,515	201	532
AGL	HOC	Highland County	Hillsboro	OH	18,195	137	442
AGL	HON	Huron Rgnl	Huron	SD	29,950	175	231
AGL	HSB	Harrisburg-Raleigh	Harrisburg	IL	12,000	240	1,246
AGL	HTL	Roscommon County - Blodgett Memorial	Houghton Lake	MI	10,463	250	596
AGL	HTW	Lawrence County Airpark	Chesapeake/Huntington	OH	41,910	0	0
AGL	HUF	Terre Haute Intl-Hulman Field	Terre Haute	IN	60,415	133	632
AGL	HYR	Sawyer County	Hayward	WI	20,762	301	1,056
AGL	HYX	Saginaw County H.W. Browne	Saginaw	MI	10,150	157	438
AGL	HZE	Mercer County Rgnl	Hazen	ND	400	11	14
AGL	HZY	Ashtabula County	Ashtabula	OH	16,579	342	1,384
AGL	I12	Sidney Muni	Sidney	OH	20,096	40	93
AGL	I17	Piqua Airport- Hartzell Field	Piqua	OH	0	297	790
AGL	I22	Randolph County	Winchester	IN	4,304	304	781
AGL	I23	Fayette County	Washington Court House	OH	29,405	39	181

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AGL	I34	Greensburg-Decatur County	Greensburg	IN	20,750	110	500
AGL	I40	Richard Downing	Coshocton	OH	19,550	79	140
AGL	I43	James A Rhodes	Jackson	OH	6,053	25	49
AGL	I63	Mount Sterling Muni	Mount Sterling	IL	3,000	95	268
AGL	I66	Clinton Field	Wilmington	OH	24,880	44	161
AGL	I68	Lebanon-Warren County	Lebanon	OH	24,951	650	1,514
AGL	I69	Clermont County	Batavia	OH	30,050	1,061	2,991
AGL	I74	Grimes Field	Urbana	OH	23,480	37	112
AGL	I76	Peru Muni	Peru	IN	7,728	61	111
AGL	I95	Hardin County	Kenton	OH	6,562	38	159
AGL	ICR	Winner Rgnl	Winner	SD	17,800	20	19
AGL	IGQ	Lansing Muni	Chicago	IL	54,000	1,322	4,115
AGL	IJX	Jacksonville Muni	Jacksonville	IL	12,000	246	717
AGL	IKK	Greater Kankakee	Kankakee	IL	50,000	11	12
AGL	IMS	Madison Muni	Madison	IN	14,882	361	1,676
AGL	IMT	Ford	Iron Mountain Kingsford	MI	7,135	197	535
AGL	INL	Falls Intl	International Falls	MN	40,928	59	328
AGL	IRS	Kirsch Muni	Sturgis	MI	11,975	139	300
AGL	ISN	Sloulin Fld Intl	Williston	ND	18,390	31	58
AGL	ISQ	Schoolcraft County	Manistique	MI	2,818	530	1,424
AGL	ISW	Alexander Field South Wood County	Wisconsin Rapids	WI	16,130	536	958
AGL	ISZ	Cincinnati-Blue Ash	Cincinnati	OH	35,000	1,462	3,626
AGL	IWD	Gogebic-Iron County	Ironwood	MI	15,900	55	127
AGL	IWH	Wabash Muni	Wabash	IN	7,966	82	182
AGL	JKJ	Moorhead Muni	Moorhead	MN	25,158	5	23
AGL	JMR	Mora Muni	Mora	MN	15,000	33	202
AGL	JMS	Jamestown Rgnl	Jamestown	ND	37,252	41	57
AGL	JVL	Southern Wisconsin Rgnl	Janesville	WI	53,064	83	98
AGL	JVY	Clark Rgnl	Jeffersonville	IN	84,510	457	1,662
AGL	JXN	Jackson County-Reynolds Field	Jackson	MI	47,577	50	178
AGL	JYM	Hillsdale Muni	Hillsdale	MI	8,170	51	223
AGL	LAF	Purdue University	Lafayette	IN	114,629	132	456
AGL	LAN	Capital City	Lansing	MI	78,674	1,600	3,382
AGL	LCK	Rickenbacker Intl	Columbus	OH	69,209	344	1,344
AGL	LDM	Mason County	Ludington	MI	15,188	301	689
AGL	LEM	Lemmon Muni	Lemmon	SD	19,500	7	7
AGL	LHQ	Fairfield County	Lancaster	OH	32,516	116	552
AGL	LJF	Litchfield Muni	Litchfield	MN	7,000	22	301
AGL	LNN	Willoughby Lost Nation Muni	Willoughby	OH	60,184	555	2,376
AGL	LNR	Tri-County Rgnl	Lone Rock	WI	12,000	90	275
AGL	LOT	Lewis University	Chicago/Romeoville	IL	100,414	1,283	6,095
AGL	LPR	Lorain County Rgnl	Lorain/Elyria	OH	36,023	1,257	5,358
AGL	LSE	La Crosse Muni	La Crosse	WI	31,333	93	198
AGL	LUK	Cincinnati Muni Airport Lunken Field	Cincinnati	OH	72,717	15,703	30,942
AGL	LUM	Menomonie Muni-Score Field	Menomonie	WI	13,550	204	653
AGL	LVN	Airlake	Minneapolis	MN	58,834	199	1,266
AGL	LWA	South Haven Area Rgnl	South Haven	MI	27,016	58	181
AGL	LWV	Lawrenceville-Vincennes Intl	Lawrenceville	IL	35,000	601	1,648
AGL	MBG	Mobridge Muni	Mobridge	SD	17,724	47	65
AGL	MBL	Manistee Co.-Blacker	Manistee	MI	10,566	393	805
AGL	MBS	Mbs Intl	Saginaw	MI	38,076	370	581
AGL	MCX	White County	Monticello	IN	14,133	69	124
AGL	MDH	Southern Illinois	Carbondale/Murphysboro	IL	83,791	372	2,158
AGL	MDS	Madison Muni	Madison	SD	21,900	621	687
AGL	MDZ	Taylor County	Medford	WI	7,520	213	563
AGL	MFD	Mansfield Lahm Rgnl	Mansfield	OH	31,317	118	562
AGL	MFI	Marshfield Muni	Marshfield	WI	26,050	526	981
AGL	MGC	Michigan City Muni	Michigan City	IN	5,872	91	209
AGL	MGN	Harbor Springs	Harbor Springs	MI	16,742	564	1,230
AGL	MGY	Dayton-Wright Brothers	Dayton	OH	87,393	859	3,767

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AGL	MHE	Mitchell Muni	Mitchell	SD	24,600	441	487
AGL	MIC	Crystal	Minneapolis	MN	53,072	582	3,541
AGL	MIE	Delaware County - Johnson Field	Muncie	IN	27,662	44	93
AGL	MJQ	Jackson Muni	Jackson	MN	19,000	12	105
AGL	MKA	Miller Muni	Miller	SD	7,650	30	44
AGL	MKG	Muskegon County	Muskegon	MI	47,404	387	918
AGL	MKT	Mankato Rgnl	Mankato	MN	71,460	126	655
AGL	MLI	Quad City Intl	Moline	IL	52,028	189	236
AGL	MML	Southwest Minnesota Rgnl Marshall/Ryan Fld	Marshall	MN	20,448	54	100
AGL	MNM	Menominee-Marinette Twin County	Menominee	MI	21,000	315	794
AGL	MNN	Marion Muni	Marion	OH	42,650	150	498
AGL	MOP	Mount Pleasant Muni	Mount Pleasant	MI	23,415	307	734
AGL	MOT	Minot Intl	Minot	ND	40,797	44	69
AGL	MOX	Morris Muni	Morris	MN	5,906	13	30
AGL	MQB	Macomb Muni	Macomb	IL	15,001	218	548
AGL	MQJ	Mount Comfort	Indianapolis	IN	45,120	422	1,313
AGL	MRJ	Iowa County	Mineral Point	WI	11,065	62	233
AGL	MRT	Union County	Marysville	OH	31,886	57	170
AGL	MSN	Dane County Rgnl-Truax Field	Madison	WI	125,328	1,943	6,999
AGL	MTO	Coles County Memorial	Mattoon/Charleston	IL	17,146	185	858
AGL	MTW	Manitowoc County	Manitowoc	WI	36,350	226	819
AGL	MVN	Mount Vernon	Mount Vernon	IL	33,000	150	674
AGL	MWA	Williamson County Rgnl	Marion	IL	26,234	395	2,402
AGL	MWC	Lawrence J Timmerman	Milwaukee	WI	45,294	2,254	7,019
AGL	MWO	Hook Field Muni	Middletown	OH	40,050	58	228
AGL	MZZ	Marion Muni	Marion	IN	21,404	290	714
AGL	OEB	Branch County Memorial	Coldwater	MI	14,761	39	171
AGL	OEO	L O Simenstad Muni	Osceola	WI	18,350	313	2,007
AGL	OKK	Kokomo Muni	Kokomo	IN	29,391	47	253
AGL	ONA	Winona Muni-Max Conrad Fld	Winona	MN	15,069	79	226
AGL	ONZ	Grosse Ile Muni	Detroit/Grosse Ile	MI	55,277	432	1,742
AGL	ORB	Orr Rgnl	Orr	MN	2,500	0	0
AGL	OSC	Oscoda-Wurtsmith	Oscoda	MI	8,857	250	582
AGL	OSH	Wittman Rgnl	Oshkosh	WI	84,947	418	3,079
AGL	OSU	Ohio State University	Columbus	OH	83,456	1,321	3,753
AGL	OTG	Worthington Muni	Worthington	MN	10,695	77	262
AGL	OVO	North Vernon	North Vernon	IN	12,651	170	689
AGL	OWA	Owatonna Degner Rgnl	Owatonna	MN	20,050	32	135
AGL	OWX	Putnam County	Ottawa	OH	11,910	17	41
AGL	OXD	Miami University	Oxford	OH	16,376	75	357
AGL	OZW	Livingston County Spencer J. Hardy	Howell	MI	58,238	518	1,133
AGL	PBH	Price County	Phillips	WI	18,100	179	497
AGL	PCW	Carl R Keller Field	Port Clinton	OH	33,016	76	310
AGL	PDC	Prairie Du Chien Muni	Prairie Du Chien	WI	12,500	210	523
AGL	PHN	St Clair County Intl	Port Huron	MI	45,287	425	1,080
AGL	PIA	Greater Peoria Rgnl	Peoria	IL	50,717	699	1,804
AGL	PIR	Pierre Rgnl	Pierre	SD	31,360	176	293
AGL	PKD	Park Rapids Muni-Konshok Field	Park Rapids	MN	15,725	87	241
AGL	PLD	Portland Muni	Portland	IN	10,172	457	758
AGL	PLN	Pellston Rgnl Airport Of Emmet County	Pellston	MI	18,252	170	357
AGL	PMH	Greater Portsmouth Rgnl	Portsmouth	OH	14,520	57	118
AGL	PNT	Pontiac Muni	Pontiac	IL	12,000	77	179
AGL	PPO	La Porte Muni	La Porte	IN	15,832	91	239
AGL	PPQ	Pittsfield Penstone Muni	Pittsfield	IL	7,000	164	787
AGL	PQN	Pipestone Muni	Pipestone	MN	10,800	53	160
AGL	PTK	Oakland County Intl	Pontiac	MI	209,198	6,467	10,929
AGL	PVB	Platteville Muni	Platteville	WI	13,550	118	406

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AGL	PWK	Chicago Executive	Chicago/Prospect Heights/Wheeling	IL	118,496	13,865	42,987
AGL	RAP	Rapid City Rgnl	Rapid City	SD	48,239	117	224
AGL	RCR	Fulton County	Rochester	IN	10,510	47	111
AGL	RFD	Chicago/Rockford Intl	Chicago/Rockford	IL	77,121	202	433
AGL	RGK	Red Wing Rgnl	Red Wing	MN	13,340	155	654
AGL	RHI	Rhinelander-Oneida County	Rhinelander	WI	36,248	177	511
AGL	RID	Richmond Muni	Richmond	IN	36,563	201	783
AGL	RNH	New Richmond Rgnl	New Richmond	WI	44,500	118	562
AGL	ROS	Rush City Rgnl	Rush City	MN	7,810	63	358
AGL	ROX	Roseau Muni/Rudy Billberg Field	Roseau	MN	18,300	48	105
AGL	RPD	Rice Lake Rgnl - Carl's Field	Rice Lake	WI	28,983	398	1,304
AGL	RPJ	Rochelle Muni Airport-Koritz Field	Rochelle	IL	11,846	10	20
AGL	RRT	Warroad Intl Memorial	Warroad	MN	9,430	130	381
AGL	RST	Rochester Intl	Rochester	MN	57,493	346	489
AGL	RSV	Robinson Muni	Robinson	IL	48,390	422	810
AGL	RWF	Redwood Falls Muni	Redwood Falls	MN	9,800	11	143
AGL	RYV	Watertown Muni	Watertown	WI	58,000	217	1,095
AGL	RZL	Jasper County	Rensselaer	IN	8,654	57	113
AGL	RZN	Burnett County	Siren	WI	14,700	162	898
AGL	RZT	Ross County	Chillicothe	OH	50,150	62	257
AGL	S24	Sandusky County Rgnl	Fremont	OH	6,148	29	70
AGL	SAR	Sparta Community-Hunter Field	Sparta	IL	34,000	122	726
AGL	SAW	Sawyer Intl	Marquette	MI	27,869	250	886
AGL	SBM	Sheboygan County Memorial	Sheboygan	WI	66,000	160	270
AGL	SBN	South Bend Rgnl	South Bend	IN	52,830	578	1,475
AGL	SBU	Blue Earth Muni	Blue Earth	MN	14,000	8	48
AGL	SER	Freeman Muni	Seymour	IN	21,487	227	988
AGL	SGH	Springfield-Beckley Muni	Springfield	OH	63,020	611	2,203
AGL	SGS	South St Paul Muni-Richard E Fleming Fld	South St Paul	MN	51,000	161	1,000
AGL	SIV	Sullivan County	Sullivan	IN	14,184	162	525
AGL	SLH	Cheboygan County	Cheboygan	MI	6,854	226	788
AGL	SMD	Smith Field	Fort Wayne	IN	8,431	89	134
AGL	SPF	Black Hills-Clyde Ice Field	Spearfish	SD	24,100	44	60
AGL	SPI	Abraham Lincoln Capital	Springfield	IL	45,741	146	160
AGL	SQI	Whiteside Co Arpt-Jos H Bittorf Fld	Sterling/Rockfalls	IL	32,720	131	240
AGL	STC	St Cloud Rgnl	St Cloud	MN	52,942	469	2,566
AGL	STE	Stevens Point Muni	Stevens Point	WI	36,750	218	518
AGL	STP	St Paul Downtown Holman Fld	St Paul	MN	126,079	3,564	9,580
AGL	SUE	Door County Cherryland	Sturgeon Bay	WI	34,950	445	1,191
AGL	SUW	Richard I Bong	Superior	WI	19,250	12	45
AGL	TAZ	Taylorville Muni	Taylorville	IL	14,000	230	696
AGL	TDZ	Metcalf Field	Toledo	OH	90,700	91	552
AGL	TEL	Perry County Muni	Tell City	IN	1,096	137	350
AGL	TEW	Mason Jewett Field	Mason	MI	26,132	221	609
AGL	TIP	Rantoul Natl Avn Cntr-Frank Elliott Fld	Rantoul	IL	20,000	6	15
AGL	TKV	Tomahawk Rgnl	Tomahawk	WI	7,200	68	203
AGL	TOL	Toledo Express	Toledo	OH	59,782	310	653
AGL	TSO	Carroll County-Tolson	Carrollton	OH	44,045	93	158
AGL	TTF	Custer	Monroe	MI	22,778	167	752
AGL	TVC	Cherry Capital	Traverse City	MI	86,941	1,774	3,454
AGL	TVF	Thief River Falls Rgnl	Thief River Falls	MN	31,475	186	1,005
AGL	TWM	Richard B Helgeson	Two Harbors	MN	7,000	42	127
AGL	TYQ	Indianapolis Executive	Indianapolis	IN	37,037	445	1,257
AGL	TZR	Bolton Field	Columbus	OH	46,388	329	1,194
AGL	UES	Waukesha County	Waukesha	WI	59,585	1,115	3,162
AGL	UGN	Waukegan Rgnl	Chicago/Waukegan	IL	69,165	3,242	8,996
AGL	UIN	Quincy Rgnl-Baldwin Field	Quincy	IL	25,512	1,616	3,675

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AGL	ULM	New Ulm Muni	New Ulm	MN	15,510	139	419
AGL	UMP	Indianapolis Metropolitan	Indianapolis	IN	58,565	877	2,793
AGL	UNI	Ohio University Snyder Field	Athens/Albany	OH	52,350	84	154
AGL	UNU	Dodge County	Juneau	WI	24,000	129	613
AGL	USE	Fulton County	Wauseon	OH	11,887	13	62
AGL	UWL	New Castle-Henry Co. Muni.	New Castle	IN	15,853	160	583
AGL	UYF	Madison County	London	OH	40,625	46	157
AGL	VLA	Vandalia Muni	Vandalia	IL	19,000	70	302
AGL	VLL	Oakland/Troy	Troy	MI	42,037	1,752	5,816
AGL	VNW	Van Wert County	Van Wert	OH	20,516	20	46
AGL	VPZ	Porter County Muni	Valparaiso	IN	35,047	270	734
AGL	VTA	Newark-Heath	Newark	OH	21,172	153	612
AGL	VYS	Illinois Valley Rgnl-Walter A Duncan Field	Peru	IL	21,000	123	275
AGL	Y03	Springfield Muni	Springfield	SD	5,900	197	230
AGL	Y31	West Branch Community	West Branch	MI	5,241	172	363
AGL	YIP	Willow Run	Detroit	MI	84,968	6,736	13,504
AGL	YKN	Chan Gurney Muni	Yankton	SD	16,550	342	407
AGL	YNG	Youngstown-Warren Rgnl	Youngstown/Warren	OH	76,482	2,604	3,129
AGL	ZZV	Zanesville Muni	Zanesville	OH	33,312	276	716
ANE	2B7	Pittsfield Muni	Pittsfield	ME	8,700	281	372
ANE	8B0	Steven A. Bean Muni	Rangeley	ME	12,700	422	427
ANE	ACK	Nantucket Memorial	Nantucket	MA	154,692	807	1,136
ANE	AQW	Harriman-and-West	North Adams	MA	45,780	5	8
ANE	ASH	Boire Field	Nashua	NH	104,237	1,107	1,933
ANE	AUG	Augusta State	Augusta	ME	33,800	335	488
ANE	BAF	Barnes Muni	Westfield/Springfield	MA	67,875	81	292
ANE	BDR	Igor I Sikorsky Memorial	Bridgeport	CT	85,640	1,161	1,451
ANE	BED	Laurence G Hanscom Fld	Bedford	MA	169,471	4,191	4,775
ANE	BGR	Bangor Intl	Bangor	ME	75,899	91	131
ANE	BHB	Hancock County-Bar Harbor	Bar Harbor	ME	45,145	691	753
ANE	BML	Berlin Muni	Berlin	NH	12,100	405	488
ANE	BTV	Burlington Intl	Burlington	VT	96,977	441	530
ANE	BVY	Beverly Muni	Beverly	MA	69,351	1,644	3,554
ANE	CON	Concord Muni	Concord	NH	89,926	332	725
ANE	DAW	Skyhaven	Rochester	NH	17,000	363	530
ANE	DDH	William H. Morse State	Bennington	VT	27,290	87	98
ANE	DXR	Danbury Muni	Danbury	CT	76,783	335	487
ANE	EEN	Dillant-Hopkins	Keene	NH	54,294	226	342
ANE	EFK	Newport State	Newport	VT	7,140	516	576
ANE	EWB	New Bedford Rgnl	New Bedford	MA	80,907	308	343
ANE	FIT	Fitchburg Muni	Fitchburg	MA	168,025	166	181
ANE	FVE	Northern Aroostook Rgnl	Frenchville	ME	1,400	40	49
ANE	GHG	Marshfield Muni - George Harlow Field	Marshfield	MA	18,400	309	702
ANE	GON	Groton-New London	Groton (New London)	CT	53,534	338	385
ANE	HFD	Hartford-Brainard	Hartford	CT	87,187	760	1,118
ANE	HUL	Houlton Intl	Houlton	ME	12,700	100	131
ANE	HVN	Tweed-New Haven	New Haven	CT	56,738	339	440
ANE	HYA	Barnstable Muni-Boardman/Polando Field	Hyannis	MA	129,396	137	183
ANE	IJD	Windham	Willimantic	CT	30,690	288	359
ANE	IWI	Wiscasset	Wiscasset	ME	6,950	201	244
ANE	LCI	Laconia Muni	Laconia	NH	35,343	579	770
ANE	LEB	Lebanon Muni	Lebanon	NH	62,705	267	352
ANE	LEW	Auburn/Lewiston Muni	Auburn/Lewiston	ME	70,350	230	448
ANE	LWM	Lawrence Muni	Lawrence	MA	78,857	1,000	1,103
ANE	MLT	Millinocket Muni	Millinocket	ME	7,700	7	10
ANE	MPV	Edward F Knapp State	Barre/Montpelier	VT	32,000	352	377
ANE	MVL	Morrisville-Stowe State	Morrisville	VT	18,020	677	728
ANE	MVY	Marthas Vineyard	Vineyard Haven	MA	52,060	952	1,158
ANE	OLD	Dewitt Fld,Old Town Muni	Old Town	ME	47,160	6	14

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
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ANE	OQU	Quonset State	North Kingstown	RI	20,368	91	112
ANE	ORE	Orange Muni	Orange	MA	50,014	493	525
ANE	ORH	Worcester Rgnl	Worcester	MA	65,337	195	221
ANE	OWD	Norwood Memorial	Norwood	MA	84,784	4,901	12,873
ANE	OXC	Waterbury-Oxford	Oxford	CT	60,829	1,311	1,708
ANE	PQI	Northern Maine Rgnl Arpt at Presque Is	Presque Isle	ME	5,987	228	394
ANE	PSF	Pittsfield Muni	Pittsfield	MA	48,700	36	61
ANE	PSM	Portsmouth Intl at Pease	Portsmouth	NH	37,333	806	1,100
ANE	PWM	Portland Intl Jetport	Portland	ME	74,558	410	558
ANE	PYM	Plymouth Muni	Plymouth	MA	104,500	924	1,047
ANE	RKD	Knox County Rgnl	Rockland	ME	55,807	350	426
ANE	RUT	Rutland State	Rutland	VT	41,925	249	267
ANE	SFM	Sanford Rgnl	Sanford	ME	76,010	247	340
ANE	SFZ	North Central State	Pawtucket	RI	31,337	432	489
ANE	VSF	Hartness State (Springfield)	Springfield	VT	9,300	143	146
ANE	WST	Westerly State	Westerly	RI	20,811	12	19
ANE	WVL	Waterville Robert Lafleur	Waterville	ME	13,600	286	331
ANM	07V	Cuchara Valley at La Veta	La Veta	CO	0	19	20
ANM	1L9	Parowan	Parowan	UT	11,575	2	2
ANM	1V6	Fremont County	Canon City	CO	13,778	35	34
ANM	20V	Mc Elroy Airfield	Kremmling	CO	3,976	21	22
ANM	29S	Gardiner	Gardiner	MT	8,600	3	4
ANM	2S8	Wilbur	Wilbur	WA	9,300	92	193
ANM	36U	Heber City Muni - Russ McDonald Field	Heber	UT	50,167	25	33
ANM	38S	Deer Lodge-City-County	Deer Lodge	MT	3,700	3	3
ANM	3S8	Grants Pass	Grants Pass	OR	24,905	226	439
ANM	3U3	Bowman Field	Anaconda	MT	6,600	5	6
ANM	4S1	Gold Beach Muni	Gold Beach	OR	5,647	122	125
ANM	4S3	Joseph State	Joseph	OR	5,482	127	137
ANM	65S	Boundary County	Bonners Ferry	ID	35,327	32	37
ANM	6S0	Big Timber	Big Timber	MT	7,200	11	16
ANM	6S5	Ravalli County	Hamilton	MT	20,400	50	48
ANM	74V	Roosevelt Muni	Roosevelt	UT	3,050	9	10
ANM	77S	Hobby Field	Creswell	OR	35,942	83	158
ANM	7S0	Ronan	Ronan	MT	3,800	19	20
ANM	7S1	Twin Bridges	Twin Bridges	MT	2,250	3	3
ANM	7V5	Brush Muni	Brush	CO	0	3	5
ANM	8S1	Polson	Polson	MT	9,250	22	24
ANM	9S2	Scobey	Scobey	MT	4,450	1	2
ANM	AEJ	Central Colorado Rgnl	Buena Vista	CO	4,200	1	1
ANM	AFO	Afton Muni	Afton	WY	14,530	138	120
ANM	AIB	Hopkins Field	Nucla	CO	1,729	344	1,008
ANM	AKO	Colorado Plains Rgnl	Akron	CO	24,280	5	10
ANM	ALS	San Luis Valley Rgnl/Bergman Field	Alamosa	CO	29,229	582	597
ANM	ALW	Walla Walla Rgnl	Walla Walla	WA	29,224	471	763
ANM	ANK	Harriet Alexander Field	Salida	CO	9,653	2	2
ANM	AOC	Arco-Butte County	Arco	ID	10,414	2	2
ANM	APA	Centennial	Denver	CO	329,959	11,222	19,551
ANM	ASE	Aspen-Pitkin Co/Sardy Field	Aspen	CO	42,947	160	197
ANM	AST	Astoria Rgnl	Astoria	OR	42,806	14	16
ANM	AWO	Arlington Muni	Arlington	WA	143,707	781	797
ANM	BCE	Bryce Canyon	Bryce Canyon	UT	3,132	3	4
ANM	BDG	Blanding Muni	Blanding	UT	4,740	16	23
ANM	BDN	Bend Muni	Bend	OR	37,991	952	1,049
ANM	BDU	Boulder Muni	Boulder	CO	68,719	48	46
ANM	BFI	Boeing Field/King County Intl	Seattle	WA	304,135	3,648	3,728
ANM	BHK	Baker Muni	Baker	MT	7,000	4	5
ANM	BIL	Billings Logan Intl	Billings	MT	97,490	359	740
ANM	BJC	Rocky Mountain Metropolitan	Denver	CO	167,968	3,502	6,188

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ANM	BKE	Baker City Muni	Baker City	OR	11,660	163	187
ANM	BLI	Bellingham Intl	Bellingham	WA	75,051	7	12
ANM	BMC	Brigham City	Brigham City	UT	18,022	14	36
ANM	BNO	Burns Muni	Burns	OR	5,032	95	99
ANM	BOI	Boise Air Terminal/Gowen Fld	Boise	ID	185,090	1,010	1,852
ANM	BPI	Miley Memorial Field	Big Piney	WY	4,700	2	6
ANM	BTM	Bert Mooney	Butte	MT	34,346	18	23
ANM	BVS	Skagit Rgnl	Burlington/Mount Vernon	WA	71,940	265	289
ANM	BYG	Johnson County	Buffalo	WY	7,320	28	37
ANM	BYI	Burley Muni	Burley	ID	34,294	6	7
ANM	BZN	Gallatin Field	Bozeman	MT	79,883	637	857
ANM	CAG	Craig-Moffat	Craig	CO	2,525	299	310
ANM	CDC	Cedar City Rgnl	Cedar City	UT	35,147	35	45
ANM	CEZ	Cortez Muni	Cortez	CO	15,767	2,276	3,598
ANM	CII	Choteau	Choteau	MT	3,000	4	5
ANM	CLM	William R Fairchild Intl	Port Angeles	WA	52,675	44	51
ANM	CLS	Chehalis-Centralia	Chehalis	WA	48,865	56	61
ANM	CNY	Canyonlands Field	Moab	UT	16,388	11	14
ANM	COD	Yellowstone Rgnl	Cody	WY	40,306	56	59
ANM	COE	Coeur D'Alene Air Term	Coeur D'Alene	ID	109,713	425	568
ANM	COS	City of Colorado Springs Muni	Colorado Springs	CO	150,877	419	541
ANM	CPR	Natrona County Intl	Casper	WY	40,328	143	340
ANM	CTB	Cut Bank Muni	Cut Bank	MT	5,800	26	27
ANM	CVO	Corvallis Muni	Corvallis	OR	111,117	350	508
ANM	CYS	Cheyenne Rgnl/Jerry Olson Field	Cheyenne	WY	56,614	37	53
ANM	DEW	Deer Park	Deer Park	WA	32,066	328	368
ANM	DGW	Converse County	Douglas	WY	5,475	42	88
ANM	DIJ	Driggs-Reed Memorial	Driggs	ID	7,714	47	50
ANM	DLN	Dillon	Dillon	MT	10,500	9	14
ANM	DLS	Columbia Gorge Rgnl/The Dalles Muni	The Dalles	OR	30,796	122	185
ANM	DRO	Durango-La Plata County	Durango	CO	57,123	2,631	4,845
ANM	EAN	Phifer Airfield	Wheatland	WY	3,820	21	27
ANM	EAT	Pangborn Memorial	Wenatchee	WA	51,615	141	150
ANM	ECS	Mondell Field	Newcastle	WY	4,480	62	82
ANM	EEO	Meeker	Meeker	CO	8,070	150	160
ANM	EGE	Eagle County Rgnl	Eagle	CO	42,033	247	312
ANM	EIK	Erie Muni	Erie	CO	73,660	8	42
ANM	EKS	Ennis - Big Sky	Ennis	MT	11,000	3	4
ANM	ELN	Bowers Field	Ellensburg	WA	59,460	13	16
ANM	EMM	Kemmerer Muni	Kemmerer	WY	2,210	13	16
ANM	ENV	Wendover	Wendover	UT	8,883	11	14
ANM	EPH	Ephrata Muni	Ephrata	WA	136,058	25	28
ANM	EUG	Mahlon Sweet Field	Eugene	OR	86,329	252	492
ANM	EUL	Caldwell Industrial	Caldwell	ID	135,894	181	236
ANM	EVW	Evanston-Uinta County Burns Field	Evanston	WY	6,080	47	53
ANM	FMM	Fort Morgan Muni	Fort Morgan	CO	8,300	6	11
ANM	FNL	Fort Collins-Loveland Muni	Fort Collins/Loveland	CO	120,369	28	43
ANM	FTG	Front Range	Denver	CO	94,146	45	137
ANM	GCC	Gillette-Campbell County	Gillette	WY	15,878	231	358
ANM	GCD	Grant Co Rgnl/Ogilvie Field	John Day	OR	7,984	149	141
ANM	GDV	Dawson Community	Glendive	MT	5,815	7	8
ANM	GEG	Spokane Intl	Spokane	WA	99,685	398	580
ANM	GEY	South Big Horn County	Greybull	WY	4,175	15	17
ANM	GGW	Wokal Field/Glasgow Intl	Glasgow	MT	26,908	70	134
ANM	GJT	Walker Field	Grand Junction	CO	74,007	3,585	4,556
ANM	GNB	Granby-Grand County	Granby	CO	2,400	7	8
ANM	GNG	Gooding Muni	Gooding	ID	20,233	9	11
ANM	GPI	Glacier Park Intl	Kalispell	MT	55,017	109	123
ANM	GTF	Great Falls Intl	Great Falls	MT	47,618	15	40

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ANM	GUC	Gunnison-Crested Butte Rgnl	Gunnison	CO	30,939	48	57
ANM	GXY	Greeley-Weld County	Greeley	CO	144,420	26	47
ANM	HDN	Yampa Valley	Hayden	CO	10,914	40	55
ANM	HIO	Portland-Hillsboro	Portland	OR	224,461	3,445	4,534
ANM	HLN	Helena Rgnl	Helena	MT	58,898	382	604
ANM	HRI	Hermiston Muni	Hermiston	OR	15,944	177	184
ANM	HVR	Havre City-County	Havre	MT	7,200	67	72
ANM	IDA	Idaho Falls Rgnl	Idaho Falls	ID	44,603	175	359
ANM	ITR	Kit Carson County	Burlington	CO	7,713	6	7
ANM	JAC	Jackson Hole	Jackson	WY	30,502	258	367
ANM	JER	Jerome County	Jerome	ID	24,510	8	14
ANM	KLS	Kelso-Longview	Kelso	WA	40,860	174	169
ANM	KNB	Kanab Muni	Kanab	UT	10,250	9	11
ANM	LAA	Lamar Muni	Lamar	CO	17,733	250	288
ANM	LAR	Laramie Rgnl	Laramie	WY	15,030	119	137
ANM	LGD	La Grande/Union County	La Grande	OR	18,810	177	193
ANM	LGU	Logan-Cache	Logan	UT	174,230	102	213
ANM	LHX	La Junta Muni	La Junta	CO	6,900	66	71
ANM	LKV	Lake County	Lakeview	OR	5,050	122	166
ANM	LLJ	Challis	Challis	ID	16,350	28	36
ANM	LMO	Vance Brand	Longmont	CO	99,990	29	31
ANM	LMT	Klamath Falls	Klamath Falls	OR	38,433	1,165	1,637
ANM	LND	Hunt Field	Lander	WY	11,180	104	157
ANM	LVM	Mission Field	Livingston	MT	5,920	20	25
ANM	LWS	Lewiston-Nez Perce County	Lewiston	ID	36,677	349	709
ANM	LWT	Lewistown Muni	Lewistown	MT	18,100	40	40
ANM	LXV	Lake County	Leadville	CO	10,000	5	5
ANM	M75	Malta	Malta	MT	3,400	15	18
ANM	MFR	Rogue Valley Intl - Medford	Medford	OR	58,579	150	506
ANM	MLF	Milford Muni/Ben and Judy Briscoe Field	Milford	UT	3,465	10	11
ANM	MLS	Frank Wiley Field	Miles City	MT	11,200	14	19
ANM	MMV	Mc Minnville Muni	Mc Minnville	OR	77,797	374	406
ANM	MSO	Missoula Intl	Missoula	MT	54,405	241	292
ANM	MVI	Monte Vista Muni	Monte Vista	CO	6,600	528	522
ANM	MWH	Grant Co Intl	Moses Lake	WA	70,818	80	95
ANM	MYL	Mc Call Muni	Mc Call	ID	59,850	73	88
ANM	OGD	Ogden-Hinckley	Ogden	UT	108,050	250	375
ANM	OLF	L M Clayton	Wolf Point	MT	5,210	40	123
ANM	OLM	Olympia	Olympia	WA	88,885	152	723
ANM	OMK	Omak	Omak	WA	23,750	90	103
ANM	ONO	Ontario Muni	Ontario	OR	16,116	425	870
ANM	ONP	Newport Muni	Newport	OR	17,786	303	360
ANM	OTH	Southwest Oregon Rgnl	North Bend	OR	43,254	720	833
ANM	PAE	Snohomish County (Paine Fld)	Everett	WA	131,836	3,104	3,133
ANM	PDT	Eastern Oregon Rgnl at Pendleton	Pendleton	OR	22,088	148	151
ANM	PIH	Pocatello Rgnl	Pocatello	ID	43,552	42	56
ANM	POY	Powell Muni	Powell	WY	3,762	50	53
ANM	PSC	Tri-Cities	Pasco	WA	64,069	55	302
ANM	PSO	Stevens Field	Pagosa Springs	CO	16,850	851	1,062
ANM	PUB	Pueblo Memorial	Pueblo	CO	145,110	37	56
ANM	PUC	Carbon County Rgnl/Buck Davis Field	Price	UT	10,000	7	10
ANM	PUW	Pullman/Moscow Rgnl	Pullman/Moscow	WA	73,239	581	1,108
ANM	PVU	Provo Muni	Provo	UT	133,393	83	147
ANM	PWT	Bremerton National	Bremerton	WA	58,829	69	231
ANM	RBG	Roseburg Rgnl	Roseburg	OR	23,653	357	478
ANM	RDM	Roberts Field	Redmond	OR	94,936	368	418
ANM	RED	Red Lodge	Red Lodge	MT	8,050	39	44
ANM	RIF	Richfield Muni	Richfield	UT	7,316	16	20
ANM	RIL	Garfield County Rgnl	Rifle	CO	10,078	409	472

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ANM	RIW	Riverton Rgnl	Riverton	WY	11,630	259	401
ANM	RKS	Rock Springs-Sweetwater County	Rock Springs	WY	14,075	367	592
ANM	RNT	Renton Muni	Renton	WA	94,590	637	857
ANM	RPX	Roundup	Roundup	MT	4,700	11	17
ANM	RWL	Rawlins Muni/Harvey Field	Rawlins	WY	10,100	74	108
ANM	RXE	Rexburg-Madison County	Rexburg	ID	31,200	72	156
ANM	S03	Ashland Muni-Sumner Parker Field	Ashland	OR	21,384	14	57
ANM	S10	Lake Chelan	Chelan	WA	8,500	34	36
ANM	S27	Kalispell City	Kalispell	MT	38,400	104	122
ANM	S33	City-County	Madras	OR	10,316	92	129
ANM	S39	Prineville	Prineville	OR	10,821	181	222
ANM	S59	Libby	Libby	MT	5,000	97	109
ANM	S67	Nampa Muni	Nampa	ID	106,613	135	244
ANM	S70	Othello Muni	Othello	WA	30,000	64	215
ANM	S80	Idaho County	Grangeville	ID	14,376	76	160
ANM	S98	Vista Field	Kennewick	WA	0	34	405
ANM	SAA	Shively Field	Saratoga	WY	9,075	48	56
ANM	SBS	Steamboat Springs/Bob Adams Field	Steamboat Springs	CO	19,691	27	31
ANM	SBX	Shelby	Shelby	MT	8,400	13	15
ANM	SDY	Sidney-Richland Muni	Sidney	MT	24,050	10	18
ANM	SFF	Felts Field	Spokane	WA	72,378	1,304	1,543
ANM	SGU	St George Muni	St George	UT	44,798	197	268
ANM	SHN	Sanderson Field	Shelton	WA	44,209	105	315
ANM	SHR	Sheridan County	Sheridan	WY	36,210	175	181
ANM	SLE	McNary Fld	Salem	OR	99,432	388	705
ANM	SMN	Lemhi County	Salmon	ID	32,087	99	194
ANM	SPB	Scappoose Industrial Airpark	Scappoose	OR	63,636	22	92
ANM	STK	Sterling Muni	Sterling	CO	5,275	7	9
ANM	SUN	Friedman Memorial	Hailey	ID	48,220	162	221
ANM	SZT	Sandpoint	Sandpoint	ID	36,750	130	151
ANM	TAD	Perry Stokes	Trinidad	CO	10,805	94	111
ANM	TEX	Telluride Rgnl	Telluride	CO	16,308	1,262	4,264
ANM	TIW	Tacoma Narrows	Tacoma	WA	71,836	1,051	2,602
ANM	TMK	Tillamook	Tillamook	OR	10,736	113	97
ANM	TOR	Torrington Muni	Torrington	WY	3,352	36	39
ANM	TTD	Portland-Troutdale	Portland	OR	86,721	1,369	1,856
ANM	TWF	Joslin Field - Magic Valley Rgnl	Twin Falls	ID	36,360	40	63
ANM	U01	American Falls	American Falls	ID	0	2	2
ANM	U02	McCarley Fld	Blackfoot	ID	33,381	17	19
ANM	U14	Nephi Muni	Nephi	UT	6,500	14	26
ANM	U34	Green River Muni	Green River	UT	4,600	1	1
ANM	U42	Salt Lake City Muni 2	Salt Lake City	UT	75,000	186	295
ANM	U43	Monticello	Monticello	UT	4,650	6	6
ANM	U70	Cascade	Cascade	ID	8,940	16	18
ANM	U77	Spanish Fork-Springville	Spanish Fork	UT	52,700	18	30
ANM	U96	Cal Black Memorial	Halls Crossing	UT	2,400	54	52
ANM	UAO	Aurora State	Aurora	OR	85,882	251	529
ANM	VEL	Vernal Rgnl	Vernal	UT	9,950	24	34
ANM	WRL	Worland Muni	Worland	WY	5,886	38	36
ANM	WYS	Yellowstone	West Yellowstone	MT	19,520	8	14
ANM	YKM	Yakima Air Terminal/McAllister Field	Yakima	WA	47,958	8	15
ASO	01M	Tishomingo County	Belmont	MS	14,250	91	104
ASO	06A	Moton Field Muni	Tuskegee	AL	19,530	210	292
ASO	0A8	Bibb County	Centreville	AL	3,542	388	490
ASO	0A9	Elizabethton Muni	Elizabethton	TN	33,970	242	389
ASO	0J4	Florala Muni	Florala	AL	21,940	657	813
ASO	0M4	Benton County	Camden	TN	10,832	214	249
ASO	0M5	Humphreys County	Waverly	TN	11,860	253	358
ASO	11A	Clayton Muni	Clayton	AL	1,560	161	192
ASO	12J	Brewton Muni	Brewton	AL	165,500	722	1,013

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ASO	19A	Jackson County	Jefferson	GA	9,550	209	233
ASO	1A5	Macon County	Franklin	NC	9,000	329	450
ASO	1A9	Prattville - Grouby Field	Prattville	AL	8,754	231	288
ASO	1J0	Tri-County	Bonifay	FL	28,376	242	282
ASO	1M4	Posey Field	Haleyville	AL	10,185	554	612
ASO	1M5	Portland Muni	Portland	TN	12,180	280	495
ASO	1M9	Lake Barkley State Park	Cadiz	KY	4,050	92	102
ASO	1R7	Brookhaven-Lincoln County	Brookhaven	MS	13,200	687	798
ASO	25M	Ripley	Ripley	MS	10,800	340	380
ASO	27K	Georgetown Scott County - Marshall Fld	Georgetown	KY	23,150	372	1,017
ASO	28J	Palatka Muni - Lt. Kay Larkin Field	Palatka	FL	40,596	364	446
ASO	2A0	Mark Anton	Dayton	TN	11,200	361	541
ASO	2I0	Madisonville Muni	Madisonville	KY	17,054	186	256
ASO	2IS	Airglades	Clewiston	FL	11,527	34	37
ASO	2M2	Lawrenceburg-Lawrence County	Lawrenceburg	TN	15,125	292	337
ASO	2M8	Charles W. Baker	Millington	TN	39,600	3,276	5,333
ASO	2R4	Peter Prince Field	Milton	FL	69,336	453	657
ASO	3A1	Folsom Field	Cullman	AL	37,830	975	1,135
ASO	3J7	Greene County Rgnl	Greensboro	GA	9,950	96	105
ASO	3M7	Lafayette Muni	Lafayette	TN	11,975	573	901
ASO	40J	Perry-Foley	Perry	FL	18,400	163	183
ASO	42J	Keystone Airpark	Keystone Heights	FL	32,887	306	363
ASO	43A	Montgomery County	Star	NC	4,800	148	163
ASO	47A	Cherokee County	Canton	GA	20,800	1,227	2,270
ASO	4A4	Polk County Airport- Cornelius Moore Field	Cedartown	GA	11,500	405	711
ASO	4A6	Scottsboro Muni-Word Field	Scottsboro	AL	7,745	295	333
ASO	4A7	Clayton County - Tara Field	Hampton	GA	35,000	3,678	6,315
ASO	4A9	Isbell Field	Fort Payne	AL	16,470	448	549
ASO	4J5	Quitman Brooks County	Quitman	GA	11,000	495	572
ASO	4J6	St Marys	St Marys	GA	13,250	1,580	2,550
ASO	4R4	H L Sonny Callahan	Fairhope	AL	46,800	259	340
ASO	50J	Berkeley County	Moncks Corner	SC	42,000	868	1,123
ASO	55J	Fernandina Beach Muni	Fernandina Beach	FL	47,000	362	511
ASO	5W8	Siler City Muni	Siler City	NC	21,500	1,402	1,637
ASO	6I2	Lebanon-Springfield	Springfield	KY	5,510	92	175
ASO	6J2	St George	St George	SC	5,500	256	463
ASO	71J	Blackwell Field	Ozark	AL	91,500	0	0
ASO	73J	Beaufort County	Beaufort	SC	41,000	997	1,155
ASO	79J	Andalusia-Opp	Andalusia/Opp	AL	62,750	574	680
ASO	7A2	Demopolis Muni	Demopolis	AL	5,250	805	909
ASO	7K4	Ohio County	Hartford	KY	5,710	109	202
ASO	88J	Allendale County	Allendale	SC	13,200	332	376
ASO	8A0	Albertville Rgnl-Thomas J Brumlik Fld	Albertville	AL	25,400	783	871
ASO	8A1	Guntersville Muni - Joe Starnes Field	Guntersville	AL	9,217	429	489
ASO	9A1	Covington Muni	Covington	GA	41,800	2,304	3,997
ASO	9A4	Lawrence County	Courtland	AL	11,900	2	2
ASO	9A5	Barwick Lafayette	Lafayette	GA	6,500	199	254
ASO	9A6	Chester Catawba Rgnl	Chester	SC	8,400	312	472
ASO	AAF	Apalachicola Muni	Apalachicola	FL	24,375	253	308
ASO	AAS	Taylor County	Campbellsville	KY	10,200	292	487
ASO	ABY	Southwest Georgia Rgnl	Albany	GA	37,206	234	261
ASO	ACJ	Souther Field	Americus	GA	5,600	632	700
ASO	ACZ	Henderson Field	Wallace	NC	15,650	229	275
ASO	AFP	Anson County	Wadesboro	NC	7,200	114	126
ASO	AGS	Augusta Rgnl at Bush Field	Augusta	GA	29,742	585	739
ASO	AHN	Athens/Ben Epps	Athens	GA	53,205	100	110
ASO	AIK	Aiken Muni	Aiken	SC	55,100	610	719
ASO	AKH	Gastonia Muni	Gastonia	NC	50,040	1,598	2,729

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
						2012	2017
ASO	ALX	Thomas C Russell Fld	Alexander City	AL	33,312	294	352
ASO	AMG	Bacon County	Alma	GA	6,600	219	271
ASO	ANB	Anniston Metropolitan	Anniston	AL	34,164	280	547
ASO	AND	Anderson Rgnl	Anderson	SC	53,526	958	1,258
ASO	APF	Naples Muni	Naples	FL	130,474	435	514
ASO	APT	Marion County-Brown Field	Jasper	TN	3,600	124	184
ASO	ASJ	Tri-County	Ahoskie	NC	14,600	414	599
ASO	ASN	Talladega Muni	Talladega	AL	41,000	194	271
ASO	AUO	Auburn-Opelika Robert G. Pitts	Auburn	AL	65,445	604	1,008
ASO	AVL	Asheville Rgnl	Asheville	NC	80,189	559	636
ASO	AVO	Avon Park Executive	Avon Park	FL	32,400	180	220
ASO	AYS	Waycross-Ware County	Waycross	GA	17,000	814	1,009
ASO	BBP	Marlboro County Jetport - H.E. Avent Field	Bennettsville	SC	3,760	317	469
ASO	BCT	Boca Raton	Boca Raton	FL	92,153	2,079	2,865
ASO	BFM	Mobile Downtown	Mobile	AL	85,684	712	910
ASO	BGE	Decatur County Industrial Air Park	Bainbridge	GA	13,250	1,503	1,971
ASO	BGF	Winchester Muni	Winchester	TN	5,100	102	128
ASO	BHC	Baxley Muni	Baxley	GA	11,700	345	439
ASO	BHM	Birmingham Intl	Birmingham	AL	138,155	10,809	12,989
ASO	BKV	Hernando County	Brooksville	FL	77,723	2,140	3,632
ASO	BNL	Barnwell Rgnl	Barnwell	SC	23,750	249	277
ASO	BOW	Bartow Muni	Bartow	FL	47,096	305	691
ASO	BQK	Brunswick Golden Isles	Brunswick	GA	22,290	1,311	1,682
ASO	BRY	Samuels Field	Bardstown	KY	10,650	310	633
ASO	BUY	Burlington-Alamance Rgnl	Burlington	NC	38,950	1,864	3,324
ASO	BWG	Bowling Green-Warren County Rgnl	Bowling Green	KY	62,640	634	1,223
ASO	CAE	Columbia Metropolitan	Columbia	SC	96,813	3,832	4,857
ASO	CCO	Newnan Coweta County	Atlanta	GA	30,200	688	1,225
ASO	CDN	Woodward Field	Camden	SC	42,300	471	596
ASO	CEU	Oconee County Rgnl	Clemson	SC	70,000	205	277
ASO	CEW	Bob Sikes	Crestview	FL	62,793	194	267
ASO	CEY	Kyle-Oakley Field	Murray	KY	12,980	203	226
ASO	CGC	Crystal River	Crystal River	FL	38,700	605	752
ASO	CHA	Lovell Field	Chattanooga	TN	78,651	3,618	4,078
ASO	CKF	Crisp County-Cordele	Cordele	GA	26,100	226	274
ASO	CKM	Fletcher Field	Clarksdale	MS	23,725	154	159
ASO	CKV	Outlaw Field	Clarksville	TN	41,240	298	771
ASO	CLW	Clearwater Air Park	Clearwater	FL	50,590	1,159	1,456
ASO	COI	Merritt Island	Merritt Island	FL	113,500	157	185
ASO	CPC	Columbus County Muni	Whiteville	NC	11,500	514	636
ASO	CQW	Cheraw Muni/Lynch Bellinger Field	Cheraw	SC	20,700	405	553
ASO	CRE	Grand Strand	North Myrtle Beach	SC	54,295	419	490
ASO	CRG	Craig Muni	Jacksonville	FL	163,488	4,511	7,044
ASO	CRX	Roscoe Turner	Corinth	MS	20,800	391	429
ASO	CSG	Columbus Metropolitan	Columbus	GA	47,819	308	330
ASO	CSV	Crossville Memorial-Whitson Field	Crossville	TN	26,444	868	1,432
ASO	CTJ	West Georgia Rgnl - O V Gray Field	Carrollton	GA	35,000	1,086	1,855
ASO	CTY	Cross City	Cross City	FL	18,000	297	420
ASO	CTZ	Sampson County	Clinton	NC	13,750	255	300
ASO	CUB	Columbia Owens Downtown	Columbia	SC	56,000	2,335	2,951
ASO	CZL	Tom B. David Fld	Calhoun	GA	20,000	418	540
ASO	D73	Monroe-Walton County	Monroe	GA	12,000	553	748
ASO	DAB	Daytona Beach Intl	Daytona Beach	FL	303,591	385	423
ASO	DBN	W H “Bud” Barron	Dublin	GA	25,500	296	372
ASO	DCU	Pryor Field Rgnl	Decatur	AL	164,485	1,237	1,370
ASO	DED	Deland Muni-Sidney H Taylor Field	Deland	FL	77,710	126	139
ASO	DHN	Dothan Rgnl	Dothan	AL	91,095	131	139

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
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ASO	DKX	Knoxville Downtown Island	Knoxville	TN	86,779	4,203	5,442
ASO	DNL	Daniel Field	Augusta	GA	44,500	1,035	1,546
ASO	DNN	Dalton Muni	Dalton	GA	23,800	904	1,363
ASO	DPL	Duplin Co	Kenansville	NC	16,500	309	367
ASO	DQH	Douglas Muni	Douglas	GA	21,000	761	866
ASO	DTS	Destin-Fort Walton Beach	Destin	FL	53,045	1,328	1,468
ASO	DVK	Stuart Powell Field	Danville	KY	18,000	354	638
ASO	DWU	Ashland Rgnl	Ashland	KY	3,600	35	36
ASO	DYB	Summerville	Summerville	SC	36,000	1,285	1,717
ASO	DYR	Dyersburg Rgnl	Dyersburg	TN	19,400	207	235
ASO	ECG	Elizabeth City Cg Air Station/Rgnl	Elizabeth City	NC	87,750	411	624
ASO	EDE	Northeastern Rgnl	Edenton	NC	13,800	254	379
ASO	EDN	Enterprise Muni	Enterprise	AL	43,420	688	871
ASO	EET	Shelby County	Alabaster	AL	20,848	988	1,342
ASO	EHR	Henderson City-County	Henderson	KY	22,600	78	121
ASO	EKQ	Wayne County	Monticello	KY	8,300	112	173
ASO	EKX	Addington Field	Elizabethtown	KY	12,400	695	1,466
ASO	EKY	Bessemer	Bessemer	AL	98,361	1,951	2,670
ASO	EQY	Monroe Rgnl	Monroe	NC	56,100	3,397	5,507
ASO	EUF	Weedon Field	Eufaula	AL	36,638	270	309
ASO	EVB	New Smyrna Beach Muni	New Smyrna Beach	FL	154,750	77	88
ASO	EWN	Craven County Rgnl	New Bern	NC	39,549	840	1,523
ASO	EXX	Davidson County	Lexington	NC	9,000	981	1,570
ASO	EYF	Curtis L Brown Jr Field	Elizabethtown	NC	14,500	185	222
ASO	EYW	Key West Intl	Key West	FL	88,680	519	738
ASO	EZM	Heart of Georgia Rgnl	Eastman	GA	55,208	425	514
ASO	F45	North Palm Beach County General Aviation	West Palm Beach	FL	36,065	356	530
ASO	FAY	Fayetteville Rgnl/Grannis Field	Fayetteville	NC	55,542	1,354	1,655
ASO	FDW	Fairfield County	Winnsboro	SC	17,000	716	904
ASO	FFC	Peachtree City-Falcon Field	Atlanta	GA	52,592	849	1,711
ASO	FFT	Capital City	Frankfort	KY	49,200	323	543
ASO	FGX	Fleming-Mason	Flemingsburg	KY	15,800	213	241
ASO	FLO	Florence Rgnl	Florence	SC	31,737	110	119
ASO	FMY	Page Field	Fort Myers	FL	77,177	271	313
ASO	FPR	St Lucie County Intl	Fort Pierce	FL	120,131	90	104
ASO	FQD	Rutherford Co - Marchman Field	Rutherfordton	NC	33,800	275	388
ASO	FTY	Fulton County Airport-Brown Field	Atlanta	GA	122,196	17,494	29,093
ASO	FXE	Fort Lauderdale Executive	Fort Lauderdale	FL	199,788	6,231	11,974
ASO	FYM	Fayetteville Muni	Fayetteville	TN	19,260	125	162
ASO	FZG	Fitzgerald Muni	Fitzgerald	GA	11,000	360	408
ASO	GAD	Northeast Alabama Rgnl	Gadsden	AL	23,886	245	464
ASO	GCY	Greeneville-Greene County Muni	Greeneville	TN	43,500	1,038	1,322
ASO	GEV	Ashe County	Jefferson	NC	10,400	365	457
ASO	GGE	Georgetown County	Georgetown	SC	48,000	1,215	1,663
ASO	GIF	Winter Haven's Gilbert	Winter Haven	FL	61,366	466	907
ASO	GKT	Gatlinburg-Pigeon Forge	Sevierville	TN	48,780	1,625	2,080
ASO	GLH	Mid Delta Rgnl	Greenville	MS	27,168	480	490
ASO	GLW	Glasgow Muni	Glasgow	KY	13,350	380	783
ASO	GMU	Greenville Downtown	Greenville	SC	76,622	3,525	4,360
ASO	GNF	Grenada Muni	Grenada	MS	16,051	277	298
ASO	GNV	Gainesville Rgnl	Gainesville	FL	85,656	306	394
ASO	GPT	Gulfport-Biloxi Intl	Gulfport	MS	52,264	1,546	1,784
ASO	GRD	Greenwood County	Greenwood	SC	40,000	382	502
ASO	GSO	Piedmont Triad Intl	Greensboro	NC	109,355	5,014	8,939
ASO	GSP	Greenville Spartanburg Intl -	Greer	SC	61,202	2,248	3,353
ASO	GTR	Golden Triangle Rgnl	Columbus/W Point/Starkville	MS	32,459	93	111
ASO	GVL	Lee Gilmer Memorial	Gainesville	GA	36,550	1,504	1,736
ASO	GWO	Greenwood-Leflore	Greenwood	MS	46,343	471	509

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ASO	GWW	Goldsboro-Wayne Muni	Goldsboro	NC	14,700	28	31
ASO	GYH	Donaldson Center	Greenville	SC	45,720	1,483	2,020
ASO	GZS	Abernathy Field	Pulaski	TN	8,200	202	238
ASO	HAB	Marion County-Rankin Fite	Hamilton	AL	21,800	443	487
ASO	HBG	Hattiesburg Bobby L Chain Muni	Hattiesburg	MS	37,146	436	475
ASO	HBI	Asheboro Rgnl	Asheboro	NC	17,300	1,306	2,173
ASO	HEG	Herlong	Jacksonville	FL	69,187	1,570	2,753
ASO	HEZ	Hardy-Anders Field Natchez-Adams County	Natchez	MS	17,300	217	225
ASO	HKS	Hawkins Field	Jackson	MS	45,843	1,242	1,491
ASO	HKY	Hickory Rgnl	Hickory	NC	36,581	798	1,675
ASO	HNZ	Henderson-Oxford	Oxford	NC	21,100	638	1,030
ASO	HOE	Homerville	Homerville	GA	900	311	365
ASO	HQU	Thomson-McDuffie County	Thomson	GA	19,000	193	249
ASO	HRJ	Harnett County	Erwin	NC	30,500	899	1,117
ASO	HSA	Stennis Intl	Bay St Louis	MS	15,066	288	353
ASO	HSV	Huntsville Intl-Carl T Jones Field	Huntsville	AL	94,700	2,021	2,254
ASO	HVC	Hopkinsville-Christian County	Hopkinsville	KY	23,300	125	299
ASO	HVS	Hartsville Rgnl	Hartsville	SC	6,000	597	806
ASO	HWO	North Perry	Hollywood	FL	182,307	1,057	2,158
ASO	HXD	Hilton Head	Hilton Head Island	SC	45,624	1,840	2,252
ASO	HYW	Conway-Horry County	Conway	SC	76,708	323	406
ASO	HZD	Carroll County	Huntingdon	TN	6,290	190	219
ASO	I39	Madison	Richmond	KY	15,300	358	985
ASO	IGX	Horace Williams	Chapel Hill	NC	0	2,372	17,217
ASO	IIY	Washington-Wilkes County	Washington	GA	6,000	168	181
ASO	ILM	Wilmington Intl	Wilmington	NC	85,373	1,686	2,329
ASO	IMM	Immokalee	Immokalee	FL	35,096	17	19
ASO	INT	Smith Reynolds	Winston Salem	NC	59,569	5,666	9,233
ASO	IOB	Mount Sterling-Montgomery County	Mount Sterling	KY	32,155	419	678
ASO	IPJ	Lincolnton-Lincoln County Rgnl	Lincolnton	NC	33,400	732	1,275
ASO	ISM	Kissimmee Gateway	Orlando	FL	168,164	2,499	4,731
ASO	ISO	Kinston Rgnl Jetport at Stallings Fld	Kinston	NC	31,403	1,066	1,352
ASO	JAN	Jackson-Evers Intl	Jackson	MS	75,578	1,617	2,034
ASO	JES	Jesup-Wayne County	Jesup	GA	5,000	1,183	1,865
ASO	JFX	Walker County-Bevill Field	Jasper	AL	33,616	618	810
ASO	JKA	Jack Edwards	Gulf Shores	AL	95,501	558	659
ASO	JKL	Julian Carroll	Jackson	KY	5,550	219	247
ASO	JNX	Johnston County	Smithfield	NC	25,000	1,033	1,865
ASO	JQF	Concord Rgnl	Concord	NC	65,930	6,591	10,074
ASO	JZI	Charleston Executive	Charleston	SC	65,000	2,384	2,906
ASO	K20	Wendell H Ford	Hazard	KY	10,200	420	505
ASO	K22	Big Sandy Rgnl	Prestonsburg	KY	6,400	310	359
ASO	K24	Russell County	Jamestown	KY	5,300	153	309
ASO	LAL	Lakeland Linder Rgnl	Lakeland	FL	141,754	1,165	2,479
ASO	LBT	Lumberton Muni	Lumberton	NC	27,000	506	634
ASO	LCQ	Lake City Muni	Lake City	FL	28,000	556	834
ASO	LEE	Leesburg Intl	Leesburg	FL	70,999	1,709	2,060
ASO	LEX	Blue Grass	Lexington	KY	81,274	2,547	5,962
ASO	LGC	Lagrange-Callaway	Lagrange	GA	15,342	459	547
ASO	LHZ	Franklin County	Louisburg	NC	51,800	716	3,756
ASO	LKR	Lancaster County-Mc Whirter Field	Lancaster	SC	25,000	797	1,110
ASO	LMS	Louisville Winston County	Louisville	MS	8,000	74	92
ASO	LNA	Palm Beach County Park	West Palm Beach	FL	161,005	565	800
ASO	LOU	Bowman Field	Louisville	KY	100,393	1,351	2,341
ASO	LOZ	London-Corbin Arpt-Magee Fld	London	KY	13,063	376	544

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ASO	LQK	Pickens County	Pickens	SC	40,100	621	803
ASO	LRO	Mt Pleasant Rgnl-Faison Field	Mount Pleasant	SC	29,200	1,194	1,489
ASO	LUG	Ellington	Lewisburg	TN	17,050	497	669
ASO	LUL	Hesler-Noble Field	Laurel	MS	27,725	503	556
ASO	LZU	Gwinnett County - Briscoe Field	Lawrenceville	GA	85,686	14,559	26,682
ASO	M01	General Dewitt Spain	Memphis	TN	39,050	4,919	7,035
ASO	M02	Dickson Muni	Dickson	TN	13,565	516	860
ASO	M04	Covington Muni	Covington	TN	24,500	1,239	1,525
ASO	M16	John Bell Williams	Raymond	MS	24,650	408	494
ASO	M21	Muhlenberg County	Greenville	KY	7,224	110	153
ASO	M25	Mayfield Graves County	Mayfield	KY	8,250	139	196
ASO	M33	Sumner County Rgnl	Gallatin	TN	33,750	818	1,479
ASO	M34	Kentucky Dam State Park	Gilbertsville	KY	12,800	127	200
ASO	M40	Monroe County	Aberdeen/Amory	MS	12,600	180	200
ASO	M54	Lebanon Muni	Lebanon	TN	30,800	328	626
ASO	M91	Springfield Robertson County	Springfield	TN	60,800	493	851
ASO	M95	Richard Arthur Field	Fayette	AL	15,300	409	469
ASO	MAC	Macon Downtown	Macon	GA	19,500	803	862
ASO	MAI	Marianna Muni	Marianna	FL	28,016	417	481
ASO	MAO	Marion County	Marion	SC	6,450	503	784
ASO	MBO	Bruce Campbell Field	Madison	MS	53,900	806	1,000
ASO	MBT	Murfreesboro Muni	Murfreesboro	TN	52,000	628	1,216
ASO	MCB	Mc Comb/Pike County/John E Lewis Field	Mc Comb	MS	10,950	369	421
ASO	MCN	Middle Georgia Rgnl	Macon	GA	27,400	2,544	2,807
ASO	MCZ	Martin County	Williamston	NC	7,900	163	262
ASO	MDQ	Madison County Executive/Tom Sharp Jr Fld	Huntsville	AL	32,385	1,331	1,500
ASO	MEB	Laurinburg-Maxton	Maxton	NC	30,000	505	560
ASO	MEI	Key Field	Meridian	MS	74,701	324	369
ASO	MGM	Montgomery Rgnl (Dannelly Field)	Montgomery	AL	72,503	797	904
ASO	MGR	Moultrie Muni	Moultrie	GA	15,100	555	634
ASO	MJD	Picayune Muni	Picayune	MS	22,255	336	395
ASO	MKL	Mc Kellar-Sipes Rgnl	Jackson	TN	25,011	1,659	2,418
ASO	MKY	Marco Island	Marco Island	FL	14,354	31	33
ASO	MLB	Melbourne Intl	Melbourne	FL	159,728	349	411
ASO	MLJ	Baldwin County	Milledgeville	GA	10,000	301	389
ASO	MMI	McMinn County	Athens	TN	30,000	215	414
ASO	MNV	Monroe County	Madisonville	TN	21,924	180	245
ASO	MOB	Mobile Rgnl	Mobile	AL	94,766	761	1,197
ASO	MOR	Moore-Murrell	Morristown	TN	46,000	1,409	1,756
ASO	MPE	Philadelphia Muni	Philadelphia	MS	13,300	329	379
ASO	MQI	Dare County Rgnl	Manteo	NC	46,700	479	617
ASO	MQY	Smyrna	Smyrna	TN	62,808	4,993	8,423
ASO	MRC	Maury County	Columbia/Mount Pleasant	TN	28,900	702	956
ASO	MRH	Michael J. Smith Field	Beaufort	NC	43,800	610	1,072
ASO	MRN	Foothills Rgnl	Morganton	NC	17,000	67	82
ASO	MSL	Northwest Alabama Rgnl	Muscle Shoals	AL	44,860	214	233
ASO	MTH	The Florida Keys Marathon	Marathon	FL	64,149	276	347
ASO	MVC	Monroe County	Monroeville	AL	20,100	685	865
ASO	MWK	Mount Airy/Surry County	Mount Airy	NC	17,100	464	700
ASO	MYR	Myrtle Beach Intl	Myrtle Beach	SC	55,403	654	767
ASO	OAJ	Albert J Ellis	Jacksonville	NC	33,230	156	177
ASO	OBE	Okeechobee County	Okeechobee	FL	32,256	33	37
ASO	OCF	Ocala Intl-Jim Taylor Field	Ocala	FL	106,304	203	280
ASO	OCW	Warren Field	Washington	NC	28,100	351	606
ASO	OGB	Orangeburg Muni	Orangeburg	SC	22,420	819	1,010
ASO	OKZ	Kaolin Field	Sandersville	GA	10,150	132	158
ASO	OMN	Ormond Beach Muni	Ormond Beach	FL	150,313	64	72
ASO	ONX	Currituck County	Currituck	NC	3,550	165	229

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ASO	OPF	Opa Locka	Miami	FL	115,618	4,691	7,513
ASO	OPN	Thomaston-Upson County	Thomaston	GA	16,000	414	472
ASO	ORL	Executive	Orlando	FL	151,734	7,574	12,262
ASO	OSX	Kosciusko-Attala County	Kosciusko	MS	3,426	439	531
ASO	OWB	Owensboro-Daviess County	Owensboro	KY	59,430	210	279
ASO	PAH	Barkley Rgnl	Paducah	KY	40,335	642	808
ASO	PBX	Pike County-Hatcher Field	Pikeville	KY	8,700	550	646
ASO	PCM	Plant City Muni	Plant City	FL	42,222	517	1,114
ASO	PDK	Dekalb-Peachtree	Atlanta	GA	223,399	21,555	35,184
ASO	PFN	Panama City-Bay Co Intl	Panama City	FL	84,572	588	778
ASO	PGD	Charlotte County	Punta Gorda	FL	81,807	171	204
ASO	PGV	Pitt-Greenville	Greenville	NC	48,055	53	57
ASO	PHK	Palm Beach Co Glades	Pahokee	FL	15,928	37	49
ASO	PHT	Henry County	Paris	TN	16,445	266	308
ASO	PIB	Hattiesburg-Laurel Rgnl	Hattiesburg/Laurel	MS	38,940	177	194
ASO	PIE	St Petersburg-Clearwater Intl	St Petersburg-Clearwater	FL	187,884	1,956	2,281
ASO	PIM	Harris County	Pine Mountain	GA	7,500	3	3
ASO	PLR	St Clair County	Pell City	AL	34,572	352	489
ASO	PMP	Pompano Beach Airpark	Pompano Beach	FL	120,419	387	1,019
ASO	PMU	Panola County	Batesville	MS	14,000	375	620
ASO	PMZ	Plymouth Muni	Plymouth	NC	6,350	199	377
ASO	PNS	Pensacola Rgnl	Pensacola	FL	108,636	1,913	2,582
ASO	PQL	Trent Lott Intl	Pascagoula	MS	32,721	185	273
ASO	PRN	Mac Crenshaw Memorial	Greenville	AL	4,274	208	296
ASO	PVE	Beech River Rgnl	Lexington-Parsons	TN	0	416	479
ASO	PXE	Perry-Houston County	Perry	GA	22,000	901	1,069
ASO	RBW	Lowcountry Rgnl	Walterboro	SC	28,000	716	1,010
ASO	RCZ	Richmond County	Rockingham	NC	10,560	171	188
ASO	RHP	Andrews-Murphy	Andrews	NC	16,600	561	670
ASO	RKW	Rockwood Muni	Rockwood	TN	15,500	209	323
ASO	RMG	Richard B Russell	Rome	GA	33,700	457	614
ASO	RNC	Warren County Memorial	Mc Minnville	TN	31,504	422	637
ASO	RNV	Cleveland Muni	Cleveland	MS	57,850	203	205
ASO	RUQ	Rowan County	Salisbury	NC	31,000	1,499	2,217
ASO	RWI	Rocky Mount-Wilson Rgnl	Rocky Mount	NC	24,904	77	82
ASO	RYY	Cobb County-Mc Collum Field	Atlanta	GA	110,069	9,425	17,018
ASO	RZZ	Halifax County	Roanoke Rapids	NC	31,500	425	562
ASO	SAV	Savannah/Hilton Head Intl	Savannah	GA	101,376	1,288	2,414
ASO	SBO	Emanuel County	Swainsboro	GA	4,800	190	222
ASO	SCD	Merkel Field Sylacauga Muni	Sylacauga	AL	16,219	294	420
ASO	SCX	Scott Muni	Oneida	TN	11,000	514	714
ASO	SDF	Louisville Intl-Standiford Field	Louisville	KY	177,332	2,511	4,709
ASO	SEF	Sebring Rgnl	Sebring	FL	103,087	63	70
ASO	SEM	Craig Field	Selma	AL	38,550	535	684
ASO	SFB	Orlando Sanford Intl	Orlando	FL	312,633	4,742	5,294
ASO	SGJ	St Augustine	St Augustine	FL	104,617	840	1,272
ASO	SIF	Rockingham County NC Shiloh	Reidsville	NC	29,100	471	686
ASO	SME	Somerset-Pulaski County-J.T. Wilson Field	Somerset	KY	29,305	249	424
ASO	SMS	Sumter	Sumter	SC	39,000	13	14
ASO	SNH	Savannah-Hardin County	Savannah	TN	10,060	340	397
ASO	SOP	Moore County	Pinehurst/Southern Pines	NC	29,227	684	768
ASO	SPA	Spartanburg Downtown Memorial	Spartanburg	SC	34,450	2,735	3,463
ASO	SPG	Albert Whitted	St Petersburg	FL	75,083	900	1,006
ASO	SRQ	Sarasota/Bradenton Intl	Sarasota/Bradenton	FL	143,450	1,108	1,341
ASO	SSI	Malcolm Mc Kinnon	Brunswick	GA	40,750	1,121	1,458
ASO	STF	George M Bryan	Starkville	MS	20,520	335	365
ASO	SUA	Witham Field	Stuart	FL	78,143	273	345
ASO	SUT	Brunswick County	Oak Island	NC	40,100	698	943
ASO	SVH	Statesville Rgnl	Statesville	NC	31,200	980	1,718
ASO	SZY	Robert Sibley	Selmer	TN	9,990	290	332

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ASO	TBR	Statesboro-Bulloch County	Statesboro	GA	16,500	1,506	2,305
ASO	TCL	Tuscaloosa Rgnl	Tuscaloosa	AL	59,184	416	679
ASO	TDF	Person County	Roxboro	NC	34,750	548	809
ASO	TGC	Gibson County	Trenton	TN	15,240	176	202
ASO	THA	Tullahoma Rgnl Arpt/Wm Northern Field	Tullahoma	TN	30,400	403	568
ASO	TIX	Space Coast Rgnl	Titusville	FL	170,121	88	107
ASO	TLH	Tallahassee Rgnl	Tallahassee	FL	97,277	9,483	13,392
ASO	TMA	Henry Tift Myers	Tifton	GA	19,870	634	722
ASO	TMB	Kendall-Tamiami Executive	Miami	FL	249,136	2,167	3,492
ASO	TOC	Toccoa Rg Letourneau Field	Toccoa	GA	30,000	492	531
ASO	TOI	Troy Muni	Troy	AL	69,088	426	582
ASO	TPF	Peter O Knight	Tampa	FL	51,538	2,088	3,900
ASO	TRI	Tri-Cities Rgnl	Bristol/Johnson/Kingsport	TN	65,737	1,232	1,727
ASO	TTA	Sanford-Lee County Rgnl	Sanford	NC	47,000	972	1,418
ASO	TUP	Tupelo Rgnl	Tupelo	MS	60,040	630	697
ASO	TVI	Thomasville Rgnl	Thomasville	GA	12,200	1,034	1,475
ASO	TWT	Sturgis Muni	Sturgis	KY	9,250	252	352
ASO	TYS	Mc Ghee Tyson	Knoxville	TN	130,054	9,898	12,393
ASO	UBS	Columbus-Lowndes County	Columbus	MS	13,200	124	149
ASO	UCY	Everett-Stewart	Union City	TN	24,000	332	361
ASO	UDG	Darlington County Jetport	Darlington	SC	9,600	203	283
ASO	UKF	Wilkes County	North Wilkesboro	NC	23,000	710	1,168
ASO	UOX	University-Oxford	Oxford	MS	65,811	448	491
ASO	UTA	Tunica Muni	Tunica	MS	11,730	166	256
ASO	UZA	Rock Hill/York Co/Bryant Field	Rock Hill	SC	42,500	1,906	2,952
ASO	VDF	Vandenberg	Tampa	FL	96,377	2,212	4,350
ASO	VDI	Vidalia Rgnl	Vidalia	GA	17,500	598	1,030
ASO	VKS	Vicksburg Muni	Vicksburg	MS	0	483	575
ASO	VLD	Valdosta Rgnl	Valdosta	GA	58,592	1,610	1,838
ASO	VNC	Venice Muni	Venice	FL	177,140	156	182
ASO	VPC	Cartersville	Cartersville	GA	64,500	1,860	2,770
ASO	VQQ	Cecil Field	Jacksonville	FL	75,979	1,285	2,071
ASO	VRB	Vero Beach Muni	Vero Beach	FL	147,595	135	154
ASO	VUJ	Stanly County	Albemarle	NC	31,000	470	709
ASO	W03	Wilson Industrial Air Center	Wilson	NC	0	367	448
ASO	W38	Williamsburg-Whitley County	Williamsburg	KY	50	242	357
ASO	WDR	Winder-Barrow	Winder	GA	67,000	603	883
ASO	X06	Arcadia Muni	Arcadia	FL	19,370	17	18
ASO	X07	Lake Wales Muni	Lake Wales	FL	20,000	152	241
ASO	X14	La Belle Muni	La Belle	FL	22,000	16	18
ASO	X21	Arthur Dunn Air Park	Titusville	FL	26,335	63	70
ASO	X26	Sebastian Muni	Sebastian	FL	37,240	12	15
ASO	X35	Dunnellon/Marion Co & Park of Commerce	Dunnellon	FL	15,000	25	35
ASO	X47	Flagler County	Bunnell	FL	237,643	311	507
ASO	X51	Homestead General Aviation	Homestead	FL	72,084	320	518
ASO	X60	Williston Muni	Williston	FL	16,250	169	241
ASO	ZEF	Elkin Muni	Elkin	NC	13,350	276	468
ASO	ZPH	Zephyrhills Muni	Zephyrhills	FL	54,530	616	1,179
ASW	0F2	Bowie Muni	Bowie	TX	5,480	54	68
ASW	0M0	Billy Free Muni	Dumas	AR	5,350	27	30
ASW	0R3	Abbeville Chris Crusta Memorial	Abbeville	LA	92,345	189	234
ASW	11R	Brenham Muni	Brenham	TX	7,550	1,004	1,191
ASW	1F0	Ardmore Downtown Executive	Ardmore	OK	11,200	52	59
ASW	37F	Munday Muni	Munday	TX	0	109	126
ASW	3F3	C E 'Rusty' Williams	Mansfield	LA	9,000	213	270
ASW	3O9	Grand Lake Rgnl	Afton	OK	7,000	728	886
ASW	3R7	Jennings	Jennings	LA	54,530	113	123
ASW	3T5	Fayette Rgnl Air Center	La Grange	TX	7,500	550	922
ASW	41F	Floydada Muni	Floydada	TX	6,300	420	655
ASW	4F2	Panola County-Sharpe Field	Carthage	TX	22,000	236	379

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ASW	4O4	Mc Curtain County Rgnl	Idabel	OK	3,000	67	80
ASW	4R7	Eunice	Eunice	LA	15,000	10	28
ASW	5T6	Dona Ana County at Santa Teresa	Santa Teresa	NM	47,763	209	346
ASW	5T9	Maverick County Memorial Intl	Eagle Pass	TX	600	130	148
ASW	66R	Robert R Wells Jr	Columbus	TX	0	354	408
ASW	6M0	Hazen Muni	Hazen	AR	0	77	112
ASW	8T6	Live Oak County	George West	TX	0	227	408
ASW	9M6	Kelly	Oak Grove	LA	8,000	298	323
ASW	ABI	Abilene Rgnl	Abilene	TX	78,266	696	810
ASW	ACP	Allen Parish	Oakdale	LA	8,500	416	469
ASW	ACT	Waco Rgnl	Waco	TX	36,583	29	33
ASW	ADH	Ada Muni	Ada	OK	12,250	145	222
ASW	ADM	Ardmore Muni	Ardmore	OK	35,502	68	98
ASW	ADS	Addison	Dallas	TX	131,833	56,490	92,170
ASW	AEG	Double Eagle II	Albuquerque	NM	133,654	2,671	4,500
ASW	AEX	Alexandria Intl	Alexandria	LA	50,747	29	31
ASW	AFW	Fort Worth Alliance	Fort Worth	TX	82,251	943	1,855
ASW	AGO	Magnolia Muni	Magnolia	AR	10,400	314	402
ASW	ALI	Alice Intl	Alice	TX	19,210	164	395
ASW	ALM	Alamogordo-White Sands Rgnl	Alamogordo	NM	33,700	309	343
ASW	AMA	Rick Husband Amarillo Intl	Amarillo	TX	82,646	547	931
ASW	AQO	Llano Muni	Llano	TX	11,100	312	359
ASW	ARA	Acadiana Rgnl	New Iberia	LA	140,150	283	360
ASW	ARG	Walnut Ridge Rgnl	Walnut Ridge	AR	89,000	26	30
ASW	ARM	Wharton Rgnl	Wharton	TX	11,800	795	1,271
ASW	ASD	Slidell	Slidell	LA	85,000	296	537
ASW	ASG	Springdale Muni	Springdale	AR	29,477	218	285
ASW	ASL	Harrison County	Marshall	TX	12,300	4	4
ASW	ATS	Artesia Muni	Artesia	NM	10,350	67	76
ASW	AVK	Alva Rgnl	Alva	OK	6,500	563	677
ASW	AWM	West Memphis Muni	West Memphis	AR	75,000	923	1,188
ASW	AXS	Altus/Quartz Mountain Rgnl	Altus	OK	12,775	232	268
ASW	AXX	Angel Fire	Angel Fire	NM	2,600	5	5
ASW	BAZ	New Braunfels Muni	New Braunfels	TX	26,000	1,910	4,191
ASW	BBD	Curtis Field	Brady	TX	23,523	190	254
ASW	BDQ	Morrilton Muni	Morrilton	AR	7,050	124	216
ASW	BEA	Beeville Muni	Beeville	TX	0	1,234	2,066
ASW	BFE	Terry County	Brownfield	TX	8,700	820	1,572
ASW	BGD	Hutchinson County	Borger	TX	8,560	400	789
ASW	BKD	Stephens County	Breckenridge	TX	15,900	20	22
ASW	BKS	Brooks County	Falfurrias	TX	5,100	38	90
ASW	BMQ	Burnet Muni Kate Craddock Field	Burnet	TX	31,200	737	849
ASW	BMT	Beaumont Muni	Beaumont	TX	20,000	109	117
ASW	BPG	Big Spring Mc Mahon-Wrinkle	Big Spring	TX	11,537	1,054	1,919
ASW	BPK	Ozark Rgnl	Mountain Home	AR	41,271	197	211
ASW	BPT	Southeast Texas Rgnl	Beaumont/Port Arthur	TX	37,673	188	202
ASW	BQP	Morehouse Memorial	Bastrop	LA	30,200	763	860
ASW	BRO	Brownsville/South Padre Island Int'L	Brownsville	TX	43,803	35	42
ASW	BTR	Baton Rouge Metropolitan, Ryan Field	Baton Rouge	LA	90,083	1,453	1,776
ASW	BVO	Bartlesville Muni	Bartlesville	OK	10,802	543	739
ASW	BVX	Batesville Rgnl	Batesville	AR	60,000	70	74
ASW	BWD	Brownwood Rgnl	Brownwood	TX	9,500	114	130
ASW	BXA	George R Carr Memorial Air Fld	Bogalusa	LA	24,000	340	358
ASW	BYH	Arkansas Intl	Blytheville	AR	18,000	35	38
ASW	BYY	Bay City Muni	Bay City	TX	8,750	264	568
ASW	CAO	Clayton Muni Arpk	Clayton	NM	4,010	56	74
ASW	CDH	Harrell Field	Camden	AR	14,000	80	86

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ASW	CDS	Childress Muni	Childress	TX	0	237	618
ASW	CFD	Coulter Field	Bryan	TX	16,200	8	27
ASW	CHK	Chickasha Muni	Chickasha	OK	17,100	565	755
ASW	CLL	Easterwood Field	College Station	TX	50,016	39	79
ASW	CNM	Cavern City Air Trml	Carlsbad	NM	19,300	128	167
ASW	CNW	Tstc Waco	Waco	TX	42,153	1	1
ASW	COT	Cotulla-La Salle County	Cotulla	TX	7,900	325	403
ASW	CPT	Cleburne Muni	Cleburne	TX	30,108	140	480
ASW	CRP	Corpus Christi Intl	Corpus Christi	TX	99,859	753	1,805
ASW	CRS	C David Campbell Field-Corsicana Muni	Corsicana	TX	7,800	131	146
ASW	CRT	Z M Jack Stell Field	Crossett	AR	2,605	65	78
ASW	CSM	Clinton-Sherman	Clinton	OK	49,500	194	226
ASW	CUH	Cushing Muni	Cushing	OK	2,500	770	1,186
ASW	CVK	Sharp County Rgnl	Ash Flat	AR	4,400	122	136
ASW	CVN	Clovis Muni	Clovis	NM	46,165	293	315
ASW	CWC	Kickapoo Downtown	Wichita Falls	TX	0	0	0
ASW	CWF	Chennault Intl	Lake Charles	LA	34,548	10	10
ASW	CWS	Dennis F Cantrell Field	Conway	AR	15,450	294	503
ASW	CXO	Lone Star Executive	Houston	TX	88,211	3,857	8,498
ASW	CZT	Dimmit County	Carrizo Springs	TX	1,800	157	206
ASW	DEQ	J Lynn Helms Sevier County	De Queen	AR	11,710	127	139
ASW	DHT	Dalhart Muni	Dalhart	TX	20,050	50	80
ASW	DMN	Deming Muni	Deming	NM	28,655	149	165
ASW	DRI	Beauregard Rgnl	De Ridder	LA	14,400	315	357
ASW	DRT	Del Rio Intl	Del Rio	TX	15,236	187	211
ASW	DTN	Shreveport Downtown	Shreveport	LA	57,952	1,784	2,177
ASW	DTO	Denton Muni	Denton	TX	91,858	2,629	5,328
ASW	DUA	Eaker Field	Durant	OK	46,030	209	421
ASW	DUC	Halliburton Field	Duncan	OK	10,250	59	76
ASW	DUX	Moore County	Dumas	TX	5,080	101	174
ASW	E01	Roy Hurd Memorial	Monahans	TX	4,200	326	600
ASW	E11	Andrews County	Andrews	TX	3,600	339	583
ASW	E38	Alpine-Casparis Muni	Alpine	TX	9,350	174	220
ASW	E80	Alexander Muni	Belen	NM	17,450	474	798
ASW	EBG	Edinburg Intl	Edinburg	TX	4,800	43	94
ASW	EFD	Ellington Field	Houston	TX	144,974	9,665	18,357
ASW	ELA	Eagle Lake	Eagle Lake	TX	13,200	554	898
ASW	ELD	South Arkansas Rgnl at Goodwin Field	El Dorado	AR	28,206	114	124
ASW	ELK	Elk City Rgnl Business	Elk City	OK	6,000	432	497
ASW	ELP	El Paso Intl	El Paso	TX	102,522	2,406	4,151
ASW	ERV	Kerrville Muni/Louis Schreiner Field	Kerrville	TX	50,625	3,077	5,256
ASW	ESF	Esler Rgnl	Alexandria	LA	5,123	0	0
ASW	ETN	Eastland Muni	Eastland	TX	4,800	63	72
ASW	F05	Wilbarger County	Vernon	TX	6,400	118	184
ASW	F17	Center Muni	Center	TX	7,530	579	751
ASW	F22	Perry Muni	Perry	OK	9,500	106	167
ASW	F29	Clarence E Page Muni	Oklahoma City	OK	27,500	111	181
ASW	F41	Ennis Muni	Ennis	TX	6,846	188	447
ASW	F44	Athens Muni	Athens	TX	6,000	865	1,241
ASW	F46	Rockwall Muni	Rockwall	TX	38,020	1,097	2,776
ASW	F49	Slaton Muni	Slaton	TX	9,700	305	491
ASW	FCY	Forrest City Muni	Forrest City	AR	16,727	104	139
ASW	FDR	Frederick Muni	Frederick	OK	63,200	63	77
ASW	FLP	Marion County Rgnl	Flippin	AR	16,800	92	98
ASW	FMN	Four Corners Rgnl	Farmington	NM	103,637	602	2,176
ASW	FSM	Fort Smith Rgnl	Fort Smith	AR	70,329	120	277
ASW	FST	Fort Stockton-Pecos County	Fort Stockton	TX	8,350	183	364
ASW	FTW	Fort Worth Meacham Intl	Fort Worth	TX	100,732	4,641	10,333
ASW	FWS	Fort Worth Spinks	Fort Worth	TX	56,353	407	1,437
ASW	FYV	Drake Field	Fayetteville	AR	35,648	212	339
ASW	GAO	South Lafourche Leonard Miller Jr	Galliano	LA	12,867	31	36

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ASW	GCM	Claremore Rgnl	Claremore	OK	25,500	514	741
ASW	GDJ	Granbury Muni	Granbury	TX	12,100	125	339
ASW	GGG	East Texas Rgnl	Longview	TX	90,685	193	211
ASW	GKY	Arlington Muni	Arlington	TX	155,862	684	1,945
ASW	GLE	Gainesville Muni	Gainesville	TX	20,200	209	439
ASW	GLS	Scholes Intl at Galveston	Galveston	TX	67,040	221	448
ASW	GMJ	Grove Muni	Grove	OK	20,750	499	607
ASW	GNC	Gaines County	Seminole	TX	7,350	590	668
ASW	GNT	Grants-Milan Muni	Grants	NM	8,450	691	943
ASW	GOK	Guthrie-Edmond Rgnl	Guthrie	OK	30,020	239	380
ASW	GPM	Grand Prairie Muni	Grand Prairie	TX	87,805	573	1,817
ASW	GTU	Georgetown Muni	Georgetown	TX	145,600	4,574	8,246
ASW	GUP	Gallup Muni	Gallup	NM	22,000	684	760
ASW	GUY	Guymon Muni	Guymon	OK	19,025	90	111
ASW	GVT	Majors	Greenville	TX	24,849	769	1,499
ASW	GYB	Giddings-Lee County	Giddings	TX	3,000	488	848
ASW	GYI	Grayson County	Sherman/Denison	TX	45,343	503	1,130
ASW	H35	Clarksville Muni	Clarksville	AR	3,500	118	142
ASW	H71	Mid-America Industrial	Pryor	OK	16,625	462	788
ASW	HBR	Hobart Muni	Hobart	OK	960	124	145
ASW	HBV	Jim Hogg County	Hebbronville	TX	3,400	49	56
ASW	HBZ	Heber Springs Muni	Heber Springs	AR	19,500	255	424
ASW	HDC	Hammond Northshore Rgnl	Hammond	LA	76,850	884	1,173
ASW	HDO	Hondo Muni	Hondo	TX	162,385	442	793
ASW	HEE	Thompson-Robbins	Helena/West Helena	AR	35,000	52	67
ASW	HHW	Stan Stamper Muni	Hugo	OK	6,000	27	30
ASW	HKA	Blytheville Muni	Blytheville	AR	67,000	29	30
ASW	HOB	Lea County Rgnl	Hobbs	NM	12,689	595	705
ASW	HOT	Memorial Field	Hot Springs	AR	42,622	711	791
ASW	HQZ	Mesquite Metro	Mesquite	TX	118,998	2,721	5,228
ASW	HRL	Valley Intl	Harlingen	TX	50,360	1,350	5,168
ASW	HRO	Boone County	Harrison	AR	16,100	150	168
ASW	HRX	Hereford Muni	Hereford	TX	13,405	634	724
ASW	HUM	Houma-Terrebonne	Houma	LA	99,927	257	304
ASW	HYI	San Marcos Muni	San Marcos	TX	120,420	6,820	12,984
ASW	I58	Santa Rosa Route 66	Santa Rosa	NM	2,130	18	27
ASW	IER	Natchitoches Rgnl	Natchitoches	LA	14,850	643	724
ASW	IKG	Kleberg County	Kingsville	TX	7,400	100	244
ASW	ILE	Skylark Field	Killeen	TX	41,786	2	3
ASW	INJ	Hillsboro Muni	Hillsboro	TX	4,500	47	55
ASW	INK	Winkler County	Wink	TX	6,300	125	168
ASW	JAS	Jasper County-Bell Field	Jasper	TX	6,300	1,081	1,274
ASW	JBR	Jonesboro Muni	Jonesboro	AR	36,079	317	351
ASW	JDD	Wood County	Mineola/Quitman	TX	0	234	454
ASW	JSO	Cherokee County	Jacksonville	TX	12,350	102	126
ASW	JWY	Mid-Way Rgnl	Midlothian/Waxahachie	TX	34,668	553	1,051
ASW	L38	Louisiana Rgnl	Gonzales	LA	60,250	785	935
ASW	L39	Leesville	Leesville	LA	5,500	461	521
ASW	LAW	Lawton-Fort Sill Rgnl	Lawton	OK	36,180	12	14
ASW	LBB	Lubbock Preston Smith Intl	Lubbock	TX	88,681	3,089	4,532
ASW	LBX	Brazoria County	Angleton/Lake Jackson	TX	74,394	176	354
ASW	LCH	Lake Charles Rgnl	Lake Charles	LA	42,429	88	96
ASW	LFT	Lafayette Rgnl	Lafayette	LA	70,327	143	285
ASW	LIT	Adams Field	Little Rock	AR	141,852	1,768	2,148
ASW	LLN	Levelland Muni	Levelland	TX	15,525	800	1,573
ASW	LLQ	Monticello Muni/Ellis Field	Monticello	AR	5,469	38	39
ASW	LNC	Lancaster	Lancaster	TX	45,097	1,664	2,656
ASW	LRD	Laredo Intl	Laredo	TX	57,980	163	187
ASW	LRU	Las Cruces Intl	Las Cruces	NM	76,291	175	414
ASW	LSB	Lordsburg Muni	Lordsburg	NM	3,700	45	51
ASW	LUD	Decatur Muni	Decatur	TX	16,200	155	359
ASW	LVS	Las Vegas Muni	Las Vegas	NM	11,350	72	87
ASW	LXY	Mexia-Limestone Co	Mexia	TX	6,900	41	45
ASW	LZZ	Lampasas	Lampasas	TX	5,400	238	274

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ASW	M18	Hope Muni	Hope	AR	29,500	323	355
ASW	M19	Newport Muni	Newport	AR	10,000	34	36
ASW	M70	Pocahontas Muni	Pocahontas	AR	5,000	45	47
ASW	M78	Malvern Muni	Malvern	AR	12,000	479	553
ASW	M79	John H Hooks Jr Memorial	Rayville	LA	18,000	585	669
ASW	M89	Dexter B Florence Memorial Field	Arkadelphia	AR	41,400	39	43
ASW	MAF	Midland Intl	Midland	TX	84,993	311	418
ASW	MDD	Midland Airpark	Midland	TX	28,710	971	1,514
ASW	MEZ	Mena Intermountain Muni	Mena	AR	27,500	310	357
ASW	MFE	Mc Allen Miller Intl	Mc Allen	TX	63,311	544	970
ASW	MIO	Miami Muni	Miami	OK	13,260	659	754
ASW	MKN	Comanche County-City	Comanche	TX	6,300	48	54
ASW	MKO	Davis Field	Muskogee	OK	14,900	892	1,556
ASW	MLC	Mc Alester Rgnl	Mc Alester	OK	9,000	76	114
ASW	MLU	Monroe Rgnl	Monroe	LA	44,346	221	292
ASW	MNZ	Hamilton Muni	Hamilton	TX	5,048	18	20
ASW	MRF	Marfa Muni	Marfa	TX	8,600	20	22
ASW	MWL	Mineral Wells	Mineral Wells	TX	22,216	149	429
ASW	NEW	Lakefront	New Orleans	LA	54,290	1,980	2,774
ASW	OCH	A L Mangham Jr. Rgnl	Nacogdoches	TX	22,800	1,742	2,065
ASW	ODO	Odessa-Schlemeyer Field	Odessa	TX	45,338	1,026	1,763
ASW	OJA	Thomas P Stafford	Weatherford	OK	9,000	502	680
ASW	OKC	Will Rogers World	Oklahoma City	OK	118,347	1,672	2,893
ASW	OKM	Okmulgee Rgnl	Okmulgee	OK	13,000	356	701
ASW	OPL	St Landry Parish-Ahart Field	Opelousas	LA	18,000	22	77
ASW	ORG	Orange County	Orange	TX	11,332	42	45
ASW	ORK	North Little Rock Muni	North Little Rock	AR	37,399	433	612
ASW	OSA	Mount Pleasant Rgnl	Mount Pleasant	TX	13,200	302	433
ASW	OUN	University of Oklahoma Westheimer	Norman	OK	71,124	672	1,181
ASW	OZA	Ozona Muni	Ozona	TX	6,075	226	282
ASW	PBF	Grider Field	Pine Bluff	AR	39,875	180	242
ASW	PEQ	Pecos Muni	Pecos	TX	9,500	58	67
ASW	PGR	Kirk Field	Paragould	AR	33,000	79	85
ASW	PIL	Port Isabel-Cameron County	Port Isabel	TX	8,550	45	48
ASW	PKV	Calhoun County	Port Lavaca	TX	6,600	857	971
ASW	PNC	Ponca City Rgnl	Ponca City	OK	75,912	760	985
ASW	PPA	Perry Lefors Field	Pampa	TX	9,520	741	1,257
ASW	PRX	Cox Field	Paris	TX	7,900	337	430
ASW	PRZ	Portales Muni	Portales	NM	1,910	116	125
ASW	PSN	Palestine Muni	Palestine	TX	10,850	105	118
ASW	PSX	Palacios Muni	Palacios	TX	2,960	216	254
ASW	PTN	Harry P Williams Memorial	Patterson	LA	101,075	258	318
ASW	PVJ	Pauls Valley Muni	Pauls Valley	OK	2,240	53	71
ASW	PVW	Hale County	Plainview	TX	36,075	1,388	2,254
ASW	PWA	Wiley Post	Oklahoma City	OK	74,642	3,001	4,517
ASW	PWG	Mc Gregor Executive	Waco	TX	53,592	18	18
ASW	PYX	Perryton Ochiltree County	Perryton	TX	10,000	426	484
ASW	RBD	Dallas Executive	Dallas	TX	144,083	3,611	6,698
ASW	RKP	Aransas Co	Rockport	TX	82,220	558	948
ASW	ROG	Rogers Muni-Carter Field	Rogers	AR	22,236	301	397
ASW	ROW	Roswell Intl Air Center	Roswell	NM	65,771	254	373
ASW	RPH	Graham Muni	Graham	TX	9,900	94	109
ASW	RQO	El Reno Rgnl	El Reno	OK	23,532	95	170
ASW	RSN	Ruston Rgnl	Ruston	LA	86,000	1,624	1,898
ASW	RTN	Raton Muni/Crews Field	Raton	NM	3,670	77	83
ASW	RUE	Russellville Rgnl	Russellville	AR	25,100	273	299
ASW	RVS	Richard Lloyd Jones Jr	Tulsa	OK	269,219	4,212	5,730
ASW	SAF	Santa Fe Muni	Santa Fe	NM	78,341	142	188
ASW	SEP	Clark Field Muni	Stephenville	TX	7,200	110	123
ASW	SGR	Sugar Land Rgnl	Houston	TX	86,538	9,799	23,318

Region	Locid	Facility	City	State	FAA Itinerant + Local Ops 2007	Projected Incremental Air Taxi Ops by VLJs	
						2012	2017
ASW	SGT	Stuttgart Muni	Stuttgart	AR	31,236	125	168
ASW	SHV	Shreveport Rgnl	Shreveport	LA	56,660	3,137	3,722
ASW	SJT	San Angelo Rgnl/Mathis Field	San Angelo	TX	85,438	136	585
ASW	SKX	Taos Rgnl	Taos	NM	14,358	264	302
ASW	SLG	Smith Field	Siloam Springs	AR	35,050	40	68
ASW	SLR	Sulphur Springs Muni	Sulphur Springs	TX	10,040	144	190
ASW	SNK	Winston Field	Snyder	TX	7,200	448	543
ASW	SNL	Shawnee Rgnl	Shawnee	OK	14,550	382	615
ASW	SOA	Sonora Muni	Sonora	TX	0	352	443
ASW	SRC	Searcy Muni	Searcy	AR	32,335	309	443
ASW	SRE	Seminole Muni	Seminole	OK	8,050	589	738
ASW	SRR	Sierra Blanca Rgnl	Ruidoso	NM	22,093	65	72
ASW	SSF	Stinson Muni	San Antonio	TX	148,631	10,499	26,462
ASW	SVC	Grant County	Silver City	NM	7,850	193	217
ASW	SWO	Stillwater Rgnl	Stillwater	OK	60,261	1,011	1,448
ASW	SWW	Avenger Field	Sweetwater	TX	4,500	220	272
ASW	T00	Chambers County	Anahuac	TX	3,300	381	787
ASW	T05	Charles R Johnson	Port Mansfield	TX	0	6	16
ASW	T41	La Porte Muni	La Porte	TX	137,364	975	2,471
ASW	T65	Mid Valley	Weslaco	TX	38,144	104	222
ASW	T69	Alfred C 'Bubba' Thomas	Sinton	TX	0	56	160
ASW	T74	Taylor Muni	Taylor	TX	13,200	4,425	7,529
ASW	T82	Gillespie County	Fredericksburg	TX	15,675	806	1,291
ASW	T86	Zapata County	Zapata	TX	0	102	136
ASW	T89	Castroville Muni	Castroville	TX	21,600	2,537	5,622
ASW	TCC	Tucumcari Muni	Tucumcari	NM	29,500	34	37
ASW	TCS	Truth or Consequences Muni	Truth or Consequences	NM	12,200	55	63
ASW	TFP	T P Mc Campbell	Ingleside	TX	1,500	142	315
ASW	TKI	Collin County Rgnl at Mc Kinney	Mc Kinney	TX	106,036	3,706	9,784
ASW	TPL	Draughon-Miller Central Texas Rgnl	Temple	TX	74,277	28	31
ASW	TQH	Tahlequah Muni	Tahlequah	OK	14,400	952	1,280
ASW	TRL	Terrell Muni	Terrell	TX	25,550	730	1,364
ASW	TUL	Tulsa Intl	Tulsa	OK	135,804	5,352	7,265
ASW	TVR	Vicksburg Tallulah Rgnl	Tallulah/Vicksburg	LA	7,731	174	194
ASW	TXK	Texarkana Rgnl-Webb Field	Texarkana	AR	30,004	27	29
ASW	TYR	Tyler Pounds Rgnl	Tyler	TX	52,416	83	94
ASW	UTS	Huntsville Muni	Huntsville	TX	12,850	652	795
ASW	UVA	Garner Field	Uvalde	TX	12,565	1,149	1,313
ASW	UXL	Southland Field	Sulphur	LA	18,126	0	0
ASW	VBT	Bentonville Muni/Louise M Thaden Field	Bentonville	AR	18,100	56	68
ASW	VCT	Victoria Rgnl	Victoria	TX	32,004	22	24
ASW	VHN	Culberson County	Van Horn	TX	800	17	26
ASW	WDG	Enid Woodring Rgnl	Enid	OK	31,189	120	318
ASW	WWR	West Woodward	Woodward	OK	7,000	607	695
ASW	XNA	Northwest Arkansas Rgnl	Fayetteville/Springdale/	AR	54,680	76	87
AWP	05U	Eureka	Eureka	NV	1,078	39	50
AWP	0L7	Jean	Jean	NV	2,646	398	655
AWP	1O5	Montague-Yreka Rohrer Field	Montague	CA	0	127	157
AWP	2Q3	Yolo County-Davis/Woodland/Winters	Davis/Woodland/Winters	CA	60,360	56	63
AWP	4SD	Reno/Stead	Reno	NV	64,000	3,430	5,797
AWP	61B	Boulder City Muni	Boulder City	NV	50,400	2,685	3,112
AWP	67L	Mesquite	Mesquite	NV	14,700	436	550
AWP	AAT	Alturas Muni	Alturas	CA	31,500	313	375
AWP	ACV	Arcata	Arcata/Eureka	CA	57,287	2,032	3,047
AWP	AJO	Corona Muni	Corona	CA	68,000	150	703
AWP	APC	Napa County	Napa	CA	122,623	2,367	2,955
AWP	APV	Apple Valley	Apple Valley	CA	37,500	123	324
AWP	AUN	Auburn Muni	Auburn	CA	68,770	46	56

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AWP	AVQ	Marana Rgnl	Tucson	AZ	91,720	258	330
AWP	AZC	Colorado City Muni	Colorado City	AZ	5,390	103	118
AWP	BAM	Battle Mountain	Battle Mountain	NV	11,940	129	156
AWP	BFL	Meadows Field	Bakersfield	CA	128,596	440	726
AWP	BIH	Eastern Sierra Rgnl	Bishop	CA	26,000	412	503
AWP	BLH	Blythe	Blythe	CA	25,150	11	45
AWP	BXK	Buckeye Muni	Buckeye	AZ	40,314	270	545
AWP	CCR	Buchanan Field	Concord	CA	91,957	2,051	2,753
AWP	CEC	Jack Mc Namara Field	Crescent City	CA	8,097	1,308	1,516
AWP	CGZ	Casa Grande Muni	Casa Grande	AZ	98,630	851	1,060
AWP	CHD	Chandler Muni	Chandler	AZ	260,636	6,371	8,237
AWP	CIC	Chico Muni	Chico	CA	52,995	8	11
AWP	CMA	Camarillo	Camarillo	CA	145,779	148	310
AWP	CNO	Chino	Chino	CA	167,069	691	1,399
AWP	CRQ	Mc Clellan-Palomar	Carlsbad	CA	215,859	21,345	28,667
AWP	CVH	Hollister Muni	Hollister	CA	53,000	587	1,010
AWP	CXL	Calexico Intl	Calexico	CA	12,240	448	631
AWP	CXP	Carson	Carson City	NV	83,500	1,619	2,644
AWP	D68	Town of Springerville Muni	Springerville	AZ	4,500	40	47
AWP	DAG	Barstow-Daggett	Daggett	CA	36,500	79	94
AWP	DGL	Douglas Muni	Douglas	AZ	0	121	145
AWP	DRA	Desert Rock	Mercury	NV	0	2,033	2,784
AWP	DUG	Bisbee Douglas Intl	Douglas Bisbee	AZ	14,600	200	240
AWP	DVO	Gnoss Field	Novato	CA	135,500	1,435	3,040
AWP	DVT	Phoenix Deer Valley	Phoenix	AZ	396,540	1,313	5,941
AWP	E25	Wickenburg Muni	Wickenburg	AZ	48,400	223	501
AWP	E60	Eloy Muni	Eloy	AZ	15,350	318	391
AWP	E95	Benson Muni	Benson	AZ	5,400	88	110
AWP	EED	Needles	Needles	CA	10,500	45	52
AWP	EKO	Elko Rgnl	Elko	NV	15,104	1,911	3,306
AWP	ELY	Ely Arpt /Yelland Fld/	Ely	NV	10,550	979	1,172
AWP	EMT	El Monte	El Monte	CA	122,961	1,898	3,083
AWP	F70	French Valley	Murrieta/Temecula	CA	98,185	429	1,140
AWP	FAT	Fresno Yosemite Intl	Fresno	CA	156,648	8,862	18,705
AWP	FFZ	Falcon Fld	Mesa	AZ	286,328	5,147	6,277
AWP	FLG	Flagstaff Pulliam	Flagstaff	AZ	40,551	58	67
AWP	FLX	Fallon Muni	Fallon	NV	6,300	287	638
AWP	FUL	Fullerton Muni	Fullerton	CA	79,337	1,989	6,181
AWP	GCN	Grand Canyon National Park	Grand Canyon	AZ	103,502	257	309
AWP	GEU	Glendale Muni	Glendale	AZ	150,729	5,664	12,523
AWP	GOO	Nevada County Air Park	Grass Valley	CA	27,750	152	175
AWP	GYR	Phoenix Goodyear	Goodyear	AZ	187,114	1,284	2,913
AWP	HHR	Jack Northrop Field/Hawthorne Muni	Hawthorne	CA	68,788	4,763	7,807
AWP	HII	Lake Havasu City	Lake Havasu City	AZ	51,078	2,540	3,041
AWP	HJO	Hanford Muni	Hanford	CA	28,500	709	778
AWP	HMT	Hemet-Ryan	Hemet	CA	75,444	573	977
AWP	HND	Henderson Executive	Las Vegas	NV	67,482	13,919	22,006
AWP	HTH	Hawthorne Industrial	Hawthorne	NV	12,700	148	224
AWP	HWD	Hayward Executive	Hayward	CA	135,021	3,938	5,574
AWP	IFP	Laughlin/Bullhead Intl	Bullhead City	AZ	24,151	2,642	3,137
AWP	IGM	Kingman	Kingman	AZ	61,305	3,411	4,147
AWP	INW	Winslow-Lindbergh Rgnl	Winslow	AZ	19,480	21	25
AWP	IPL	Imperial County	Imperial	CA	73,618	315	349
AWP	IWA	Williams Gateway	Phoenix	AZ	299,591	4,976	6,255
AWP	IYK	Inyokern	Inyokern	CA	38,690	21	26
AWP	KIC	Mesa Del Rey	King City	CA	3,500	133	267
AWP	L35	Big Bear City	Big Bear City	CA	30,000	74	144
AWP	L67	Rialto Muni /Miro Fld/	Rialto	CA	0	292	755
AWP	L71	California City Muni	California City	CA	37,200	5	6
AWP	LGB	Long Beach /Daugherty Field/	Long Beach	CA	398,202	7,081	11,599

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AWP	LHM	Lincoln Rgnl/Karl Harder Field	Lincoln	CA	75,404	70	89
AWP	LSN	Los Banos Muni	Los Banos	CA	16,000	0	1
AWP	LVK	Livermore Muni	Livermore	CA	176,925	314	479
AWP	MAE	Madera Muni	Madera	CA	50,600	1,321	3,945
AWP	MCC	Mc Clellan Airfield	Sacramento	CA	10,000	842	962
AWP	MCE	Merced Muni/Macready Field	Merced	CA	28,100	20	22
AWP	MER	Castle	Atwater	CA	122,968	13	16
AWP	MEV	Minden-Tahoe	Minden	NV	79,800	1,362	2,159
AWP	MHR	Sacramento Mather	Sacramento	CA	87,306	333	393
AWP	MHV	Mojave	Mojave	CA	20,804	44	61
AWP	MIT	Shafter-Minter Field	Shafter	CA	45,000	72	147
AWP	MMH	Mammoth Yosemite	Mammoth Lakes	CA	12,800	413	440
AWP	MOD	Modesto City-Co-Harry Sham Fld	Modesto	CA	77,682	177	232
AWP	MRY	Monterey Peninsula	Monterey	CA	85,116	667	735
AWP	MYF	Montgomery Field	San Diego	CA	223,410	15,489	25,674
AWP	MYV	Yuba County	Marysville	CA	0	96	99
AWP	MZJ	Pinal Airpark	Marana	AZ	10,628	29	127
AWP	O05	Rogers Field	Chester	CA	15,700	147	166
AWP	O22	Columbia	Columbia	CA	46,020	1,227	1,358
AWP	O26	Lone Pine	Lone Pine	CA	8,600	115	120
AWP	O32	Reedley Muni	Reedley	CA	33,000	1,956	3,627
AWP	O46	Weed	Weed	CA	16,050	91	152
AWP	O69	Petaluma Muni	Petaluma	CA	53,200	200	227
AWP	OAR	Marina Muni	Marina	CA	40,000	159	219
AWP	OLS	Nogales Intl	Nogales	AZ	31,100	113	128
AWP	OVE	Oroville Muni	Oroville	CA	36,000	1	1
AWP	OXR	Oxnard	Oxnard	CA	75,969	112	206
AWP	P08	Coolidge Muni	Coolidge	AZ	6,490	648	782
AWP	P20	Avi Suquilla	Parker	AZ	14,000	9	12
AWP	P33	Cochise County	Willcox	AZ	7,400	48	73
AWP	PAN	Payson	Payson	AZ	41,850	41	50
AWP	PGA	Page Muni	Page	AZ	19,050	199	247
AWP	POC	Brackett Field	La Verne	CA	99,476	586	1,023
AWP	PRB	Paso Robles Muni	Paso Robles	CA	33,451	52	191
AWP	PRC	Ernest A. Love Field	Prescott	AZ	231,305	84	105
AWP	PSP	Palm Springs Intl	Palm Springs	CA	90,353	567	1,565
AWP	PTV	Porterville Muni	Porterville	CA	43,550	3	3
AWP	PVF	Placerville	Placerville	CA	66,000	124	137
AWP	RAL	Riverside Muni	Riverside	CA	81,054	398	979
AWP	RBL	Red Bluff Muni	Red Bluff	CA	26,150	98	105
AWP	RDD	Redding Muni	Redding	CA	76,862	125	162
AWP	RHV	Reid-Hillview of Santa Clara County	San Jose	CA	151,414	225	2,132
AWP	RNM	Ramona	Ramona	CA	168,503	3,689	5,578
AWP	RYN	Ryan Field	Tucson	AZ	240,944	648	684
AWP	SAC	Sacramento Executive	Sacramento	CA	101,483	567	628
AWP	SAD	Safford Rgnl	Safford	AZ	8,690	54	107
AWP	SBA	Santa Barbara Muni	Santa Barbara	CA	123,732	725	1,150
AWP	SBD	San Bernardino Intl	San Bernardino	CA	6,920	570	1,515
AWP	SBP	San Luis County Rgnl	San Luis Obispo	CA	96,080	117	324
AWP	SCK	Stockton Metropolitan	Stockton	CA	77,909	454	463
AWP	SDL	Scottsdale	Scottsdale	AZ	188,496	4,808	14,891
AWP	SDM	Brown Field Muni	San Diego	CA	144,453	8,991	14,754
AWP	SEE	Gillespie Field	San Diego/El Cajon	CA	295,342	8,149	12,663
AWP	SEZ	Sedona	Sedona	AZ	50,000	78	94
AWP	SIY	Siskiyou County	Montague	CA	13,850	60	85
AWP	SJN	St Johns Industrial Air Park	St Johns	AZ	14,100	63	75
AWP	SMO	Santa Monica Muni	Santa Monica	CA	129,675	1,857	2,885
AWP	SMX	Santa Maria Pub/Capt G Allan Hancock Fld	Santa Maria	CA	72,075	573	1,227
AWP	SNS	Salinas Muni	Salinas	CA	79,547	641	871
AWP	SOW	Show Low Rgnl	Show Low	AZ	31,134	84	104

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AWP	STS	Charles M. Schulz - Sonoma County	Santa Rosa	CA	132,739	230	248
AWP	SVE	Susanville Muni	Susanville	CA	10,500	632	723
AWP	TCY	Tracy Muni	Tracy	CA	57,407	39	45
AWP	TLR	Mefford Field	Tulare	CA	26,180	0	0
AWP	TPH	Tonopah	Tonopah	NV	12,727	61	67
AWP	TRK	Truckee-Tahoe	Truckee	CA	35,000	226	276
AWP	TRM	Jacqueline Cochran Rgnl	Palm Springs	CA	76,500	398	1,249
AWP	TVL	Lake Tahoe	South Lake Tahoe	CA	25,041	111	118
AWP	UKI	Ukiah Muni	Ukiah	CA	43,300	132	145
AWP	VCB	Nut Tree	Vacaville	CA	101,500	756	865
AWP	VCV	Southern California Logistics	Victorville	CA	61,184	186	449
AWP	VGT	North Las Vegas	Las Vegas	NV	219,240	59,813	92,655
AWP	VIS	Visalia Muni	Visalia	CA	33,900	68	76
AWP	VNY	Van Nuys	Van Nuys	CA	379,405	8,494	10,991
AWP	WHP	Whiteman	Los Angeles	CA	100,418	1,831	2,479
AWP	WJF	General Wm J Fox Airfield	Lancaster	CA	66,205	650	1,204
AWP	WMC	Winnemucca Muni	Winnemucca	NV	25,575	132	167
AWP	WVI	Watsonville Muni	Watsonville	CA	126,890	232	268

Abbreviations and acronyms used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation