Transportation Policy Brief #1

Air Transportation in Texas

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FOREWORD

The Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin, has established interdisciplinary research on policy problems as the core of its educational program. A major part of this program is the nine-month policy research project (PRP), in the course of which two or more faculty members from different disciplines direct the research of 10 to 20 graduate students of diverse backgrounds on a policy issue of concern to a government or nonprofit agency.

During the 2013–2014 academic year, the Texas Department of Transportation (TxDOT) funded, through the Center for Transportation Research (CTR), a policy research project addressing seven key policy issues.

The research team interacted with TxDOT officials throughout the course of the academic year. Overall direction and guidance was provided by Mr. Phil Wilson, former Executive Director of TxDOT. Mr. Wilson participated in an October 10, 2013 workshop to determine the scope of the study. As a consequence, the following policy issues were selected for study:

- Air Transportation in Texas
- Autonomous Vehicles in Texas
- North Carolina's Strategic Mobility Formula
- Oregon's Voluntary Road User Charge Program
- Potential Use of Highway Rights-of-Way for Oil and Natural Gas Pipelines
- State Energy Severance Taxes and Comparative Tax Revenues
- U.S.-Mexico Transportation and Logistics

The findings of each policy issue are presented within the context of separate transportation policy briefs. This particular policy brief, "Air Transportation in Texas," was researched and written by Paul Gainey, Miranda Hoff, Kevin Merrill, and Vance Roper.

The following template was also approved for each of the above-mentioned briefs:

- Executive Summary
- Background
- Key Issues
- Lessons Learned
- Relevance to Texas
- Appendices

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EXECUTIVE SUMMARY

Aviation in Texas is a multi-billion dollar industry that includes both general and commercial air transportation. We examined both for this report and identified the following:

- **Economic impact of general aviation airports**: Texas has approximately 270 general aviation (GA) airports spread across the state. This network of airports works to meet the needs of businesses, commercial cargo transporters, and leisure travelers; the GA industry creates approximately $14 billion in economic impact and generates 60,000 jobs.[1]
- **Global hubs**: Continuing to provide an environment that encourages expansion of the commercial aviation industry will benefit the state through economic development and job creation.
- **Industry best practices**: To grow and expand their service offerings, GA airports could benefit from implementing industry best practices, including diversifying revenue streams, employing onsite management, building terminal space, providing hangar space, and offering fuel services.
- **Coordinated marketing**: By developing coordinated marketing and outreach efforts, GA airports and communities can work together to draw in new travelers and businesses. Increasing traffic to the communities may help to spur economic development.
- **Aligning stakeholders**: Aligning stakeholders is a crucial step towards long-term planning and sustainability for GA airports.
- **Airport Visit Reward Program:** Developing a program that encourages and incentivizes travel to GA airports has the potential to increases revenue for the GA airports.

TxDOT is uniquely positioned to help influence the aviation industry in Texas. With its strong focus on GA, TxDOT can work to promote the industry to help it maintain its positive economic impacts on the state. Additionally, TxDOT can advocate on behalf of the commercial airports to bring attention to policies that are negatively impacting the state.

BACKGROUND

General aviation (GA) includes all non-commercial air transportation and operations. Texas is home to one of the largest GA systems in the country with nearly 270 non-commercial airports.[2] In general, there are two types of GA airports: those located in more densely populated urban areas and those in less populated rural areas. Traffic at urban airports primarily includes business travel, cargo, and tourism. Whether transporting people or cargo, urban GA airports provide flexibility that is not afforded by commercial travel. This flexibility

[1] Fulton, 2013.
[2] Texas Department of Transportation, 2010.

helps to increase productivity and drive positive economic growth. Rural GA airports, on the other hand, primarily provide critical access to basic services for residents. These services include access for law enforcement, emergency medical personnel, air charters, essential air cargo, and tourism. Together, urban and rural airports provide much-needed access for businesses and residents all across Texas.

In order to provide this access, the State of Texas currently invests $16 million annually in GA activities. Through a cost-sharing program, Texas receives an additional $55 million in federal dollars and $8 million in local dollars. These funds are pooled and distributed through grant programs administered by TxDOT's Aviation Division.[3] The grant programs help local communities build and enhance their GA airports. Whether through building new hangars or towers, repaving runways, or enhancing the automated weather observation system, these grants help to improve the operations and activities at GA airports across the state.

This report will explore the economic impact of these investments, identify industry best practices, and provide an outline for TxDOT's evolving role with aviation.

KEY POLICY ISSUES

The following sections outline the positive economic impacts generated by GA and provide insight into the potential role for state transportation agencies in working with commercial airports and global hubs. TxDOT plays a direct and significant role in GA, and thus should be aware of the policy issues associated with Texas' consumer aviation airports.

ECONOMIC IMPACT FROM GENERAL AVIATION

State air transportation officials often face misperceptions of the GA industry and services. The image of a corporate executive flying in a private plane from meeting to meeting does not typically evoke positive reactions from the general public. As a result, GA airports are often minimally funded in comparison to other modes of transportation and the issues facing these entities are frequently placed on the backburner for policymakers. As this report will show, however, both urban and rural GA airports produce significant economic value for the communities (and states) in which they reside and this positive value can be increased through implementation of industry best practices.

The impact of GA airports is not limited to the operations and activities of the airport alone. GA airports have both direct and indirect effects on a state's economy by increasing jobs, facilitating commerce, and fostering tourism activities. During a December 2013 U.S. House of Representatives hearing, Representative Frank LoBiondo, chairman of the House Subcommittee on Aviation, highlighted the positive effects of GA:

> "It is an understatement to say that aviation is a key sector of the U.S. economy. Commercial aviation represents five percent of our gross domestic product and roughly ten million American jobs. General aviation (GA) contributes about $150 billion to the economy and supports roughly 1.2 million jobs".[4]

[3] TxDOT Aviation Division, 2013.
[4] LoBiondo, 2013.

In Texas, GA generates $14 billion annually and produces nearly 60,000 jobs.[5] Texans are "affected daily, in some way, by general aviation," and it will continue to play a "significant role in the future health, well-being, and economic prosperity of our state".[6] The following subsections examine the economic impacts of GA through business aviation, commercial cargo, and tourism.

Business Aviation

For purposes of this report, business aviation refers to using GA airports (as opposed to commercial airports) for business purposes. According to the National Business Aviation Association, business aviation accounts for 80% of the economic impacts generated by GA.[7] Providing ready access to aircraft gives businesses the flexibility that they need to be more efficient and effective, which in turn can lead to higher profits and greater economic impact in the states and communities in which these businesses reside.

A study conducted by Andersen Consulting found that it is the flexibility provided by GA that produces the greatest value for businesses. "Being able to control the aircraft's schedule and routes" enables employees to travel to "their own facilities or those of customers/suppliers" at a greater rate than those businesses that do not use GA.[8] Using GA provides greater control over the aircraft's schedule, which helps keep businesses moving. The effects of the 2013–2014 winter evince the value of being able to control the schedules: the more than 1 million cancelled or delayed commercial flights this past winter are estimated to have resulted in nearly "$5.3 billion in lost productivity" nationwide.[9]

In Texas, businesses like Valero Energy have come to rely on GA and GA airports to keep their businesses moving forward. In February 2013, John White, Vice President of Aviation for Valero Energy and the president of Texans for General Aviation, helped to showcase GA for Texas legislators.[10] Businesses of all sizes can benefit from the service offerings provided by GA. These benefits often translate to increased productivity, which in turn can lead to increased opportunities and economic growth for communities and states.

Commercial Cargo

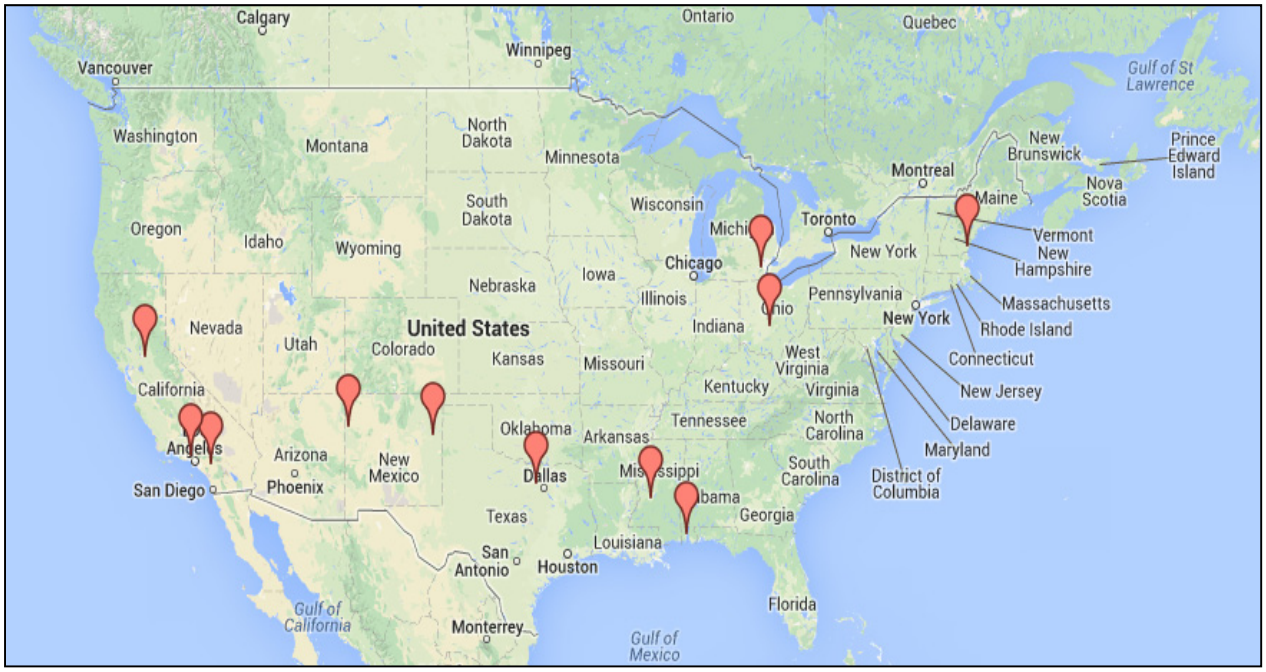
In Texas and across the country, noncommercial airports play a role in facilitating commerce through the transport of commercial cargo. As defined by the Federal Aviation Administration (FAA), non-commercial airports include cargo service only airports, reliever airports, and GA airports. The FAA's definition for each of these airports is included in Appendix 7. In addition to defining airports, the FAA also tracks passenger boarding and all-cargo data. The data show the Fort Worth Alliance Airport ranks 36th nationally in total weight landed in

[5] Fulton, 2013.
[6] Ibid.
[7] National Business Aviation Association, 2014.
[8] Andersen Consulting, 2001.
[9] Isidore, 2014.
[10] Texans for General Aviation, 2013.

2012.[11] Additionally, according to the data, U.S. non-commercial airports handled more than 157 billion pounds of cargo weight in 2012.[12]

The transport of cargo represents a vital revenue source for non-commercial airports. Typically, urban GA airports see greater cargo traffic. As shown in Figure 1, most of the top-performing non-commercial airports are located in or near large metropolitan areas.[13] These population centers tend to have strong multi-modal transportation infrastructure, including roads and access to rail that helps to move cargo efficiently and effectively to other population centers across the country.

FIGURE 1: Map of Top Cargo Transporting Non-Commercial Airports



[11] Federal Aviation Administration, 2013.
[12] Ibid.
[13] Ibid.

Tourism

In addition to business and cargo traffic, GA airports in urban and rural communities serve the needs of private pilots and hobbyists. This air tourism can be seen as an evolution of the leisurely Sunday drive. Private pilots and hobbyists take short trips to cities and towns to see local attractions and take advantage of offerings at local GA airports.

In order to attract this type of tourism, urban and rural GA airports focus on providing wide-ranging amenities typically including free Wi-Fi, meeting spaces, and coffee. Many airports also provide more elaborate amenities such as red carpet entrances and courtesy cars.[14] The airports also host events such as air shows and seminars that are designed to draw in more travelers who are willing to spend time and money at the airport and in the community. In Texas, a 2011 study shows that the average GA airport visitor spends $190 per day per visit to a GA airport.[15] This helps to contribute to the positive economic impact of GA airports across the state as well as nationwide.

In the past, one of the more difficult tasks for urban and rural GA airports was to market themselves and advertise the amenities and events that they offer. But with the rise of social media and smartphone applications, spreading information has become a much easier task. For example, the introduction of the smartphone application SocialFlight, which is available on iTunes and Google Play, provides real-time schedules to pilots outlining the "aircraft fly-ins, air shows, pancake breakfasts, conventions, [and] FAA safety seminars" that are held exclusively at GA airports.[16] Users are also able to update the application's database with new events and reviews and provide a new method for GA airports and their communities and states to market them.

TEXAS GLOBAL HUBS

Texas' commercial aviation and global hub airports can directly affect Texans' lives every day by providing access to new destinations or through the direct spending of travelers visiting Texas destinations. The international hubs, in particular, help to facilitate substantial economic benefit for the state. These global hubs also provide the U.S. with a critical component to the national air network by providing a key gateway to destinations around the world.

This section will address the importance of Texas global hubs to the national and international air network, the economic benefit and potential that global hubs offer, and the potential pilot projects that TxDOT could endorse to bolster the success of aviation across the state.

Texas' Position in the National and Global Air Network

Texas' global hubs are involved in more than 150 domestic non-stop routes and host an extensive international route network spanning six continents.[17] As a southern border state with strong ties to international business, international air traffic is a top priority and key

[14] Preusch, 2007.
[15] Center for Economic Development and Research, 2011.
[16] Where2Interactive, 2014.
[17] Dallas/Fort Worth International Airport, 2013a.

economic driver for Texas. As a result, international hubs within the state have increased and expanded travel into and out of the state. For example, the Dallas/Fort Worth International Airport (DFW) provides the domestic air transit system with a critical port in the south-central region of the country. Additionally, Bush Intercontinental Airport in Houston provides the most non-stop flights to Mexico at any time and serves as the "primary gateway to Latin America" for U.S. citizens and international travelers.[18] The Houston airport system provides passengers with 116 domestic routes and over 70 international routes.[19]

Economic Benefit and Potential for Future Growth

Texas' global hubs have generated billions of dollars for the state economy through international air service. The economic impact of new international air service not only boosts revenues for the state's global hubs, but it can also provide a positive economic impact to local businesses and industry. Passenger spending and international freight services increase with every expansion of Texas' international air service.[20] In the Dallas-Fort Worth metroplex, international air service into and out of DFW generated about $1.21 billion in 2010.[21] The economic impact from international air service into and out of Bush Intercontinental saw an even greater impact for the Houston area generating $3.4 billion 2011.[22]

Texas' global hubs will continue to compete for this significant economic impact due to the increased demand for international air service. As noted by the Metropolitan Policy Program at Brookings, "Since 2003, international air travel grew between the United States and every global region, with the strongest growth coming from emerging markets."[23]

TxDOT can encourage both global hubs and smaller commercial airports within the state to expand into international air service market. Any expansion would bring an increased economic benefit to the region and to the state. In fact, each additional route added to Texas' international air service network is projected to be "worth $40 - $140 million annually without local spending."[24] The high economic benefits coupled with the competitiveness of the aviation industry indicate the importance of Texas maintaining its status a global leader in aviation.

Recapturing Lost Markets: Automation

Due to security concerns prompted after 9/11, the Department of Homeland Security suspended the Transit without Visa and International-to-International programs. The purpose of these programs was to grant foreign nationals the ability to transit through a U.S. airport on a foreign-to-foreign itinerary without the need for a non-immigrant U.S. visa.[25] Since the suspension in 2003, U.S. airports have lost an estimated 1 million passengers per year.[26] These lost passengers choose to transit through foreign airports despite higher costs. New businesses

[18] Houston Visitors Bureau, 2013.
[19] Ibid.
[20] Dallas/Fort Worth International Airport, 2010.
[21] Dallas/Fort Worth International Airport, 2013a.
[22] GRA, Incorporated, 2011.
[23] Tomer et al., 2012.
[24] Dallas/Fort Worth International Airport, 2010.
[25] Dallas/Fort Worth International Airport, 2013b.
[26] Dallas/Fort Worth International Airport, 2010.

have popped up that are dedicated to helping international passengers avoid traveling through the U.S. because of the now-required security measurements.[27] Under the current regulations, international travelers, even those from Visa Waiver Program (VWP) countries, are required to pass through U.S. Customs and Border Protection upon U.S. arrival, regardless of final destination. Non-VWP countries must go a step further and secure a U.S. Visa to transit through a U.S. airport.[28] These policies deter potential customers from using Texas' global hubs, and are unnecessarily burdensome for Texas' business partners in countries like Brazil, China, and the Middle East.

International travel is the fastest-growing and highest-value segment of U.S. air travel. Texas, because of its global hub infrastructure and central location, is being held back by federal customs and immigration regulations. While a tenuous connection exists between TxDOT and the agencies responsible for these policies, TxDOT could work as a unified voice for aviation transportation interests in the state.

Since the federal level security adjustments, some pilot programs have been launched to ease the burden of transiting through U.S. global hubs. One such program at DFW allows travelers from VWP countries to have their checked baggage transferred directly to their final destination flight without an inspection from U.S. Customs and Border Protection.[29] These pilot programs could be pushed beyond just baggage—VWP and trusted traveler programs could be explored for some of Texas' most trusted business partners. With the availability of new automated technology and more personnel, Texas' global hubs have the capability to process international travelers faster without sacrificing security. TxDOT could advocate for this positive change by highlighting the positive economic impact that can be generated without sacrificing security for the country.

LESSONS LEARNED

This section provides an overview of the key lessons learned related to improving and strengthening the aviation industry in Texas. These lessons examine the effectiveness of implementing industry best practices, coordinating marketing efforts and aligning stakeholder groups, and developing and implementing travel incentive programs.

INDUSTRY BEST PRACTICES

In any industry, implementing best practices can help to improve efficiencies and increase productivity. Aviation is no exception. GA airports in both rural and urban settings can look to the established best practices at major airport hubs to identify ways to improve airport functions and efficiency. These best practices include the following:

- Identifying new revenue streams
- Employing onsite management

[27] Ibid.
[28] DFW International Airport, 2013b.
[29] Ibid.

- Building and maintaining terminal buildings
- Providing hangar space
- Offering fuel services

Many of these best practices will help to create new revenue streams to augment the typical airport functions. According to a study by the North Central Texas Council on Governments, "At GA airports, development of landside facilities, such as hangars for aircraft storage and terminal buildings offer significant upside potential for generating revenue…if the market for such space is healthy".[30] These types of revenue streams can help sustain GA airports and facilitate growth.

Identifying New Revenue Streams

For any airport to remain viable, it must have sustainable aviation and non-aviation revenue streams. According to the Transportation Research Board of the National Academies, "Revenue diversification…can also be an effective risk mitigation strategy. Airports can engage directly (or partner with third parties) in non-aeronautical activities…airports can reduce the systemic revenue uncertainty associated with the air travel industry".[31] These revenue streams can include sales of food, merchandise, and professional development services. The diversification of revenue can smooth unexpected fluctuations in business and passenger traffic.

Many GA airports have adopted this with the addition of onsite diners and professional development opportunities through trainings and seminars. Implementing this at GA airports can help to increase revenues and reduce the reliance on state funding for sustainability.

Employing Onsite Management

The seemingly simple act of employing onsite management can be a major draw for businesses that use GA airports. Having onsite management indicates that the airport is ready and prepared to address the needs of businesses and that the airport will be maintained in an appropriate manner. If a business is going to invest in a region long-term, they need to have assurances that the airport can handle the travel and needs of the business well into the future.[32] Onsite management helps to provide this assurance to businesses that use GA airports.

Building and Maintaining Terminal Buildings

GA airports can also explore the use of improved terminal buildings as a way to improve the airport offerings. Terminal buildings not only help to facilitate baggage handling, but also provide passengers with access to merchants and ample, comfortable waiting spaces.[33] Having

[30] North Central Texas Council of Governments, 2013.
[31] Transportation Research Board of the National Academies, 2012.
[32] Fulton, 2013.
[33] Graf, 2013.

terminal buildings at GA airports can help to facilitate an increase in passenger and business traffic by providing more spaces for the passengers and business travelers.

When a GA airport is ready to develop and build terminal space, the design is crucial. As outlined by the Transportation Research Board of the National Academies, "Linear terminal design and centralized processing facilities…Allows the greatest flexibility for airport expansion…It also allows flexibility in the face of changing traffic mix".[34] These guidelines, which are implemented at many major hubs, would allow GA airports the necessary flexibility to respond as the needs of the groups it serves change.

Providing Hangar Space

Hangar space for private and corporate airplanes is a major source of revenue for global hub airports. Hangars are seen in abundance at major airport hubs including the Dallas/Fort Worth International Airport and Bush Intercontinental Airport. As noted by the North Central Texas Council of Governments, "For many airports, hangar leases offer an excellent source of steady revenue generation. Hangar rental rates can vary by size and type of hangar…The more hangars at your airport, the more potential for revenue generation".[35]

Adding hangar space to GA airports could provide increased revenues as it would create an incentive for both businesses and private plane owners. Hangars allow for businesses and private individuals to securely store their planes while not in use. Storing planes outside leaves them susceptible to the elements, to damage from vandalism, and to theft.[36] Secure, covered space helps to reduce the opportunity for damages to the planes.

In addition to storage benefits, hangars also provide a source of employment and economic development for airports. According to a study by the North Central Texas Council of Governments,

> "When the employment benefits and the hangar lease aspects of the operation are included, there is a significant potential revenue impact of attracting corporate aircraft to an airport. Direct revenue impacts have been found to provide up to five on-airport jobs and approximately $1 million in annual economic activity".[37]

This represents an important source of revenue for a GA airport, as well as an important source of economic development for the region surrounding the airport.

Offering Fuel Services

Finally, GA airports can also benefit from the addition of onsite fueling services. According to the North Central Texas Council of Governments,

> "A popular trend over the past decade has been the installation of self-service fueling. These systems often allow for fuel purchases 24 hours per day…Quick and convenient fueling systems can make an airport more appealing to users, resulting in higher activity levels…one corporate jet based at an airport can add up to 5 direct personnel and require between 1,000 and 1,500 gallons of jet fuel per week".[38]

[34] Transportation Research Board of the National Academies, 2012.
[35] North Central Texas Council of Governments, 2013.
[36] Fulton, 2013.
[37] North Central Texas Council of Governments, 2013.
[38] Ibid.

Unfortunately, fuel services can be difficult for some GA airports to capitalize on due to the high costs of implementation. As noted by North Central Texas Council of Governments, "Traditionally, aircraft…services have been dependent on the airport having a staffed F[ixed] B[ase] O[perator]; this was fiscally challenging for lower-activity airports".[39] One workaround for this is to bring in third-party operators to run the fuel services for the airport. This approach places the costs on the private industry while increasing the traffic and revenue at the GA airport.

COORDINATED MARKETING AND OUTREACH

Both global hub and GA airports in Texas could benefit from a coordinated marketing and outreach program. Marketing and outreach have become a major function in most areas of business and society. It increases business traffic and visibility for the product that is being sold. This concept holds true even when the product is a city or a region.

For airports, the coordinated marketing and outreach effort would work to promote the local area, regional area, and the state as a whole. A strong campaign promotes the activities and sights that make the area unique and worth visiting. Items to focus on may include museums, historical landmarks, unique destinations, and local restaurants.

Manchester, United Kingdom provides a strong example of the positive impact of a coordinated marketing and outreach effort. The city coordinates its outreach through a single agency, Marketing Manchester. This agency developed Manchester as a brand. It uses this marketing to increase the visibility and travel traffic through the city. It also treats tourism as a product and focuses all combined industry activities to highlight this. This was all made possible through aligning the marketing in the region to include businesses, chambers of commerce, the tourism industry, and local government.[40] As a result of these efforts, Manchester is becoming well-known as an example of how best to market a destination. Implementation of similar, coordinated efforts could provide positive results for cities and towns across Texas.

ALIGNING STAKEHOLDERS

For an airport to grow and thrive, it needs support from the surrounding community. Without this support, an airport's ability to obtain funding necessary to sustain operations, to accommodate growth, or to address the needs of its travelers is greatly hindered. When community support is strong, well-coordinated activities and campaigns can enable growth and provide lasting investment in the community. This coordination includes actively encouraging businesses to move to the area through incentivized legislation, eased zoning restrictions, and investments in hangar or warehouse space.

Airports have different methods to pursue increased development, including the development of an airport master plan. An airport master plan includes the ideas and viewpoints of relevant stakeholder groups and provides a long-term approach for growth and

[39] Ibid.
[40] Marketing Manchester, 2014.

sustainability. This approach tends to be more effective for larger, more urban airports; however, smaller, rural airports can use these practices to develop planning documents as well.

The first step in the process is identifying the relevant stakeholders. These include local businesses, local governmental officials, state officials, chambers of commerce, and other community leaders. Uniting these stakeholders around the common goal of economic development for the region helps to facilitate the creation of a master plan for the airport. Aligning stakeholders early is helpful; however, the inherent uncertainty surrounding state-funded transportation projects can make stakeholders hesitant to invest in development projects at and around the airport.[41] Therefore, the master plan should include a multi-modal transportation approach (e.g., commuter and material railheads, heavy truck access, adequate terminal parking, and loaner transportation) that uses and improves on existing transportation infrastructure. Allowing for airport growth in the master plan is important to enable continued and encouraged use of the airport.

The expansion of the DFW International provides an example of the positive results from stakeholder alignment. As the region grows, existing public roadways surrounding the airport experience increased congestion from traffic into and out of the airport. In 2007, TxDOT released a request for bids for the development of State Highway 121, a new toll road that would connect DFW International to Bonham, Texas. Jim Gandy, President of the Frisco Economic Development Council, served as the liaison aligning all the stakeholders for meetings with DFW International, the 21 affected communities, TxDOT, and the North Texas Tollway Authority. The completion of the new toll road helped to improve DFW International's capacity to serve an entire region while also enabling the airport to continue to grow and expand.

In addition to aligning stakeholders for the development of a master plan, aligning stakeholders is helpful when pursuing funding opportunities. TxDOT administers cost-sharing grant programs that provide funding to GA airports across the state. The program requires that the community apply for funds from TxDOT's Aviation Division; depending on the purpose for the funds, TxDOT will match the local dollars at varying levels. For example, TxDOT matches 100% of local funds provided up to $1 million for terminal buildings and matches at a rate of 90/10 up to $600,000 for hangars and control towers. To date, TxDOT has awarded funds for 42 general terminals and 15 air traffic control towers. The majority of the grants issued by TxDOT are for projects that focus on improving airport safety features, including: deer resistant fencing, security systems, automated fueling stations, automated weather systems, improving runway conditions, signage, and nighttime lighting.[42] These projects have helped to transform previously unsafe airports into vital transportation centers for communities to invest in into the future.

AIRPORT VISIT REWARD PROGRAM

GA airports are located all across the country in both urban and rural areas. The uses for urban and rural GA airports differ quite significantly, with the exception of tourism and

[41] Krikorian, 2013.
[42] Texas Department of Transportation, 2010.

recreational travel. Tourism and recreational travel represent a potential revenue-enhancing opportunity for communities and for GA airports.

Providing a properly equipped airport with automated weather service, 24-hour fuel, maintenance, transient parking, and other amenities allows for a safe and enjoyable experience for amateur and veteran pilots alike. Pilots routinely choose destination airports based on unique amenities such as a diner with unique menu offerings, discounted fuel, red carpet welcoming, and other special events. This atmosphere creates an opportunity for GA airports to compete with each other to attract more travelers. Incentivizing travel to all airports across Texas provides adventure and freedom to the pilot, which in turn brings new revenue to communities.

Currently in its ninth year, Virginia has experienced sustained success with its "Aviation Ambassador" program.[43] The program is funded both through state general funds and private donations, with no additional cost to the pilot.[44] The Virginia Department of Transportation encourages recreational pilots to travel to all 66 public airports in exchange for leveled rewards, as denoted in the Participation Levels Table in Appendix 8.[45]

Newly registered pilots receive an Aviation Ambassador Program passport in which they can collect stamps from an airport's fixed base operator when purchasing fuel. Additionally, pilots receive stamps for attending public airshows, completing safety training, visiting aviation-related museums, and attending Virginia's annual aviation conference. This process rewards a pilot for traveling to new airports, advancing their professional development, and joining a community of aviators. Additionally, the program helps airports increase revenue in fuel sales and increases spending in local communities. The program has been a success for Virginia and its 15,000 registered pilots. To date, approximately 2.5% of registered participants have completed the entire program, bringing new business and revenue to each airport. As Virginia's Division of Aviation Public Relations Manager, Betty Wilson, notes,

> "Pilots tell us that it has given them a reason to go flying, encouragement to expand the airports they fly to (and to visit those areas for vacations later), a reason to improve their proficiency (short runways, mountainous terrain, low visibility high density altitude conditions, Special Flight Rules Area, etc.), provides an opening to talk with locals at the various airports, and a sense of camaraderie with other Ambassadors".[46]

A similar program could be enacted in Texas, which has more than 270 airports and 49,886 registered pilots as of 2012.[47] If a similar 2.5% participated in the program, over 1,200 pilots would visit all participating airports, with a many visiting new airports for the first time. If Texas were to use the Virginia program's fee schedule as a model, this program could potentially bring participating airports nearly a quarter of a million dollars in new revenue. Texas could also explore implementing a sustainable funding model that would charge airports for their participation in the program. These annual fees would be designed to cover the cost of program materials, advertising, and administration. Much like the Virginia program, this

[43] Virginia Department of Aviation, n.d.
[44] Wilson, 2014.
[45] Virginia Department of Aviation, n.d.
[46] Wilson, 2014.
[47] Federal Aviation Admission, 2012b.

program has tremendous potential to successfully drive the economic growth of Texas GA airports and their communities.

RELEVANCE TO TEXAS

With a gross domestic product (GDP) of $8.4 billion and more than 153,000 aviation and aerospace-related workers, the Texas air transportation industry ranked first in the nation GDP and employment.[48] These numbers include commercial air travel, cargo, and GA. As discussed in this report, the key role for GA has been to facilitate commerce and provide basic services to citizens across the state. However, the industry still has significant potential and opportunity to grow further and drive the GDP and employment numbers even higher.

Texas has one of the largest air transportation systems in the country. A robust air transportation system is a draw for businesses, local travelers, and international travelers. Thus, air transportation is a major economic driver for state, regional, and local communities. TxDOT has a role in supporting and highlighting the relevance of Texas air transportation in Texas.

TXDOT'S EVOLVING ROLE

TxDOT has the opportunity to shape and mold the direction of the aviation industry within the state. Included below are four target areas for TxDOT to explore. Each area provides an opportunity to effect meaningful change across the state.

Economic Impact and Growth

As outlined in this report, aviation (both general and commercial) has significant, positive economic impacts that are felt across the state. From job creation to infrastructure development, aviation is a key component to Texas' continued economic success story.

TxDOT can outline success stories during legislative sessions, enabling legislators to connect with real examples of the positive impact that aviation is having on the state. The record of success also helps to solidify the importance and effectiveness of state funding for aviation. As noted previously, Texas invests $16 million in state dollars annually for GA. That $16 million, combined with additional federal and local dollars, yields $14 billion annual in economic impact.[49]

Additionally, TxDOT can work to implement a travel incentive program for GA airports. This incentive program will help to bring new travelers to GA airports, which will result in more dollars being spent at the airports and their communities. By creating a partnership with GA airports, TxDOT can shift some of the costs to the participating airports, which will reduce the funding liability for the state, but still create a mechanism for the program to be sustainable.

[48] Office of the Governor, 2014.
[49] Fulton, 2013.

Improved Coordination Efforts

TxDOT also has an opportunity to develop and implement a coordinated marketing effort that showcases GA airports and the communities in which they are located. By leveraging the expertise of other state agencies, like the Governor's Office of Economic Development and Tourism as well as representatives from local communities, TxDOT can develop a strong campaign that will help to draw in businesses and tourists alike.

Funding and Promoting the GA Industry

TxDOT should continue its efforts in the planning, designing, and construction of terminal buildings and hangar spaces at GA airports. Doing so enables these airports to grow and better serve business and leisure travelers. Additionally, by building off the relationships developed during the coordinated marketing and outreach campaigns, TxDOT can work to promote the GA industry across the state, the country, and even internationally. Increasing awareness about the GA system in Texas will help to increase traffic, which in turn will increase the positive economic impact that the industry has on the state.

Infrastructure Development

Finally, TxDOT should continue to work with local communities and businesses on long-term planning efforts to address the infrastructure needs of the state. Texas' population is increasing rapidly, and as a result TxDOT must continue to be prepared to address the changing transportation needs of the state. By working with the local communities and other stakeholder groups, TxDOT can identify gaps within the current infrastructure and develop plans to help alleviate those gaps.

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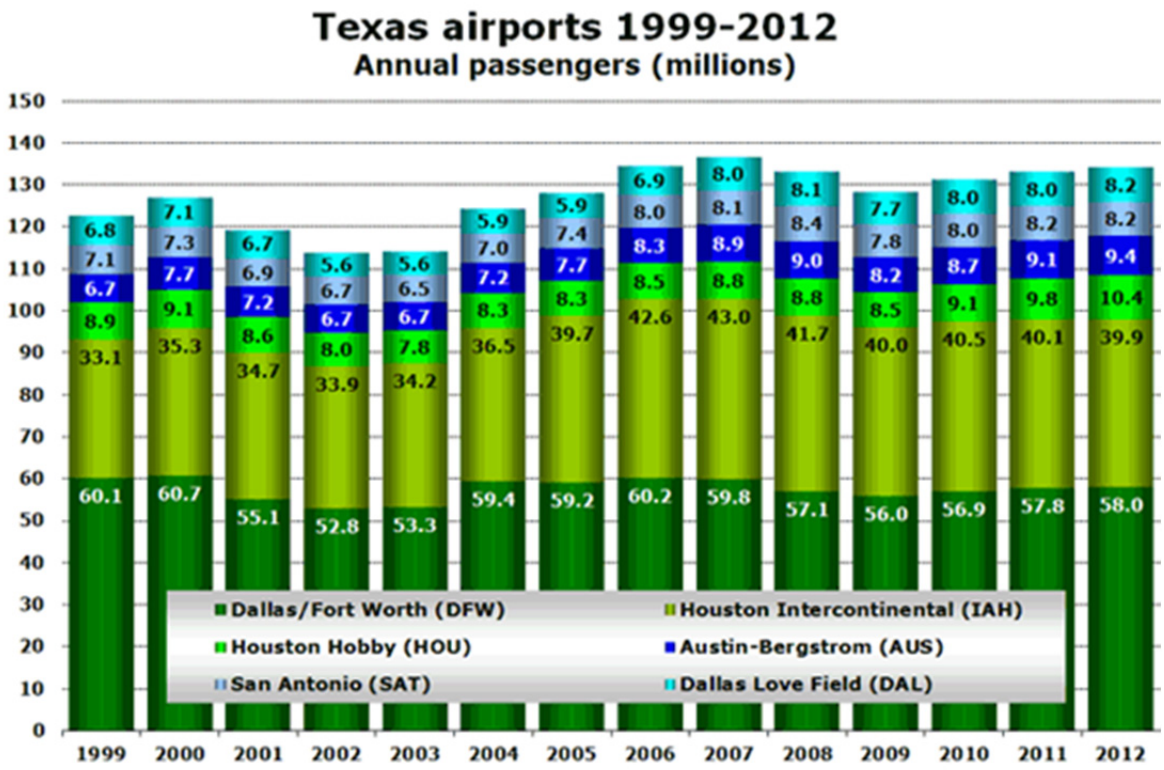
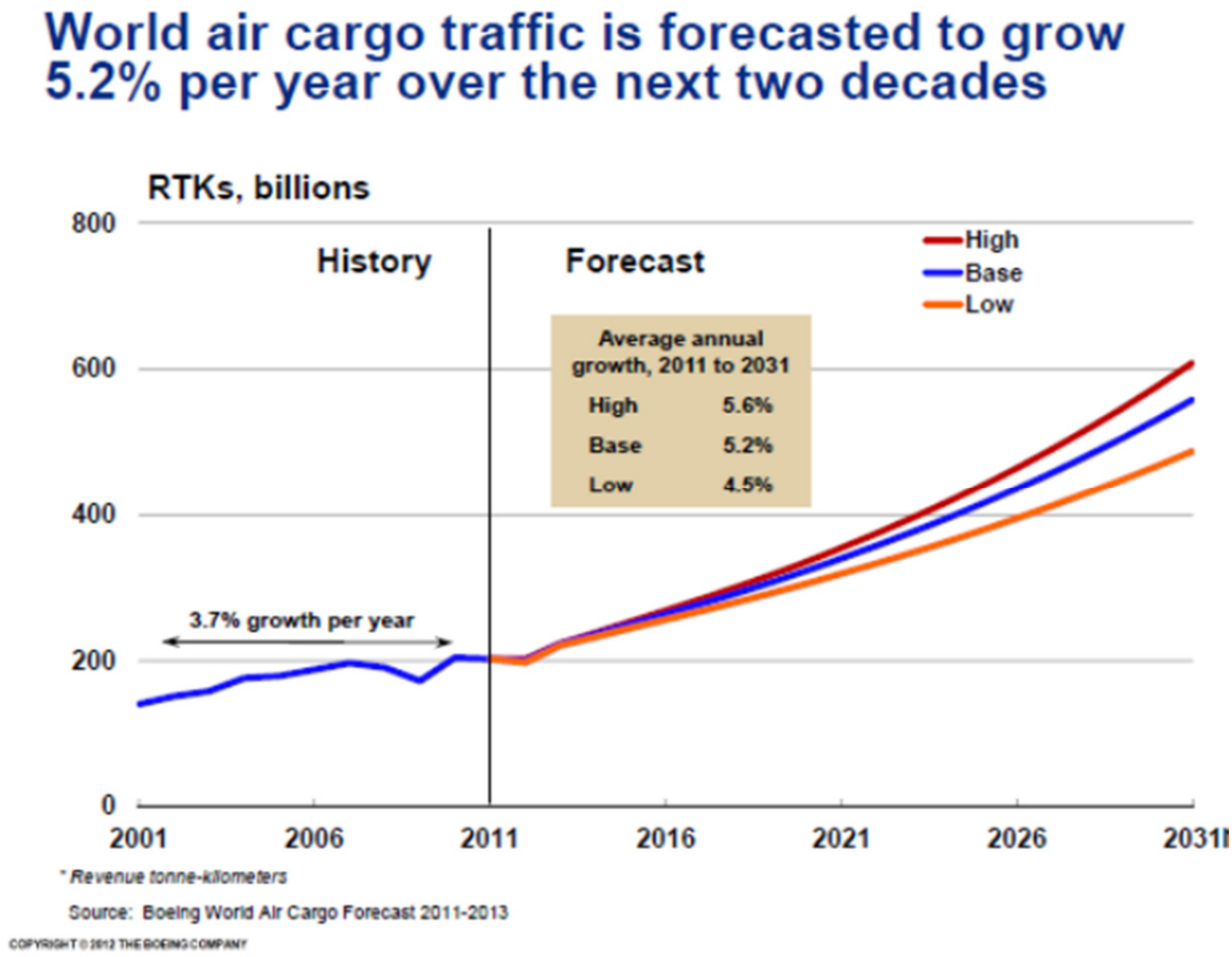
APPENDIX 2: NUMBER OF PASSENGERS MOVED BY SIX LARGEST TEXAS AIRPORTS



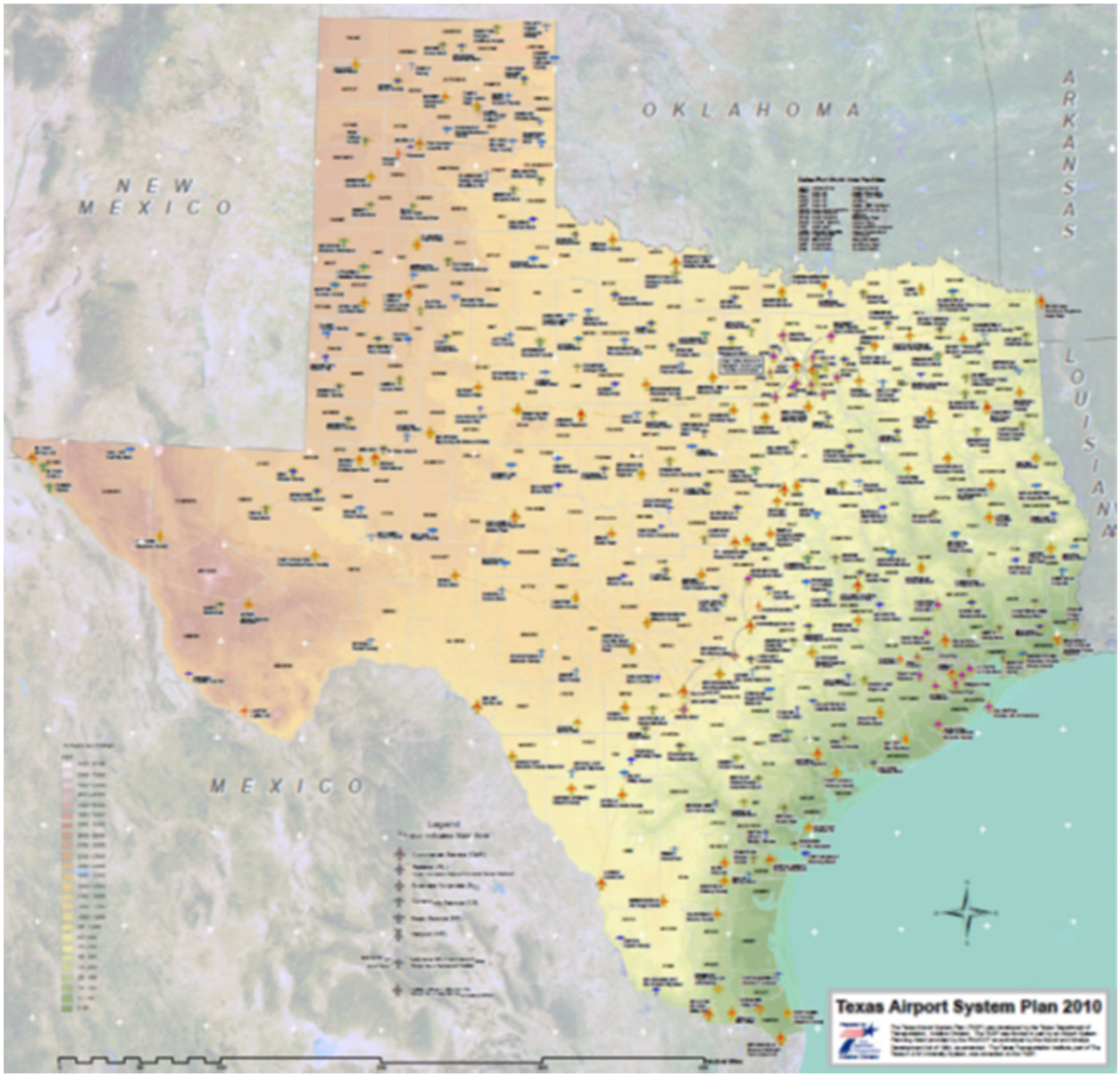
Source: Anna Aero: Airline News and Network Analysis

APPENDIX 3: AIR CARGO ECONOMIC FORECAST



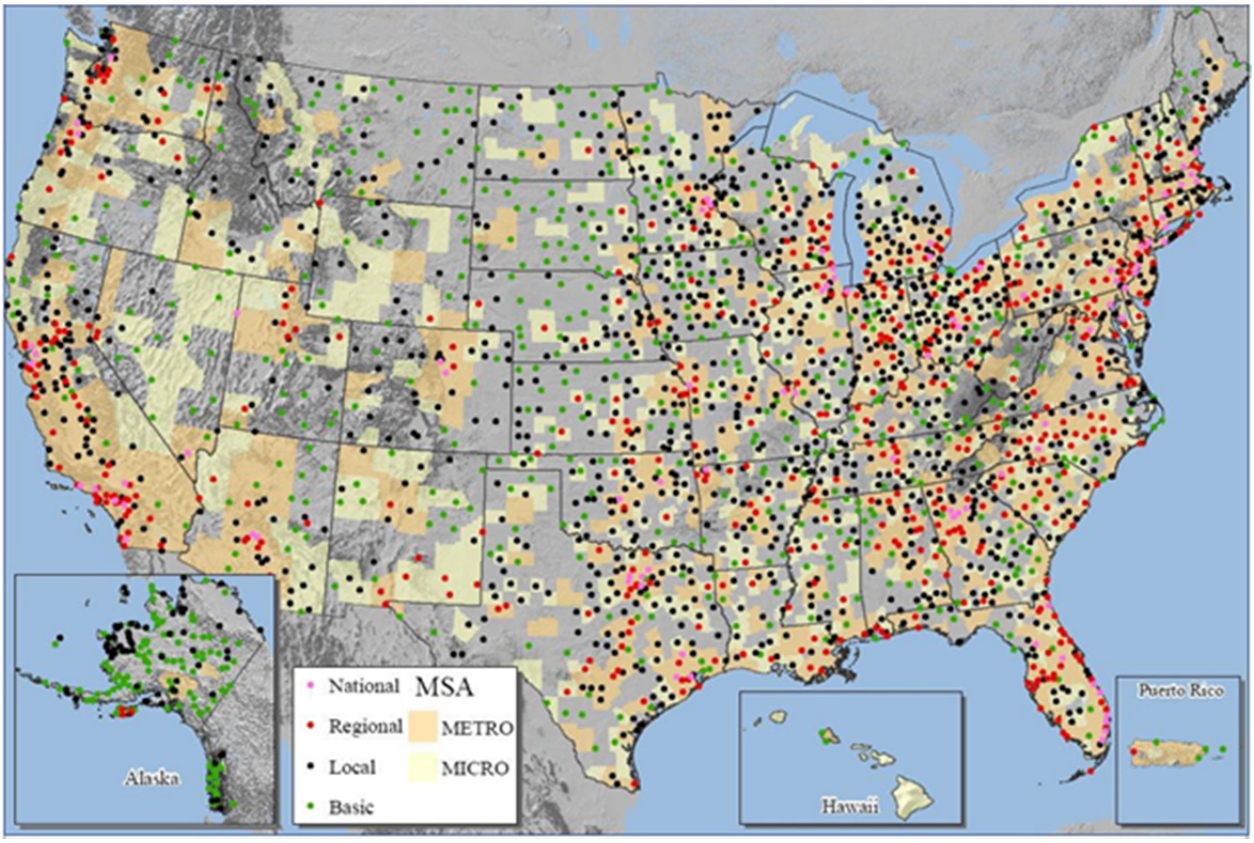
Source: Boeing World Air Cargo Forecast 2013-2014

APPENDIX 4: AIRPORTS UNDER TXDOT AVIATION SYSTEM PLAN 2010



Source: TxDOT Aviation Division, 2013

APPENDIX 5: MAP OF GENERAL AVIATION AIRPORTS IN FOUR CATEGORIES



Source: Federal Aviation Administration: *General Aviation Airports Reports*.

APPENDIX 6: USES OF GENERAL AVIATION AIRPORTS

Emergency Preparedness and Response	▪ Aeromedical Flights ▪ Law Enforcement/National Security/Border Security ▪ Emergency Response ▪ Aerial Fire Fighting Support ▪ Emergency Diversionary Airport ▪ Disaster Relief and Search and Rescue ▪ Critical Federal Functions	
Critical Community Access	▪ Remote Population/Island Access ▪ Air Taxi/Charter Services ▪ Essential Scheduled Air Service Cargo	
Other Aviation Specific Functions	▪ Self-Piloted Business Flights ▪ Corporate ▪ Flight Instruction ▪ Personal Flying ▪ Charter Passenger Services ▪ Aircraft/Avionics Manufacturing/Maintenance ▪ Aircraft Storage ▪ Aerospace Engineering/Research	
Commercial, Industrial, and Economic Activities	▪ Agricultural Support ▪ Aerial Surveying and Observation ▪ Low-Orbit Space Launch and Landing ▪ Oil and Mineral Exploration/Survey ▪ Utility/Pipeline Control and Inspection ▪ Business Executive Flight Service ▪ Manufacturing and Distribution ▪ Express Delivery Service ▪ Air Cargo	
Destination and Special Events	▪ Tourism and Access to Special Events ▪ Intermodal Connections (rail/ship) ▪ Special Aeronautical (skydiving/airshows)	

Source: Federal Aviation Administration: *General Aviation Airports Reports*.

APPENDIX 7: DEFINITION OF AIRPORT CATEGORIES

1. **Commercial Service Airports** are publicly owned airports that have at least 2,500 passenger boardings each calendar year and receive scheduled passenger service. Passenger boardings refer to revenue passenger boardings on an aircraft in service in air commerce whether or not in scheduled service. The definition also includes passengers who continue on an aircraft in international flight that stops at an airport in any of the 50 States for a non-traffic purpose, such as refueling or aircraft maintenance rather than passenger activity. Passenger boardings at airports that receive scheduled passenger service are also referred to as Enplanements.

    A. **Nonprimary Commercial Service Airports** are Commercial Service Airports that have at least 2,500 and no more than 10,000 passenger boardings each year.
    B. **Primary Airports** are Commercial Service Airports that have more than 10,000 passenger boardings each year. Hub categories for Primary Airports are defined as a percentage of total passenger boardings within the United States in the most current calendar year ending before the start of the current fiscal year. For example, calendar year 2001 data are used for fiscal year 2003 since the fiscal year began 9 months after the end of that calendar year. The table below depicts the formulae used for the definition of airport categories based on statutory provisions cited within the table, including Hub Type described in 49 USC 47102.

2. **Cargo Service Airports** are airports that, in addition to any other air transportation services that may be available, are served by aircraft providing air transportation of only cargo with a total annual landed weight of more than 100 million pounds. "Landed weight" means the weight of aircraft transporting only cargo in intrastate, interstate, and foreign air transportation. An airport may be both a commercial service and a cargo service airport.

3. **Reliever Airports** are airports designated by the FAA to relieve congestion at Commercial Service Airports and to provide improved general aviation access to the overall community. These may be publicly or privately-owned.

4. The remaining airports, while not specifically defined in Title 49 USC, are commonly described as **General Aviation Airports**. This airport type is the largest single group of airports in the US system. The category also includes privately owned, public use airports that enplane 2500 or more passengers annually and receive scheduled airline service. The airport privatization pilot program authorized under Title 49 U.S.C., Section 47134, may affect individual general aviation airports. Under this program, some private rather than public ownership provisions are allowed, and questions on it should be directed to the Airport Compliance Division.

Source: Federal Aviation Administration. *"Airport Categories."* 2012

APPENDIX 8: AVIATION AMBASSADOR PARTICIPATION AWARD LEVELS

Virginia's Aviation Ambassador Program Participation Award Levels

Participation Levels
Gold Level: Flight Jacket
1. Visit all 66 of Virginia's Public-Use Airports
2. Visit four (4) aviation museums in Virginia
3. Attend one (1) safety seminar in Virginia
4. Attend the Regional Festival of Flight
Silver Level: Flight Bag
1. Visit 50 of Virginia's Public-Use Airports
2. Visit four (4) aviation museums in Virginia
3. Attend one (1) safety seminar in Virginia
4. Attend the Regional Festival of Flight
Bronze Level: Ambassadors Cap and Lapel Pin
1. Visit 25 of Virginia's Public-Use Airports
2. Visit four (4) aviation museums in Virginia
3. Attend one (1) safety seminar in Virginia
4. Attend the Regional Festival of Flight

Source: Virginia Department of Aviation. "Virginia Aviation Ambassadors Program."